

**An evaluation of the Grover-Counter Test
for use in the assessment of black South African township children
with mental handicaps**

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ABSTRACT

**An Evaluation of the Grover-Counter Test
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The Grover-Counter Test (GCT) is evaluated for use with a group that has been neglected in terms of legislative provisions and services, as well as assessment procedures. Non-handicapped black scholars in racially segregated schools underperformed after the age of 7 years, and this finding is examined in detail.

A construct validity study was conducted on a sample of mentally handicapped children using the Griffiths Scales of Mental Development (Griffiths) and the Draw-A-Man (DAM) test. Mental age scores and IQ range scores were used in the correlations with the GCT. The GCT was found to correlate most highly with the expected subscales on the Griffiths; other significant correlations also support the construct validity of the GCT. No difference in performance was found between children with and without language deficits on the GCT; the group with language deficits performed significantly lower on all the Griffiths subscales. Significant correlations were found between the GCT and the DAM.

A criterion validity study found that the GCT predicted the level of functioning within the school. Inter-rater reliability and test-retest reliability was high.

Detailed discussion is provided of the ethical issues raised by this research. Material from the clinical aspects of the research is presented, as very little documentation of clinical work with this group exists.

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CHAPTER 1

INTRODUCTION

This research aims to evaluate the Grover-Counter Test (GCT) for use with a particular group, South African black township children who are mentally handicapped. These children may be seen as suffering under a double legacy of neglect and discrimination: The first legacy has to do with being black in South Africa, and the second has to do with being mentally handicapped and having special needs.

One of the primary aims in the development of the GCT was to permit a supplementary form of assessment of cognitive functioning in people with poor language abilities, whether expressive, receptive or both. Such difficulties occur frequently among people with mental handicaps, and, as will be discussed in Chapter 2, a number of the primary psychometric instruments used with mentally handicapped people are verbally loaded. This may lead to questionable assessment results.

This point is highlighted by the 1992 publication of the American Association on Mental Retardation on definitions and classification in the field of mental handicap.

Finally, and significantly, a general principle is that test results should not be unduly affected by limitations in receptive or expressive language capabilities. Such limitations may cause the test to be a measure of the problem rather than a valid assessment of intellectual functioning or adaptive skills (Luckasson et al., 1992, p.47).

It was for this reason that the GCT was developed. The choice of black, mentally handicapped children was based, first, on the practical need for this type of supplementary assessment tool experienced by the author in her work with black, handicapped people. Second, the form of the test, with minimal verbal instructions, facilitates translation into other languages. Third, the paucity of local research on assessment of black people with mental handicaps made this target group particularly important.

Richter (1990) points out that research in South African townships is difficult, and therefore rare, for a number of reasons. Practical obstacles include problems of access, such as long travelling distances, and the sometimes slow process of obtaining permission to work in township schools and other facilities. Language problems frequently constitute a major difficulty, and it is often difficult to find suitable accommodation for research purposes, for example, a quiet, adequately lit room in which to assess people. At times the safety of researchers in townships cannot be assured, although this was not a major factor over the period that the current research was conducted. McLoyd (1990), discussing research with minority children in the U.S.A., makes the important point that economic deprivation and the resulting acute and chronic stressors can make participation in research a significant burden, making the process of gathering subjects difficult.

Having decided to work with mentally handicapped township children, it was clearly important to document the challenges involved in this kind of research enterprise. In addition, given the very limited documentation of work with this population, it was decided to document information and observations from the clinical aspects of the research. These goals stand alongside the central empirical aim of the study, which is to evaluate the validity and reliability of the GCT in this particular group of children.

Before providing a brief outline of the thesis, some comments on terminology are in order. The use of the term 'black' in the South African context requires some clarification. With the influence of the Black Consciousness movement, 'black' has sometimes been used to refer to all South Africans without the vote in the dominant white House of Assembly. In contrast to this inclusive use of the term, I use the terms 'black', 'coloured' and 'white' in this thesis with reference to the *Population Registration Act of 1950*, (as amended), as this categorisation has determined access to resources of all kinds in South Africa. This issue of access to resources is crucial to understanding the position of the black sample group in this research study.

The use of these terms does not imply an acceptance of this classification system, or a belief that these categories represent mutually exclusive groups or cultures. West (1988) points out that this process of division into 'population groups' is a uniquely South

African development, in the service of the apartheid system. The 3 basic definitions of 'black', 'white' and 'coloured' (other groups, such as 'indians', are given separate mention) resort to many vague, undefined terms, mixing descriptions of physical features with general acceptance in the society. These terms have been used in inconsistent and arbitrary ways by those in power, with massive effects on people's lives. Despite the current important moves towards democratisation of the South African political system, massive inequities in access to resources remain, and can be expected to continue for some time.

Definitions of group membership have been changed according to the needs of government policy. For example, in an attempt to legitimise segregation, the government developed the homeland (or separate development) policy. With this new approach, membership of a particular black 'ethnic group' (previously called 'tribe') became important, in order for the government to develop the idea of 'proto-nations' which could move towards independence. At the same time, the 'tribal' differences among English- and Afrikaans-speaking whites was underplayed (Sharp, 1988). As West puts it:

The classification of the population is neither based simply on physical features of race, nor inspired simply by racist assumptions of innate difference and inferiority. The system exists to divide and control in terms of access to political rights and economic resources and thereby to maintain white power and privilege. (1988, p.110)

In the *Population Registration Act* (1950) the terms 'Black' and 'Indian' are capitalised while 'white' and 'coloured' are not. As Swartz (1985) points out, this raises a number of questions, for example whether blacks and indians were viewed as particularly culturally homogenous or foreign, or whether the capitalisation is simply a hangover from previous official terms for black people ('Native' and then 'Bantu'). In this thesis lower case letters are used throughout for the sake of consistency. The children in the research sample are further characterised as being township residents. 'Townships' are black residential areas, usually located away from the central town areas. Some details of the home environments of the children in the research sample are provided in Chapter 8.

A further term which deserves comment is 'mental handicap', which is used throughout this thesis, as it is the term used most commonly in South Africa. This is not universally favoured, however, and some of the issues involved in the terminology in this field are addressed in Chapter 2. Frequently in this thesis, children are referred to as having 'mental handicaps' (plural). This is an acknowledgement that there are often a number of different aspects to the handicap. A final point about terminology is that throughout this thesis, the use of masculine and feminine personal pronouns has been alternated, in order to avoid the use of 'he/she', which reads awkwardly.

Chapter 2 provides an outline of the context within which assessment and placement of black mentally handicapped children occurs. The history of legislation in relation to mentally handicapped people in South Africa is outlined. Black mentally handicapped people have been neglected in terms of legislative provision, as well as services and facilities. This chapter also provides brief background information on some of the features of the apartheid system, particularly the homelands policy and the education policy. Issues in the assessment of black mentally handicapped children in South Africa are presented against this background.

Chapters 3 and 4 deal directly with the GCT. In Chapter 3 the test is described. Its background in Piagetian theory is presented with particular attention to the difficulties in cross-cultural application of the theory. This background is used to examine some of the findings presented in Chapter 4, which traces the author's involvement in the clinical process of the development of preliminary norms on the GCT. Of particular importance is the pilot work on the use of the GCT with black (non-handicapped) township children.

Chapter 5 outlines the ethical issues and challenges encountered in the research, some perhaps inherent to research involving mentally handicapped children, some specific to the South African context. Given that this chapter attempts to 'unpack' some of the difficulties encountered in the research, it is written in a clinical style. Reflection upon these issues had a bearing on methodology, which is presented in Chapter 6. The aims of the empirical aspect of the research are spelled out in this chapter.

In Chapter 7 the main validating instrument, the Griffiths Scales of Mental Development (Griffiths, 1984), is introduced and research on South African applications of the scales is discussed. Methodological difficulties encountered with the Griffiths Scales of Mental Development in the research sample are presented, with particular attention to the effects of language deficits on performance. Once again, a clinical style of writing is employed in this chapter.

In Chapter 8 information obtained from home visits is presented. This information was originally gathered for clinical purposes, but is included here in order to provide detailed background information on those who participated in the research. In addition, this material raises important issues for clinical practice as well as for further research.

The formal results of the validity and reliability studies on the GCT are presented and discussed in Chapter 9. The tradition of a strict separation of results and discussion is not followed in this thesis, as it is clearer to incorporate some discussion immediately following tabled results. In Chapter 10 the main findings, issues and difficulties from the various aspects of the research are discussed, and an attempt is made to integrate the empirical and clinical aspects of the research.

At the time that this thesis was submitted, the Grover-Counter Test was being prepared for publication by the Educational and Psychological Test Development Section (EPTES), Human Sciences Research Council, Private Bag X41, Pretoria, 0001.

CHAPTER 2

CONTEXT OF ASSESSMENT AND PLACEMENT OF BLACK CHILDREN WITH MENTAL HANDICAPS IN CAPE TOWN

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1. Introduction:

In examining the context of the assessment and placement of black mentally handicapped children in Cape Town, a number of strands are drawn upon. The dearth of facilities for such children comes to the fore repeatedly in this research. In order for this situation to be understood, some historical background is required. This background will outline some of the most important legislative provisions for the care and education of people with mental handicaps from the time of the establishment of the Union of South Africa in 1910. This section relies heavily on the pioneering review by Foster (1990) of early legislation in the area of mental disorders in South Africa, and incorporates a brief discussion of certain key aspects of the apartheid system. The development of the National Council for Mental Health (now the South African Federation for Mental Health) will also be briefly presented. The history of neglect and discrimination in relation to black people with mental handicaps will be highlighted, and against this backdrop the current state of services is examined. This rather detailed background review is important, as the paucity of facilities for black mentally handicapped children had a considerable impact on this research, in terms of ethical issues and research design.

This is followed by a review of some of the debates about labelling, definition and assessment of mentally handicapped people. Some issues in assessment of people with mental handicaps in South Africa are then discussed, with particular reference to black people with mental handicaps.

2. Provision for black children with mental handicaps:

2.1 Legislative provision:

2.1.1 Overview prior to 1948

Early work with children with mental handicaps (referred to as ‘idiots’, ‘cretins’ and the ‘feeble-minded’ among other terms) in various parts of the world during the 19th century is described by Kanner (1964); this early work included the differentiation of subtypes of

disorders. In South Africa too, in the 19th century, separate mention can be found of 'idiots' and 'imbeciles' (Foster, 1990). Foster notes, however, that mental handicap was seen as a form of lunacy, both in South Africa and elsewhere. Thomson (1992) reports that only in 1913 were mentally handicapped people legally defined as separate from 'lunatics' in Britain.

While there were trends towards the more humane treatment of those with mental handicaps and mental illnesses in the 19th century (Anastasi, 1976), as mental handicap emerged as a separate category it became the focus of considerable moral judgment. The issues of appropriate care immediately became bound up with issues of social control (Foster, 1990). Thomson (1992), in discussing the 1913 Act in Britain, comments on "the assumption that the defective was dangerous, and reinforced the tendency to focus on control rather than care. In doing so it utilized moral fears about unmarried women as sexual dangers, and reinforced this by adopting eugenic ideas about the danger of them producing defective offspring" (p. 489-490).

In his history of the National Council for Mental Health, Vitus (1990) makes a similar point in his description of the establishment of the South African Society for the Care of the Feeble-minded in 1913 in Cape Town. He points out that the primary motivation for the establishment of this society was concern about prostitution among 'feeble-minded' women, who would now be described as mildly mentally handicapped. "A 'mental health' objective was only added when the government hinted that it would only recognise an organisation that embraced all the pathologies mentioned in the proposed *Mental Disorders Act no 38 of 1916*" (p.76). The concerns of this society no doubt influenced the *Girls' and Mentally Defective Women's Protection Act no 3 of 1916*, although this act probably also reflected general concerns about vice in the rapidly growing South African cities (Foster, 1990).

The Society became a national body, and the Cape Province Committee for Mental Hygiene emerged, which is the forerunner of Cape Mental Health Society. Both Vitus (1990) and Foster (1990) agree that while care, rehabilitation, education and pressure on

the legislative system were all part of the aims of this group, important also was control of the perceived threat of potential criminal and immoral behaviour.

The *Mental Disorders Act no 38 of 1916* was the first major piece of legislation in South Africa to present subcategories of mental deficiency. These subcategories were idiocy, imbecility and feeble-mindedness. An 'idiot' was defined as deeply defective and unable to guard against common physical danger, the 'imbecile' was seen as someone who could guard against such dangers but could not take care of himself or his affairs, while the feeble-minded person was described as unable to take care of himself or his affairs with "ordinary prudence" (in Foster, 1990, p.39). These categories were therefore based on behavioural criteria and reliance on mental testing would only come later, despite the fact that the first Binet-Simon scale had been published in 1905 (Anastasi, 1976).

The 1916 Act made no mention of racial segregation, but Foster (1990) points out that on an administrative level, racial segregation was firmly established, and proposes that "the institutionalisation of racism was perhaps so well established that it did not require legislation for its maintenance" (p.40). It is noteworthy that there was considerable discussion at this time of a theory of arrested development in black people (Dubow, 1991). While not universally held, the notion in some quarters that intelligence in black people was inherently inferior may have helped to obscure issues of mental handicaps among black people. Interest in physiological differences between the brains of blacks and whites was to take off in the 1920s and 1930s.

Foster (1990) describes how the 1920s were marked by considerable activity in the area of mental handicap, with psychological testing becoming increasingly important. Thousands of children were assessed on the Binet scales to establish the prevalence of mental handicap, and by the time the 1928-1930 Inter-Departmental Committee on Mental Deficiency (also called the van Schalkwyk Committee) began its work, IQ categories predominated in the description of mentally handicapped people. The committee provided the following subcategories: Idiots were defined as falling into the IQ range below 25, imbeciles fell into the range 25-40, with a border zone to 50, the feeble-minded were classified as having IQ scores within the 45-60 range, with a border zone to 75, and the

subnormal were described as having IQ scores between 60 and 80 (ibid, p. 50). All those below the 'subnormal' level were legally certifiable as 'defective' and were considered ineducable. For this group, institutionalisation was all that was available outside of family care. The neglect of this group continued until the 1970s (ibid).

The *Vocational Education and Special Schools Act no 29 of 1928* catered for subnormal children, and once again, although there were no racial specifications in this Act, it referred to white children as no facilities existed for blacks. By the time the *Special Schools Act no 9 of 1948* was passed, the cutoff of those deemed to be educable had dropped somewhat, and those falling into the IQ range of approximately 50-80 were placed under the Provincial Education authorities. Those falling below this level became the responsibility of the Department of Health, having previously been the responsibility of the subdivision of Mental Hygiene in the Department of the Interior. Foster (1990) comments that the Union Education Department was also involved and there was considerable difficulty in establishing an organisationally efficient approach to the field of mental deficiency. The problems of multiple departmental control and the resulting inefficiency extend to the present.

According to a report by the Commissioner of Mental Hygiene in 1931, feeble-mindedness among black people was considered to hardly exist (ibid). Foster (1990) argues that for those in authority, the complete lack of services for black people with mental handicaps was overshadowed by the dominance, in the 1920s and 1930s, of the poor white issue. A central concern here was about poor whites associating with coloured and blacks, or, as Foster puts it, black and white alignment across class lines. Most important, blacks continued to be regarded as intellectually inferior, and this was supported by the interpretations of the results of early intelligence testing, particularly the work of Fick, which will be returned to later in this chapter.

In summary, prior to 1948, differential categories of handicap were accepted, with only the highest levels being regarded as amenable to intervention. While not explicit in the legislation in the mental health field, racial inequity was entrenched, and mental handicap among black people was not recognised officially at all.

2.1.2 Post 1948: Legislation in the context of apartheid

Legislation dealing with mental handicap after 1948 has to be seen in the context of the broader system of apartheid instituted by the Nationalist government after coming into power in 1948. Two areas will be briefly discussed: Segregation in education, and the homelands policy.

Prior to 1953 black education was partly controlled by a number of bodies: The state, the provincial administrations, missionary societies and black communities themselves (Horrell, 1982). In 1953, the Bantu Education Department was formed (the term 'Bantu' was officially used until 1978), and state control was extended by the withdrawal of subsidies to mission schools and the closing of black schools in white-designated areas. Black communities were expected to raise funds to establish and maintain schools. Over the years state funding has been grossly inadequate and disparities between per capita spending on black and white education have been enormous (see Horrell, 1982 and Nasson, 1986). Despite more state attention to black education after the school revolts of 1976/7 and 1980, conditions generally remain appalling and schools continue to be important sites of protest and struggle. There is still no compulsory schooling for black children. In 1986, Nasson reported that half of black and coloured pupils dropped out having had 4 years or less schooling, and were therefore functionally illiterate. In addition to the profound impact this education policy has had on black communities generally, it has had an impact on the identification of handicaps. As Sinason (1992) and Molteno (1990) point out, mild levels of handicap are only detectable in the context of the availability of education and literacy.

Further, once the homelands policy was introduced, independent or partially self-governing black territories (designated by the *Promotion of Bantu Self-government Act of 1959*) took over education (including special education) in these areas. The homelands policy essentially aimed to make all black South Africans citizens of 'independent' black states, and therefore foreigners in white-designated areas. Black people had rights to live in white-designated areas only under extremely strict conditions (Black Sash, 1974), and

very wide definitions were used to impose homeland citizenship. People who had lived all their lives in Cape Town, for example, found themselves formally citizens of Ciskei, when it became 'independent' in 1981 (Reynolds, 1989).

The homelands policy aggravated the situation whereby, from 1968, blacks were only allowed to enter white-designated areas on one year contracts, thus preventing them from having the continuous employment or residence that would qualify them for legal residence. Municipalities and employers were made responsible for housing (the workers generally being expected to live in bachelor quarters), and the housing shortage was then used as a reason for refusing entry. Passes and permits controlled virtually every aspect of a black person's life (Black Sash, 1974) and a new class of criminals were created - pass law offenders. Economic conditions in the homelands are such, however, that imprisonment for most of the year would still allow a black worker in a white-designated area to earn massively more than if he or she had remained in the homelands (Reynolds, 1989).

In addition to the above, the 'Coloured Labour Preference Policy' was instituted in the Western Cape in 1954 (Horrell, 1982), and was adhered to strictly until 1984. This policy created particularly strict controls on black people wishing to enter the Western Cape. New black workers could only be employed if no suitable coloured workseekers could be found, or alternatively, black people with residential qualifications.

It is against this backdrop that the legislation passed during this period should be seen. In the 1960s a number of pieces of legislation were enacted to formally separate, on racial grounds, the education and training of mentally handicapped people. Special education of children from different population groups were placed under separate authorities. The Acts for coloureds and indians refer to children who deviate from others on physical or mental grounds. Notably, however, the *Bantu Special Education Act no 24 of 1964* makes reference to a number of physical problems such as epilepsy and deafness, but omits mental handicap completely. The reasons for this are not clear, but the effect was that provision for the education and training of black children with mental handicaps was still not made. This silence in relation to black mentally handicapped people was not restricted

to state legislation. Vitus (1990) reports that there was virtually no mention of black, coloured or indian people with handicaps prior to 1965 in documents of the National Council for Mental Health.

Alongside this formal racial segregation, the post-apartheid era did usher in some changes. Foster (1990) points out that within the broader field of mental health, there were changes from custody to treatment, moves towards community care, and increased recognition of the need for education and training within the field of mental handicap. The National Council for Mental Health was instrumental in pressing for a commission of inquiry into provisions for mentally handicapped people (Eichhorn, 1985), and in 1965 a commission of inquiry was established, chaired by Professor A.J. van Wyk. This commission gave special attention to the 'ineducable' group, and made education of trainable children compulsory (Foster, 1990). In general, IQ scores of 30 and above were required in order to qualify as 'trainable' but the van Wyk report emphasized that IQ scores should not be used inflexibly. The 'untrainable' group remained either in day centres run by mental health societies and other welfare organisations, or in institutions, and only in the 1970s was the term 'untrainable' replaced with 'special care', and structured programmes developed.

The van Wyk Commission's proposals took legislative form in the *Mentally Retarded Children's Training Act no 63 of 1974*. Black children with mental handicaps were at last recognised in the *Education and Training Act no 90 of 1979*, which covers educable and trainable children. Facilities remained hopelessly inadequate, as will be discussed in the next section.

In summary, this brief history of legislation in the area of mental handicap in South Africa raises many interwoven strands. The use of legislation around mental handicap as a form of social control is highlighted by Foster (1990), and this could provide one reason why the higher-functioning, more visible and mobile group of handicapped people were addressed first in the legislation. In addition, however, the legal developments reflect the growing awareness that people with more severe levels of handicap can benefit from training and stimulation. Most striking, from the point of view of this research, is the 'invisibility' of black needs to those in power in the early years. After 1948, there is a

picture of systematic avoidance of responsibility for black people with mental handicaps, in the context of neglect of other needs, such as education, health care and housing. This was backed up by the homelands policy, and, in the Western Cape, by the Coloured Labour Preference Policy. The situation that was created by this is described in the next section.

2.2 Facilities:

2.2.1 Structure of services

Reviewers in this area repeatedly comment on the extraordinary degree of fragmentation of services to people with mental handicaps, particularly due to the apartheid system (for example, Cooke, Hollingshead & Tickton, 1990; Eichhorn, 1985; Foster, 1990). Recent history and current structure is related to the tricameral system introduced in 1984, by which coloured and indian houses of parliament were established, with firm control remaining with the white House of Assembly. Blacks had no representation at this level. Prior to 1984, white, coloured and indian welfare services all fell under the Department of Health and Welfare, while black services were separate. After 1984, various areas of state functioning were designated 'general' or 'own' affairs; all the social services fell into the latter category, and so each house set up its own departments to deal with education, health and welfare. Black health and welfare fell under provincial administrations and the Department for Education and Training took responsibility for black education, including training centres for children with mental handicaps. It must be noted here that the term 'training centres' has recently been replaced by the term 'special schools'. Later in this thesis, therefore, reference is made to Nompumelelo Special School, but for purposes of this historical outline, the term 'training centre' is retained.

After 1984, there were 14 departments of health within South Africa, including the homelands (Cooke et al., 1990). If one takes into consideration education and welfare, 28 different departments are involved with services to mentally handicapped people (Vitus, 1990). It is unsurprising that terms such as "administrative nightmares" (Foster, 1990, p.62) are used to describe the implications of this structure. Facilities that attempt racial

integration, particularly, face enormously complicated bureaucratic procedures in order to obtain subsidies. Cooke et al. (1990) discuss the policy of privatisation which the state has promoted in the welfare field since 1985. This is viewed by these authors as an attempt by the State to renege on its responsibilities, and they point out that this policy stands in strong contrast to the state response to the 'poor white' problem in the 1930s.

Gross disparities remain in the financial distribution of welfare (Cooke et al., 1990), and the disparities in disability pensions was a specific area in which the National Council for Mental Health has made representation for many years (Cooke et al., 1990; Vitus, 1990). Only in 1993 has parity in disability pensions been achieved, although inequalities remain. Whites, for example, have access to relief payments until their applications for disability pensions are processed (M. de Benedictus, personal communication, February, 1994). Given the economic conditions, high levels of unemployment and lack of a social welfare network, families are often forced to use the handicapped member's disability grant for basic needs.

2.2.2 Surveys of facilities

In the 1960s mental health societies began day centres for mentally handicapped black and coloured children despite the lack of government subsidies. After the *Education and Training Act of 1979*, facilities remained negligible, and it was only in the mid to late 1980s that there was open recognition of the state of services for black people (Vitus, 1990).

In 1984 a survey was carried out by the Western Cape Forum for the Mentally Handicapped (Grover, Cooke, Hollingshead & Rip, 1987). The Western Cape Forum is a regional body of the Division for Mental Handicap of the National Council for Mental Health, and provides a link between various organisations working with mentally handicapped people. The Forum also conducts research, provides training and publishes teaching material.

The survey found that only 5.4% of estimated needs were met in the black community in the Western Cape, whereas 36% and 86% of the need was met in the coloured and white communities respectively. While certain kinds of services were inadequately provided across racial lines (for example, facilities for early intervention), the most glaring area of deficiency was in services for black mentally handicapped people at all levels. It must be noted that the figure of 5.4% is optimistic, as census figures are known to underestimate black township populations (Van der Westhuizen, 1990).

Other surveys in the mid-1980s also highlighted the massive need for facilities in black and coloured areas (ibid), including Eichhorn's 1985 study of facilities for trainable mentally handicapped people in coloured and black areas of the Western Cape. A national survey was carried out by the National Council for Mental Health in 1985 (van der Westhuizen, 1990) and once again it was found that only 8% of the estimated needs of blacks were met, while 28.4% of the need in coloured areas was met, 28.5% in indian areas and 62% in white areas. More than half the facilities were for whites.

Particular inadequacies were noted in pre-school facilities and special care facilities, and it was noted that there was a virtual total lack of work or occupational facilities for black people. These surveys highlight the lack of continuity of service from pre-school level, through training centre or special care centre, to facilities for adults. Once again, the most significant finding is the confirmation of the negligible provision for black people with mental handicaps. This means that many mentally handicapped people are cared for exclusively by their families, and many handicapped children attend regular schools for years, repeating the early standards or being promoted on the basis of age. Apart from the state funding for training centres, services to black people are provided mainly by mental health societies (Cooke et al., 1990), although church-based groups and parent self-help groups also provide some services.

Developments subsequent to these surveys include the establishment of three special care centres by Cape Mental Health Society, two of them in black areas. A programme of developing 'neighbourhood-based training groups' is being established in order to meet the needs of the large numbers of children in black areas who need special facilities (T.

Tickton, personal communication, January, 1994). Cooke et al. (1990) point out however, that while innovative programmes might be needed to meet the huge backlog of services in black areas, such programmes might be seen as second-rate by black parents, who understandably expect the same kind of services that have been available to whites - expensive training centres and special care centres. This is just one of the difficulties facing planners of services.

2.2.3 Cape Mental Health Society and Nompumelelo Special School

Cape Mental Health Society (CMHS) is one of the constituent bodies of the National Council for Mental Health (now the South African Federation for Mental Health), the development of which is described in section 2.1. CMHS provides services to people with mental handicaps as well as people with chronic psychiatric problems. The Society provides social work services, protected employment, special care facilities, residential facilities and social clubs. CMHS also undertakes mental health promotion and advocacy of rights of people with mental illness or handicap.

In order to establish a training centre, a non-governmental organisation (NGO), such as Cape Mental Health Society, enters into an agreement with the relevant education department and becomes the sponsoring body of the training centre (Cooke et al., 1990). The NGO nominates the majority of members of the committee that will run the centre. In order to obtain subsidies from the Department of Education and Training, 5% of the building costs have to be raised by the sponsoring body and/or the committee, after which the remainder of the building costs are subsidized (Eichhorn, 1985). Nompumelelo School ('nompumelelo' means 'success') was established in 1978, in a church hall, due to the difficulty with access to land and buildings in black areas in the Western Cape. Considerable personal efforts on the part of parents and CMHS social work staff made the establishment of Nompumelelo School possible. The School moved to its current premises in Guguletu in 1988 and extensions are being built in phases as funding becomes available.

The age range of the children attending the school is 5-18 years, although sometimes the age limit is extended to 20 years. Children are referred to the school from hospitals, clinics, schools and welfare organisations, and these referrals are primarily channelled through the waiting list at CMHS. According to the principal of the school, prospects for appropriate employment after leaving the school are poor (N. Mxube, personal communication, January, 1994). Most of the school-leavers require protective workshop placement, and there is no such facility in Guguletu. In order to qualify to enter the nearest workshop, the young people must be able to use public transport. In addition, waiting lists for workshop placement are long.

At the time of this research, there were 9 classes in the school catering for about 100 pupils. Two of the classes were 'adaptation' classes, catering for the mildly handicapped pupils who, in the white education system, would be accommodated in special classes in regular schools at primary levels, and would go into special schools for training at secondary level. No special classes existed outside Nompumelelo School at the time of the research. Grover (1990) points out that aside from a diploma course offered by the University of South Africa for qualified teachers, there is no generally accepted training for teaching staff, although organisations such as Western Cape Forum offer seminars.

2.2.4. The way forward

The debates around normalisation and de-institutionalisation, that have engaged workers and consumers of social services in other parts of the world since the 1960s, have not emerged in official circles in South Africa to any significant extent (Foster, 1990). Foster points out that in South Africa, with its history of racism

it may be held to be 'progressive' to call for greater 'community' care and placement (in line with the deconstructing tendency), yet in apparent contradiction to demand better facilities, experts, professional training and services in the case of black persons where few such facilities exist. It would also be consistent with a 'progressive' stand to support a unified national and greater government control (a national health policy), that is, against a deconstructing approach, in contrast to the present system of fragmentation and differential services to black and white. (1990, p. 65)

Cooke et al. (1990) comment that “there does not appear to be a strong call in South Africa for mainstreaming” (p.105). Black schools are characterised by a shortage of teachers, large classes and frequent disruption. Cape Mental Health Society therefore supports the development of separate facilities as the current school system is clearly not in a position to meet the needs of handicapped pupils (ibid). CMHS is, however, encouraging integration at pre-school level (T. Tickton, personal communication, January, 1994).

The National Education Policy Investigation (NEPI, 1992) acknowledges the international moves to facilitate the rights of people with handicaps to participate as equal citizens, and to have access to the ‘least restrictive’ educational environment, and sees this as a desirable long-term goal. Until the required back-up resources are developed, however, “a policy of total mainstreaming has the same effect as a policy of non-provision” (ibid, p.80). NEPI recommends ‘progressive mainstreaming’ by which children are slowly absorbed into the mainstream as educational resources develop. The existing special facilities and their staff would ultimately take on a supportive function in relation to mainstream teachers.

It should be noted that teachers in black schools are dealing with very large numbers of children who have special educational needs due to apartheid education policies and the resulting protests and boycotts among students. Compulsory schooling has never been enforced in black communities, partly because there were often not enough school places. In addition, black families had to pay for schoolbooks, while whites were subsidised (D. Donald, personal communication, February, 1994). Many parents simply could not afford to send their children to school. As a result of this history, there is a large percentage of schoolchildren referred to by NEPI as having special educational needs (SEN) due to ‘extrinsic’ factors. Considerable development is required before the system can accommodate those with “severe and chronic intrinsic SEN” (ibid, p.78).

In many parts of the world significant re-evaluations of practice and theory are taking place on the basis of decades of experience of normalisation (see for example, Brown & Smith, 1992). In a period of review and reform, South Africa is in a position to learn from the international experience of normalisation.

3. Issues in definition and assessment:

3.1 Broad trends in the labelling, definition and assessment of mental handicap:

3.1.1 Labelling

In section 2 some of the early terms used to denote mental handicap are mentioned, idiot and imbecile among them (Kanner, 1964, and Sinason, 1992, provide interesting information about the derivations of the many terms used in this area). More recently the terms mental subnormality, mental deficiency, mental retardation and mental handicap have been widely used. In Britain, the terms primarily used are 'learning difficulties', 'learning disabilities' or 'intellectual disabilities'. In America 'mental retardation' is used by the American Association on Mental Retardation (AAMR, which used to be called the American Association on Mental Deficiency) and this term is also used by the American Psychiatric Association, although 'developmental disabilities' has favour in certain quarters (Sinason, 1992).

This extraordinary rate of turnover is referred to by Sinason (ibid) as a process of euphemism. The changes in terms have generally been made in order to foster more positive images of handicapped people, as well as to be more acceptable to handicapped people and their families (Hastings, Sonuga-Barke & Remington, 1993). However, it appears that negative attitudes about mental handicap 'catch up' with new terms, which become contaminated and have to be changed once again.

The process of renaming has also been evident in South Africa, although not as actively as elsewhere in the world (and not necessarily in the same sequence). It is only very recently that the Law Commission accepted the recommendation that the terms 'idiot' and 'imbecile' be removed from the *Sexual Offences Act No 23 of 1957* (T. Zabow, personal communication, 25/1/94). The National Council for Mental Health changed the name of its Division for the Mentally Handicapped Child to the Division for Mental Retardation in 1964 due to the increased influence of American nomenclature over the British terms.

Recently the term 'mental handicap' has come back into favour (Vitus, 1990), and this term is used throughout this thesis.

For black people in South Africa, with the long history of neglect of majority needs as well as the special needs of the minority, the acquisition of the label of mental handicap may be highly beneficial. State disability grants become available, for example, and in communities marked by mass unemployment and poverty, such grants may be a lifeline for entire families. The debates about the negative aspects of labelling, like the debates about normalisation, assume a background of access to special services and support.

3.1.2 Definitions and prevalence

MacMillan, Gresham and Siperstein comment that "almost all definitions offered since the early 1900s have differentiated the mentally retarded population on either the degree of retardation or etiology" (1993, p.332). Four levels of handicap have commonly been recognised since Grossman's definition in 1983 (MacMillan et al. *ibid*). According to the Diagnostic and Statistical Manual, 3rd edition (American Psychiatric Association, 1980) mild mental handicap corresponds to the IQ range 50-70, moderate mental handicap corresponds to the range 35-49, severe handicap is diagnosed at 20-34 points, and profound handicap corresponds to IQ scores under 20. A commonly used point of division is the score of 50, with those scoring above 50 being designated as mildly handicapped, and those below as severe (for example, Molteno, 1990). An important international change in the definition of mental handicap came in 1959 when the AAMD, responding to dissatisfaction with reliance on IQ scores alone, incorporated the concept of adaptive behaviour into the definition of mental handicap (Luckasson et al., 1992).

The situation is complicated in South Africa by the fact that an IQ score of 30, mid-way through the moderate range, is used as the cut-off for admission to training centres (see section 2.1.2). Within the South African context, IQ scores are stressed at the bureaucratic level (Davidson & Dickman, 1990), and this is discussed further in section 3.2.

Prevalence is dependent upon definition. Following the World Health Organisation figures, the prevalence of severe mental handicap (IQ<50) is seen as about 3-4 per thousand, while prevalence of mild mental handicap is 20-30 per thousand (Molteno, 1990). The massive preponderance of mildly handicapped people, whose handicap generally has no clear medical aetiology, has led certain authors to question why the field remains so much under the dominance of medical discourse (Lea & Foster, 1990). Due to the lack of a medical diagnosis, the labelling of the mild group has been controversial, being called by such terms as 'cultural-familial', 'intergenerational' (MacMillan et al., 1993, p.326) and 'socio-cultural' (Lea & Foster, 1990, p.15). Diagnosis in this group is frequently not made until school entrance, and people diagnosed as mildly handicapped are primarily from the lower socio-economic levels (MacMillan et al., 1993).

The 1992 AAMR definition (Luckasson et al., 1992) aims to establish a functional model for mental handicap, in order to provide an alternative to the medical and psychiatric definitions. To do this, Luckasson et al. move away from categories of severity to descriptions of the intensity of support required (intermittent, limited, extensive and pervasive). This is criticised by MacMillan et al. (1993) as imprecise and less reliable than the system it replaces. MacMillan et al. also take issue with Luckasson et al. for introducing a new system for describing adaptive behaviour, which does not fit with any available psychometric measures.

Luckasson et al. (1992) regard the upper limit of handicap in their definition (IQ of approximately 75) as remaining the same as before, and refer to previous definitions by the AAMR which extended the upper limit from 70 to 75. Luckasson et al. argue for a "zone of uncertainty" (p.37), for example from about 66-74, which takes into account the standard error of the mean on intelligence tests. The reference to the IQ score of 75 is seen by MacMillan et al. (1993) as a significant extension of the upper limit, however, and they point out that a change from IQ 70 to IQ 75 makes a diagnosis of handicap possible in twice as many people. They argue that this may "reintroduce issues of overrepresentation of black children in the classification of mental retardation" (p.328). This refers to the long-standing controversy in America over the mislabelling of children who belong to minorities and/or who are socially disadvantaged (Cegelka, 1978). It is clear that relatively

small changes at a psychometric level of description can potentially have considerable social implications.

3.1.3 International trends in assessment of mental handicap

Assessment approaches in this field have developed in response to changing definitions and approaches to intervention. With the widespread move away from institutionalisation, and the increasing awareness of the benefits of intervention for most mentally handicapped people, reliance on global measures of mental handicap have fallen from favour, as they are “of little help in developing an educational curriculum or wide-ranging training programme” (Hogg & Raynes, 1987, p.3). Behavioural interventions have come to the fore, and in line with this, criterion-referenced forms of assessment have become increasingly important.

Intelligence testing has come under criticism on a number of grounds. It has been found that performance on tests of general ability are strongly affected by non-ability factors, such as understanding of the task (Richter, 1990). Motivational issues are very important to take into account, especially in people with long histories of failure experiences. Reviews of research on personality development in handicapped people can be found in Balla and Zigler (1979), Zigler and Hodapp (1986) and, from a psychoanalytic perspective, Sinason (1992). Considerable research has been conducted into the issue of stability of IQ scores (see, for example, Mittler, 1970) and there is strong evidence that large shifts in scores can occur over time. In addition, intelligence tests have not been found to predict occupational success (Sattler, 1974). Norm-referenced tests tend to be performance orientated, and reasons for success or failure tend not to be explored (Feuerstein, 1979). Finally, intelligence testing has been used in malevolent ways, especially in terms of the arguments for genetic inferiority of particular groups.

A number of authors argue that **norm-referenced tests**, such as IQ tests, do still have value, as long as they are not used alone and results are appropriately interpreted (Berger & Yule, 1987; Grover, 1990). Berger and Yule point out that normative assessment can help to prevent such errors as overestimation of general abilities in socially outgoing

children. On the other hand, assessment on a verbally loaded test such as the Stanford-Binet can lead to a child with a specific language problem being categorised as mentally handicapped. (Interestingly, the most recent revision of the Stanford-Binet attempts to reduce the verbal loading, but is regarded as being of limited use with handicapped people by Wilson (1992) because of its relatively high baseline.) While IQ tests are widely seen as predictors of educational achievement, Berger and Yule comment that this is more reliable below IQ scores of 50, and report a study in which it was found that “there were as many children with measured IQs below 70 doing reasonably well in ordinary (mainstream) primary schools as there were children with IQs above 70 who were in a special school for slow learners” (1987, p.24). In an integrated educational system this is not a problem, but in a segregated system with overreliance on IQ cutoff scores, this has serious implications. Stability of IQ scores is also greater at the lower levels (ibid).

Developmental assessments are very commonly used to assess young children who might have handicaps, and these tests are derived from a downward extension of psychometric procedures to produce a Developmental Quotient (DQ) instead of an IQ score (Hogg & Raynes, 1987). These are also norm-referenced procedures. Frequently these kinds of tests allow scores to be established for various areas of functioning, such as fine-motor coordination and language development. The Griffiths Scales of Mental Development, used in the current research, were developed in the tradition of Gesell’s developmental schedules (Berger & Yule, 1987)

Once adaptive functioning entered the definition of mental handicap in a formal way, **assessments of adaptive behaviour** became increasingly important, and there are now a large number of available instruments (see Raynes, 1987). Hogg and Raynes (1987) point out that adaptive behaviour assessments and IQ assessments are converging from a technical point of view, as adaptive behaviour tests are norm-referenced. Raynes makes the important point that, as with IQ tests, tests of adaptive behaviour should not be used alone in decision-making. “They are not surrogates for information either about IQ, motivation or personality and should not be used as if they were a total statement about a person’s abilities, aptitudes and adaptability” (1987, p.103). Raynes reports that tests of

adaptive behaviour are no better than IQ tests in predicting success in community placements.

One of the important limitations of norm-referenced tests is that they do not translate directly into curriculum planning. Items are chosen for discriminative value and often trainable items are explicitly excluded (Kiernan, 1987). **Criterion-referenced tests**, on the other hand, “can be defined as procedures in which items represent ‘achievements’ which are of importance in the individual’s adjustment to his or her environment or which reflect the outcome of teaching or training” (ibid, p.158). This approach to assessment is an important source of content for behavioural forms of intervention, and is based on “theories of what represents ‘crucial’ behaviours” (ibid, p.162). An important aspect of some criterion-referenced tests is that they can be used by non-professionals; an example of such a procedure is the Portage scheme, widely used in Britain.

Piagetian tests occupy an interesting position. Hogg and Raynes (1987) point out that some Piagetian tests are partially norm-referenced, referring specifically to the Uzgiris and Hunt scales, for which mental age equivalents were developed. However, Hogg (1987) comments that certain Piagetians have considerable reservations about such formalisation (for example, Woodward, who has done a considerable amount of work in the application of the Piagetian model to mentally handicapped people), and the argument here is based on the importance of an exploratory approach.

The strength of the Piagetian approach is that there is a detailed theoretical framework for the understanding of cognitive processes, and a primary interest in process rather than product. Woodward (1970) discusses the usefulness of Piagetian approaches in very young or unco-operative testees, who might be untestable using a more formal, standardised approach. Hogg (1987) describes a number of assessment techniques within the Piagetian tradition, including play-based assessments (see also Hellendoorn & Hoekman, 1992; and Kim, Lombardino, Rothman & Vinson, 1989 for investigations of play, and play-based intervention with mentally handicapped children).

One of the strands that is investigated within the Piagetian framework is the 'developmental-difference' controversy. This controversy centers around the question of whether developmental principles are adequate to describe the behaviour of handicapped people with no evidence of central nervous system damage, or whether specific differences should be invoked (Zigler & Balla, 1982). Overall, it seems that the developmental position is supported, and that mentally handicapped people develop according to the same principles and in the same sequence as non-handicapped people (Hogg, 1987; Zigler & Balla, 1982). Factors such as brain damage, epilepsy and poor environment, can of course, disrupt development and lead to specific deficits.

While work within the Piagetian tradition is often critical of the non-exploratory approach of standardised psychometric tests, there is recognition that psychometric tests are useful in diagnosis. Developmental tests are also seen as valuable in highlighting specific areas of difficulty. A number of researchers have found significant correlations between Piagetian tests and standardised IQ tests (Gottfried & Brody, 1975; Hogg, 1987).

Researchers and clinicians using Piagetian forms of assessment argue that this kind of understanding can be used to provide information for interventions drawn from other theoretical models, particularly behavioural interventions. Shakespeare (1970) points out that Piagetian methods can inform placement decisions. A child who is functioning towards the end of the sensori-motor stage has an understanding of object permanence, some verbal comprehension, and can utilise adult help with tasks. Without other contra-indications, such a child would be able to benefit from training centre placement.

Woodward (1970) argues that results on such assessments can be translated into occupational skills for adults as well, but others question the utility of the Piagetian model in this regard (for example, Elkind, 1971). This issue is dealt with to some extent in Chapter 3. A key issue in the translation of results into practical use is likely to be the sophistication of the examiner. As Davidson and Dickman (1990) point out, considerable training is required in order to work in a sensitive manner within the Piagetian framework, and such training is not currently available in South Africa.

An important body of work in the Piagetian tradition is that dealing with applications in cross-cultural contexts. This is dealt with in detail in Chapter 3.

3.2 South African assessment practices:

3.2.1 Historical overview

The history of mental testing in South Africa, and the development of the psychometric endeavour, can be tied to political and social issues. Dubow (1991) discusses the way in which intelligence testing, supposedly scientific and objective, was looked to for a solution to the 'native question' - "it was believed that hard evidence of Africans' innate capabilities would play an important role in establishing their appropriate position in civil society" (Dubow, 1991, p.150). It has already been discussed how low scores among blacks were seen as proof of immutable, hereditary factors, while low scores among whites was interpreted in terms of environmental factors.

Important here is the work of Dr M.L. Fick, a psychologist attached to the Mental Hygiene section of the Department of the Interior. Fick conducted research, using mainly non-verbal tests, on black scholars in the 1930s. In his book, *The Educability of the South African Native*, published in 1939, he argued that most black South Africans could not complete primary school (Dubow, 1991). The view that the poor test scores obtained by blacks represented a permanent deficit was by no means universally accepted at the time, and Biesheuvel (1943), among others, presented detailed criticisms of Fick's work.

As mentioned earlier in this chapter, concerns with the 'poor white problem' drew considerable attention in the 1920s and 1930s (see Dubow, 1991, for a detailed discussion of mental testing in this context) but interest in comparative testing continued. As certain researchers (such as Biesheuvel, 1943) seriously questioned the suitability of the tests being used on blacks, 'culture-free' tests became fashionable in the 1940s and 1950s, such as Cattell's Culture-Free Intelligence test and Raven's Progressive Matrices (Kendall, Verster & Von Mollendorf, 1988). Marked cultural bias was found using these tests, however (Feuerstein, 1979; Kendall et al., 1988) and it became clear that cultural factors

could not be avoided by the “mere substitution of diagrams and symbols for words and numbers” (Kendall et al., 1988, p.301). Testing within the Piagetian tradition became prominent from the 1960s.

Vocational and aptitude testing, which developed internationally in response to the needs for skilled labour during the First World War, became established in South Africa during and after the Second World War in response to rapid industrial expansion and the need for skilled labour (Dubow, 1991). Dubow points out that the vocational guidance movement cannot be seen independently of the attempts to deal with white poverty, and the Christian-Nationalist ideology of the Nationalist party. Large-scale testing of black people, particularly by the National Institute of Personnel Research (NIPR), attempted to take cultural issues into account. The General Adaptability Battery, for example, aimed to assess the ability to learn within the testing sessions.

From the 1970s another pragmatic need, that of aptitude testing of black scholars, was conducted by the Institute for Psychological and Edumetric Research (IPER, now called the Educational and Psychological Test Development Section, or EPTES, of the Human Sciences Research Council). Work in both the vocational and educational field with black people was done solely with reference to black samples, and it was in this way that the thorny issue of racial differences was put aside for pragmatic objectives. A detailed review of this work can be found in Kendall et al. (1988).

3.2.2 Intelligence and developmental testing

In this section, a brief review is provided of some of the main IQ and developmental tests used in South Africa with mentally handicapped people. Literature on local assessment practices with mentally handicapped people is sparse, and much of this information is based on the author’s experience. Information was also informally obtained from psychology staff in major institutions that deal with mentally handicapped people in the Western Cape.

Within the intelligence testing tradition, South African versions of the Weschler scales were developed, for many years with reference only to white, English- and Afrikaans-speaking samples. From 1971, separate tests, or norms, were developed for designated population groups (such as indians, coloureds, and various black language groups). These Weschler-type tests are frequently found to have too high a baseline for reliable use with handicapped people, or people with very low levels of education (who are often black). A test that is frequently used with such groups is the Individual Scale of the National Bureau for Educational and Social Research (1946), developed by Fick. This is often referred to as the Fick scale or the Old South African Intelligence Scale (OSAIS), and is based on the Stanford-Binet scale.

As discussed by Davidson and Dickman (1990), the psychometric limitations of this scale are considerable. The standard equipment does not contain detailed instructions for administration and scoring, or information on reliability and validity, although recent research found the OSAIS to have similar reliability and predictive validity to two Weschler-based tests (Robinson & Boshoff, 1990). The IQ score on this test is a ratio IQ, obtained by dividing the mental age score on the test by the testee's chronological age.

Rather arbitrary practices exist in an attempt to compensate for the socially disadvantaged position of black testees. Some institutions use a chronological age limit of 14 years with older black people, producing a higher score than would be obtained using the more commonly accepted limit of 15 or 16 (for a discussion of chronological age limits in calculating ratio IQ scores with adults, see p 162). The fact that the OSAIS was originally standardised on white children makes its application to black adults problematic, in terms of the appropriateness of the test items. In addition, the test content is thoroughly dated (reference being made, for example, to wagons as a mode of transport). The OSAIS is heavily loaded with verbal items, as is the Stanford-Binet (Berger & Yule, 1987), and this is problematic in that a testee with language difficulties can easily be seen as globally impaired. The use of ad hoc translations of the verbal items is also highly problematic.

Nevertheless, the OSAIS continues to be used, often with black people who are thought to be mentally handicapped (N. Wood and L. Pefile, personal communications, January,

1994). It is invariably used together with other assessment tools. The emphasis on IQ scores for social benefits and placement in South Africa is no doubt part of the reason for the persistent use of the OSAIS. It is worthy of note, however, that despite the concerns for many years about the verbal loading of the Stanford-Binet, it is referred to as “the premier instrument for assessment of children (and adults) whose mental age...is less than approximately 7 years” (Wilson, 1992, p.81). In America, then, a version of the parent test of the OSAIS also retains its popularity despite its limitations. An important point here is that the baselines of these tests are low, allowing IQ scores to be obtained on people who would not score sufficiently on other IQ tests. Second, the mix of items within age ranges is helpful for maintaining interest when the testee has a short attention span.

It is therefore not altogether surprising to find that the OSAIS is popular with a number of education departments (Davidson & Dickman, 1990) and an updated version is about to be released (M. Robinson, personal communication, January 1994). This is to be called the Individual Scale for General Scholastic Aptitude (ISGSA), and will allow interpretation in terms of a deviation score as well as age scores. It has norms based on coloured and white samples.

The Draw-A-Person test is also often used as a screening device with black children, and sometimes with older, mentally handicapped people. Richter, Griesel and Wortley (1989) present evidence that this test underestimates the abilities of black children over the age of 8 years; the use of this test with much older mentally handicapped people clearly has considerable problems as a measure of general cognitive ability.

As discussed above, developmental assessments are also norm-referenced tests. These are extensively used in South Africa with children who are developmentally delayed. A fair body of local work on the use of developmental tests with black children is developing. Much of this is in the form of Master’s and Doctoral theses. As discussed in Chapter 7, work has been done on the Griffiths Scales of Mental Development with black children, and a number of other scales have also been researched, including the Bayley Scales of Infant Development, the McCarthy scales of Children’s Activities and Beery’s Developmental Test of Visual-Motor Integration (Richter, 1990).

The Grover Developmental Charts for Very Young Children (Grover, 1979) is a locally developed scale with norms based on a white sample. An important aspect of this instrument is the separation of receptive and expressive communication skills, and this indicates Grover's longstanding concern with the assessment of children who have poor expressive abilities.

3.2.3 Tests of adaptive behaviour

The Vineland Social Maturity Scale, and the revised Vineland Adaptive Behaviour Scales (Sparrow, Balla & Cicchetti, 1984) have been used with black mentally handicapped people by the author, but there is no published local research on this. Gunzberg's Progress Assessment Charts, or PAC (Gunzberg, 1973), evaluate various aspects of adaptive behaviour in mentally handicapped people, and allows comparison to peers as well as providing a visual presentation of individual skill levels, to guide training. The PAC has been used in some centres for handicapped people in South Africa (Davidson & Dickman, 1990).

3.2.4 Criterion-referenced tests

A locally developed criterion-referenced scale is the Assessment Schedules and Adult Training (ASAT, Grover & Egnal, 1980), which was developed to facilitate the discharge of people with mild mental handicap from institutions in Cape Town. While the ASAT deals with adaptive behaviour, it can be considered a criterion-referenced scale as the concern is not with normative comparisons but with the achievement of essential social skills. The scales are administered in conjunction with training programmes. Other criterion-referenced tests that can be of use with black mentally handicapped children are the Human Sciences Research Council tests of scholastic ability, although these are obviously only applicable when the child has had some formal education, and school-readiness assessments.

4. Comment:

In general, the assessment of people with mental handicaps is a challenge. Two points are particularly noteworthy in the South African context. First, although the author has not conducted a survey of assessment practices, there is an impression of an over-reliance on intelligence tests. Interestingly, Luckasson et al. (1992) comment that, despite the longstanding emphasis on adaptive behaviour in America, IQ testing often dominates in practice. In South Africa, the situation is complicated by the fact that, with inadequate facilities, pressure has not been created for the development and documentation of rigorous and varied assessment practices for use with black mentally handicapped people. In addition, the area of assessment has not been given priority at some South African universities (Richter, 1990), and Davidson and Dickman (1990) argue that the tendency on the part of South African psychologists to fall back on intelligence tests, even when inappropriate, may have to do with lack of training. As mentioned before, IQ scores are built into the bureaucratic systems for admission into facilities and application for social benefits. Under the pressure of a request for an IQ score in order to process an application for a desperately needed disability grant, or admission into a facility, psychologists may tend to perpetuate existing assessment procedures rather than challenging them (Davidson & Dickman, 1990).

The second point is that there is a paucity of local work on assessment of black, mentally handicapped people. Work can be found documenting learning difficulties in black children (for example Cartwright, Jukes, Wilson & Xaba, 1981; Frets-van Buuren, Letuma & Danes, 1989; Wagner & Danzig, 1990), but research on children outside the school system is hard to find. This is no doubt linked to the historical neglect of this group and the resulting, overwhelming inadequacy of facilities. This lack of professional discourse can easily lead to feelings of inadequacy among clinicians working in this field, who might tend to feel awkward about the tests they are using (such as the OSAIS) with little information about alternative approaches. It is a struggle to obtain funding for training and research in this area. This neglect and isolation on the professional level perhaps mirrors the massive legacy of neglect of the needs of black, mentally handicapped South Africans.

It is against this backdrop that the Grover-Counter Test (GCT) was developed by Emeritus Professor Vera Grover. Details of the test, its theoretical base and its clinical development, are the topics of the next two chapters. A few points about the test are worth making here, as the GCT has certain features that connect in important ways with the issues that have been raised in this chapter. The GCT was designed to examine certain aspects of non-verbal reasoning in the age range 3 years to 9½ years. It can be used therefore, with non-handicapped children as well as with mentally handicapped people, for whom it was primarily designed. The GCT was developed specifically for people with language difficulties, whether handicapped or not. The test was developed, therefore, in order to fill a particular gap. The minimal instructions, which use very simple language, facilitate translation into other languages, and this feature makes the GCT attractive as a test that could be used with black people with mental handicaps. Being based in Piagetian theory, the GCT offers the richness of this theoretical framework while also allowing age ranges to be derived. Given that IQ scores remain important in terms of legislation and bureaucratic procedures in South Africa, age scores (which can be translated into IQ ranges) remain useful. The following chapter provides a detailed discussion of the GCT.

CHAPTER 3

THE GROVER-COUNTER TEST, ITS ROOTS IN PIAGETIAN THEORY AND THE CROSS-CULTURAL ENTERPRISE

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In this chapter, the Grover-Counter Test (GCT) will be introduced at two levels. First, in section 1, the test will be described in terms of equipment, procedures and items. A brief description of some of the abilities tapped by each item will be provided in this section, but it is in section 2 that the theoretical underpinnings of interpretation on the GCT will be presented. In section 3 some important issues and debates are presented about the cross-cultural application of Piagetian theory.

It is important to note here that the GCT underwent some changes subsequent to this research. These changes are discussed in Chapter 4. Where relevant, these changes are mentioned in this chapter.

1. The Grover-Counter Test:

The aims of the Grover-Counter Test (GCT) have been presented in Chapter 2. In this section the equipment, test items, administrative procedures and scoring will be described. This discussion is incorporated here rather than in an appendix because reference is made to test items and procedures throughout this chapter. As mentioned in Chapter 1, the GCT will be available from the Human Sciences Research Council, and examples of items are presented here. After each section has been described, the cognitive processes that are tapped in the section will be briefly outlined. In doing this, I rely heavily on Grover's notes entitled "Theoretical basis and the interpretation of results in terms of cognitive functioning levels" (Appendix I).

One of the original objectives in the development of the GCT was to use the minimum of equipment, and to utilise material that was inherently appealing (Appendix II). The GCT consists of a box containing a wooden base with six shallow recesses, 36 counters (circles, triangles and squares, 6 black and 6 red of each), 2 rectangular boards each divided by vertical lines into 6 spaces, and 8 cards bearing designs. A cloth is recommended to avoid the counters sliding on the table. This material is relatively easy and inexpensive to produce. An important point about the small amount of equipment used in the GCT is that it reduces distractions.

Testing is done on an individual basis, with the testee sitting next to the examiner. Verbal instructions are accompanied by gestures. Encouragement is given throughout the test. On constructional tasks the examiner sketches the testee's attempt on the scoring sheet if it is imperfect. Attention to the manner in which the testee approaches the problem is stressed, and this is documented (eg. trial and error, or a systematic approach). The importance of attention to process will become apparent as the scoring and interpretation of test performance is discussed. The emphasis on attention to process illustrates the fact that the GCT is located within the Piagetian model of assessment, which classically highlights process rather than products (Ghuman, 1982).

There is a graded scoring system throughout the GCT, allowing points to be awarded for partial grasp of tasks. The main test consists of 5 sections (A, B, C, D and E) and a minimum score is sometimes required in order to proceed to the next section. A further section (X) is presented only when the testee fails to obtain the minimum required points on section A.

1.1 Section A and Section X:

The wooden base with the 6 recesses is presented to the testee. The top 3 recesses contain black circles, squares and triangles (each in separate recesses) while the lower 3 recesses contain red circles, squares and triangles. The testee's attention is drawn to the fact that the black ones are on the top and the red ones below, and she is shown that each shape has its own container. The counters are then removed and mixed and the testee is invited to place them all back into the right place. The examiner is permitted to remove misplaced counters 3 times. Points are deducted for this.

If the testee fails to obtain a minimum number of points, section X is administered. This section is a simplified version of section A. On X1 the top row of recesses only is used, with the black counters arranged by shape as in section A. On X2 the bottom row of red counters is presented. Depending on the score, the examiner either proceeds straight to section B, readministers section A, or terminates testing.

An important aspect of the task on sections A and X is whether the child can grasp the task and persist until it is completed. Discrimination between black and red, and between the three geometric shapes is required, as is recall of spatial position according to colour and form. A full score is expected by the age of 5 years, and section A may be omitted if the examiner thinks the testee is functioning at or above the 5 year level. This section is useful however, for children who are obviously anxious or unfamiliar with testing situations, serving as an unthreatening initial task.

1.2 Section B:

In this section 3 items are presented using the 18 black counters and the two 6-space boards. This section requires completion, recall and reconstruction of simple sequences. The final item (B3) requires the testee to reverse a given pattern (see Appendix III).

The testee is expected to understand that one counter should be placed in one space on the board, and familiarity with the convention of working from left to right is also evaluated. The latter may well only be acquired once the child is reading and writing (Appendix I). Full score on B1 is expected by 4 years while full score on B2 and B3 is only expected at 6 years 6 months.

1.3 Section C:

In this section the testee is required to copy from models built by the examiner. At the start of this section, all the red counters are put in front of the testee (“these are yours”) and all the black ones placed in front of the examiner (“these are mine”). A simple example is constructed by the examiner with her counters, and then the examiner makes the model with the testee’s counters, pointing out that they are the same. The testee is then invited to copy the examiner’s model. If he is completely unable to do this task, testing is terminated.

Item C1 (Flower) is made of 6 triangles (see Appendix III). The items that follow this are more complex in construction, using combinations of shapes and colours. In the

administration of each item certain cues are provided for the testee. A scoring examples sheet is provided for the examiner's use.

It is clear from the above that these tasks are all constructional, with a model to provide cues. A change in routine from the previous sections occurs when the examiner divides the counters between herself and the testee, and this is often an enjoyable moment in the testing. The demonstration example is important in modelling the required response and highlighting the importance of close attention to the model. C1 is relatively simple and a full score is expected at around 4 years. The later items in this section require integration of squares and triangles and introduces directionality and spatial relationships. Careful analysis by shape and colour is also required. Full scores on these items are expected at about 6 years 6 months - 7 years. While visuo-motor co-ordination or perceptual-motor matching is involved on these tasks, the process should not be seen as a passive, reproductive one. The way that the testee structures the task is crucial and one of the aims of the test is to illustrate the nature of the mental structures available to the testee. This issue is addressed further below.

1.4 Section D:

Three models are presented to the testee for reproduction from memory. The items are designed to be familiar shapes and if the testee is unable to name them the examiner does so. The examiner allows the testee to view the model and tells him to remember how to make it. The examiner then breaks up the model and asks the testee to reproduce it from memory. Help is permitted if the testee begins with the wrong colour.

The first item is a familiar, man-shaped model and a full score is expected by the age of 8. D2 (Star, see Appendix III) is considerably more challenging and a full score is only expected at about 9 years 6 months. The relationship of the parts to the whole is more complex and "the main difficulty is to achieve a properly co-ordinated closed figure" (Appendix I, p. 212). In cases where the testee uses the 6 triangles but leaves a wide space, the examiner is permitted to ask the testee if she is sure. The scoring of this item became

more rigorous subsequent to the sample, with more focus on the achievement of the Euclidean properties of the figure.

D3 has a complex structure involving squares, triangles and circles and requires careful analysis. Full score, as with D2, is expected at about 9 years 6 months. All these items require “reconstructive memory and a kind of information processing since direct perceptual support is removed at the time of reproduction” (Appendix I, p. 212).

1.5 Section E:

Section E presents the testee with new tasks in that designs on cards are presented, rather than models. The component parts of the model are no longer demarcated and “the reconstruction now has to be carried out from discrete units whose boundaries and inter-relationships are not defined in the presented model” (Appendix I, p.214). The cards remain in view. A demonstration item and E1 are seen as providing some links to sections C and D. This section is timed. The basic time for each item is 130 seconds, with extra time being allowed on items E3 and E4 on an enquiry procedure, which will be described below.

The purpose of the timing is first to provide a cutoff point for items that could be attempted for extended periods of time, lengthening the test unnecessarily. Second, because timing always begins only when the testee picks up a counter, differentiation is permitted between two types of performance. On the one hand there is the testee who first considers the tasks and uses a conceptually informed, systematic approach. On the other, there is the more concrete, trial-and-error approach, which may be partially systematic or more random.

The demonstration item allows the testee to observe while the examiner builds the model while clearly showing how she is analyzing it. The testee’s attempt is scored. A full score is expected at about 7 years 6 months. E1 is a design in the shape of a church. Once the testee has attempted the item the examiner emphasizes the way that the roof is constructed,

as this is the most difficult aspect of E1 and is an important component of the next item. A full score on this item and all the following items are expected at the ceiling of the test.

Item E2 underwent a major change after the sample, as described in Chapter 4. As used with the sample, a half-design is presented to the testee, described as such, and the testee is asked to build the whole pattern. E3 requires the testee to separate out the black and red parts of a design (a figure/ground problem), and to build them separately.

E4 and E5 are rather different from the preceding items. These items require the testee to view a card with a number of rows (E4) or columns (E5) using counter-shaped forms. The testee is then asked to construct a missing row or column with the counters. Two demonstration items introduce the testee to the format of the problems, and make explicit the task demand to build only the missing row. Item E4 is more complex than the examples, requiring the testee to take three variables into account: Number of counters, colour and form. Changes were made to E4 after the sample (see Chapter 4).

Item E5 is in the form of columns rather than rows and once again involves the number, colour and form of the counters. A full score cannot be achieved unless the testee discovers the arithmetic progression in the columns.

On E4 and E5 an enquiry procedure is permitted. If the product is incorrect and time elapses or the testee indicates he is finished, the examiner asks if the testee is sure it is right, and allows an extra 30 seconds. These items are the last on the test.

1.6 Scoring and the cognitive functioning levels:

An important development in the scoring system was the move away from test age scores to Cognitive Functioning Levels (CFLs). A preliminary norm table was drawn up by Grover on the basis of theoretically expected performances at various ages, and her early trials with children. This table awards approximately one month in test age for each point on the GCT, and was used for the purposes of this research. This table, however, is not included in the version of the GCT which is to be published, as Grover's preference is for

the CFLs to be used in clinical practice in order to encourage a theoretically informed approach to interpretation (V.M. Grover, personal communication, 1993). The GCT includes a table showing the characteristic performances across test items of children at progressive ages, and the use of this table is described in Appendix I. While the GCT was originally intended to cover the developmental period 3-10 years, the ceiling was changed to 9 years 6 months. This is discussed further in Chapter 4.

The table for allocation of CFLs is presented in Appendix IV, and it is noteworthy that total test score, as well as particular scores on sections D and E are taken into account. The requirement for certain **minimum** scores on these more difficult sections of the test builds in a qualitative aspect to the scoring. This permits the differentiation between a 6 year old, whose total score is pushed up by a careful approach, and a hasty 8 year old, who has a grasp of items at a higher level.

Most important, the CFLs allow an interpretation of test performance that is linked to the theoretical roots of the GCT. The theoretical basis for the CFLs and a description of the characteristic performance on the test at each level is presented in Appendix I. The aim of this form of analysis is to move away from a mechanistic psychometric approach and introduce a theoretically informed, qualitative analysis that would offer guidelines for the parent, teacher or supervisor of the testee. However, it is exactly this kind of interpretation, based on relatively few test items, that has provoked controversy in the body of critical writing on the applications of Piaget's theory, particularly in a cross-cultural context.

This controversy is presented in section 3 of this chapter. In the following section the CFLs are briefly described and their links with Piagetian theory discussed. The theoretical emphasis in the GCT is highlighted by Grover's intention, once the GCT is published, to institute some form of training requirement for psychologists before they can use the test.

2. Interpretation of performance in terms of Piagetian Theory:

2.1 Introduction:

A number of points need to be made at the outset of this discussion. First, the GCT does not comprise classic Piagetian tasks such as conservation, seriation and classification. The test items can, however, be seen to be related to these classic tasks in ways that will be discussed below. Second, the GCT is a standardised test in which instructions have been kept to the minimum and no verbal responses are required at all for scoring purposes. This is in order to make the test suitable for people with receptive and expressive language problems. Both the standardised format and the avoidance of verbal demands distinguish the test procedure on the GCT from the 'clinical method' of Piaget, in which the child is interviewed at length about his performance and thoughts. As mentioned above, however, close attention to the details of the testee's performance is required on the GCT, in line with the emphasis on process within the Piagetian tradition.

It is always problematic to attempt to summarise the key elements of a theory as complex as that of Piaget. The following brief introduction to the theory aims to clarify the concepts drawn upon by Grover for the interpretation of performance on the GCT. While I have primarily looked to the writings of Piaget and his associates, commentators on the theory have also been used to elucidate key points.

A crucial aspect of Piaget's theory is that it begins with the state of consciousness of the individual person. Here Piaget explicitly draws on Marx (Gruber & Voneche, 1977; Piaget, 1935/1965). History, and knowledge, are not seen as having an inherent force to which individuals are subjected. Social change grows out of internal struggle; similarly changes in knowledge and understanding are seen by Piaget as the products of individual struggle. For Piaget, the environment does not 'happen' to the child. The child seeks out those aspects he can meaningfully respond to. This position situates Piaget as an **interactionist** rather than a nativist, on the one hand, or an empiricist on the other. This highlights the importance to Piaget of the child's activity, physical or mental. The term

operation features prominently in Piaget's theory. According to Gruber & Voneche, this term was chosen by Piaget to emphasize the unity of thought and action.

A further aspect of this position is that the child is seen as inventing and constructing the world in her own mind. Thus Piaget can be seen as a **constructivist**. Finally, Piaget's theory rests on **logical determinism**, which is the position that the logic of each stage determines the structure of the next. These three frames of reference comprise the term **genetic epistemology** (Gruber and Voneche, 1977).

The processes of **assimilation** and **acomodation** are also terms that have become a well-known feature of Piaget's theory. A developmental view of these processes is provided by Piaget (1937), where he describes the process of differentiation between assimilation and accomodation that accompanies the differentiation between the self and the outside world. It is useful to consider assimilation and accomodation in the context of the distinction between the **figurative** and **operative** aspects of thought. The figurative aspect has to do with the internal representation of external reality and the organisation of sensory data. An example given by Phillips (1981) is that of a child who sees a block, adjusts the structure of his action (look-reach-grasp) in order to stretch far enough and in the right direction. He can therefore be seen as accomodating to the situation. He internalises this accomodation and this is the figurative aspect of his thought about the block.

The operative aspect of thought has to do with meaning. Phillips (ibid) extends the example above to the situation in which the child uses the block as a truck, or places it on another block to create a tower. Meaning (and therefore play) has to do with assimilation, by which process representations from outside are absorbed into existing schemata.

The figurative aspect of knowing, therefore, has to do with physical experience and provides the contents of actions. Physical experience has to do with accomodation and an external orientation. The operative, or logico-mathematical aspect of knowing has to do with assimilation, and the form or structure within the action. The development of operative thought is important in the interpretation of performance on the GCT.

Equilibration is the process by which structures are revised and qualitative changes occur (Piaget, 1958). Through the processes of assimilation and accommodation the child becomes aware of inadequacies in her thinking and moves, eventually, to a different stage. While the development of thinking is a dynamic process, each of the major stages is seen as producing a phase of equilibrium in which the system is relatively stable. Equilibrium is regarded as a motivating force in Piaget's theory (Phillips, 1981), and as reinforcement for the process of thinking.

Piaget's **stage theory** is referred to extensively in the discussion below. Gruber and Voneche (1977) point out that the stage theory is an important descriptive tool and that it highlights the importance of internal readiness for change. They also point out that while Piaget uses stage theory vigorously, he gives no detailed discussion on it. Woodward (1979) comments that the concept of 'stage' is frequently misunderstood by readers, who tend to see it "as a matter of sudden leaps...with no progressive changes in between, instead of being understood as a change to a new level of organization, with the interval between being taken up with a continued restructuring" (p.170).

Gruber and Voneche argue that the stage theory may not necessarily be universal and that other parts of the theory are more important than the stage concept. This issue is returned to in section 3 of this chapter.

With these comments as a backdrop, the theoretical interpretation of performance on the GCT will be presented.

2.2 The cognitive functioning levels and their link to Piagetian Theory:

Grover provides a framework for description and interpretation of test performance in terms of 4 cognitive functioning levels (CFLs), all but the first divided into two sublevels. The first level is described as "transition to pre-operational, symbolic, perceptual mode" (Appendix IV). The test does not aim to assess infants and toddlers who are in the Piagetian sensori-motor stage, which is seen as covering the ages 0 - 2 years (Piaget, 1937). Within this phase the child learns about objects as separate from her sensorimotor

experience, and object permanence is established, allowing the development of intention and some understanding of causation. This is achieved through imitation and play (closely related to accommodation and assimilation respectively). In the later substages, trial and error behaviour becomes important, and this can take the form of quite systematic 'experiments' (Furth, 1987). The child also develops an understanding of the meaning of certain signals and while the sensorimotor child is seen as primarily action-oriented and concrete, the basis is laid for the development of symbols.

The pre-operational period is seen as covering the period 2 years to 6 or 7 years (Piaget, 1937). While Grover states in her notes on the theoretical basis of the test (Appendix I) that she aims to include that stage immediately following the sensorimotor stage, the test age scoring actually begins at 3 years. The difficulties of administering a formal test to a child younger than 3 years is no doubt part of the reason for this. In Appendix I the pre-operational child is described as showing a more objective approach to objects than the sensorimotor child, and as having an appreciation that certain end results can be achieved through certain actions. The child is now capable of attending to some of the relevant features of the stimulus and can hold the goal in mind, and persist long enough to complete the task. In addition, the child has developed something of a symbolic or representative process allowing a degree of anticipation and planning. The pre-operational child is more able to work with the past, present and future, and develops some perspective in terms of space and time (Phillips, 1981; Piaget, 1952). Some aspects of pre-operational thought that are most relevant to the GCT are discussed further below.

The pre-operational stage is characterised by contradictions, due to the fact that the child does not yet have a meta-structure to systematise cognitive functioning (Piaget, 1937). One of the limitations of the thinking of the pre-operational child is **concreteness**. While the child shows the beginnings of symbolic thought, thinking is still very much tied to action and perception. It is for this reason that Grover refers to the "pre-operational, symbolic, perceptual" mode (Appendix IV). Thinking is dominated, therefore, by the figural aspects. As Phillips (1981) points out, failure on conservation experiments illustrates this. The same amount of water put into differently shaped containers will be seen as different amounts of water.

The conservation example also illustrates other limitations on thinking at this stage. One is **irreversibility**. The child is unable to reverse her thinking to the point of origin. In the above example of conservation of volume, the child cannot think back to the fact that no water has been added or taken away. The child also tends to think in terms of **states** rather than **transformations**. The child fails to note the transformations by which one state is changed to another. Finally, the failure on the above example also illustrates **centration**, the tendency to focus on one detail (such as the height of the water) and the failure to process information from other aspects of the situation.

Egocentrism is a further characteristic of this stage. The child believes that the world is as it looks to him. This would manifest, for example, in the assumption that a stranger would know the meaning of idiosyncratic terms. The capacity to think objectively about one's own thinking requires considerable social feedback.

In the concrete operational stage, considerable conceptual advances are made. This stage is classically regarded as extending from about 7 to 11 years (Piaget, 1952). One of the primary features of the stage, as the name implies, is the development of **operational** thought, which is characterised by the fact that action is internalised. As Gruber and Voneche put it, "when acts become mental acts they can be reorganised in more mobile fashion than real actions, since the person can group them together into one coherent set or contemplate at the same time an act and its opposite" (1977, p. 344). This quote highlights the move away from reliance on immediate perceptual information, and points to the second important characteristic of operational thought, which is **reversability**. A form of reversability is simply the ability to think back, to mentally invert or negate an action. A more subtle and sophisticated form (Piaget & Inhelder, 1963) is compensation by reciprocity, by which the child can see that a change in one aspect of the object is compensated for by another change. This can be illustrated using an experiment for conservation of substance. Two identical balls of plasticene are presented to the child, who agrees that there is the same amount of plasticene in each. One is rolled into a sausage. When asked whether they still have the same amount of plasticene, the child who gives a conserving response (that there is the same amount in the two shapes) might have thought

back to the fact that no plasticene was added or removed. An alternative process (seen as a higher level response) would be the reasoning that while the sausage shape is longer, it is also narrower, and thus has the same amount of substance as the ball.

The development of concrete operational thought has been extensively studied using problems involving classification, seriation and conservation. The conservation experiments are the best known of these. The example of the plasticene ball rolled into a sausage is drawn from work on conservation of substance, which is grasped first. Conservation of weight (whether the ball and the sausage will weigh the same) is usually grasped next. Finally, the child develops conservation of volume. The example of the water in the differently shaped containers given earlier, in the description of pre-operational functioning, refer to problems of conservation of volume.

Important developments also occur, in the concrete operational stage, in the child's understanding of number. The child begins to develop a number system to replace earlier rote counting. Three aspects of this development will be briefly described. A child is presented with 10 dolls of varying size and 10 sticks of varying size. She is asked to order them in a one-to-one correspondence so that the dolls are arranged by size, alongside the sticks, also arranged by size. A correct performance indicates appreciation of **serial order**. If the sticks are then spread out and the child is asked to identify the stick belonging to a particular doll, **ordinal** understanding is required. The concrete operational child (who has the concepts, for example, of first, second, third) can manage this. The pre-operational child is likely to center on physical proximity and will simply choose the stick nearest to the doll. **Cardinal** understanding is tested when one set of objects is moved together or spread apart and the child is asked whether there are still the same number in each set of objects.

Experiments in many other areas could be detailed here to describe concrete operational thought (experiments on decentering, understanding of spatial relationships and movement, for example) and original papers on these can be found in Gruber and Voneche (1977). Important to note here is that the development of concrete operational thought goes through transitional stages, in which the child is uncertain. Fully developed

operational thought exists when the child sees his correct answer to the problem as **necessarily correct**. Given these transitional stages, the child's justification and explanation of his answers is of considerable importance.

The child moves into the formal operational stage, at approximately 11 years of age (Piaget, 1952). The GCT does not extend to the formal operational stage, which is characterized by the ability to place concepts into logical relationships with each other. As Piaget puts it, "the subject's logic is now concerned with propositions as well as objects" (1952, p. 462). The child now has the ability not only to appreciate symbols, such as numbers, but to manipulate them in ways that do not refer back to concrete reality, but refer to the relationships between the symbols. Hence at this stage the child can deal with formulae, parables and analogies, and can appreciate the form, rather than the content, of arguments.

We can now turn to a examination of performance on the GCT. In Appendix I Grover describes how the pre-operational child can successfully discriminate between shapes and forms and can match them on the GCT. As mentioned earlier, the first cognitive functioning level (CFL) is described as "transition to pre-operational, symbolic, perceptual mode" (Appendix IV). The second level reflects the advanced stage of this mode. Performance improves on sections A and B across CFL 1 and 2, with increasing assurance. Simple sequences can be recreated provided no transformation of the material is required which conflicts with perceptual information. This is a clear reference to the concrete thinking, and the perceptual 'pull' that is regarded as dominating the pre-operational phase.

There is gradual improvement on sections C and D across CFL 1 and 2, showing increasingly effective perceptual exploration of the models to be copied or reconstructed from memory. Performance on these sections illustrates some of the limitations that characterise the pre-operational phase, particularly centration and a closely related phenomenon, synthetic incapacity. This refers to the inability to integrate the component parts of a model. These limitations make for difficulties in reproducing the more complex models presented in sections C and D, which require attention to a number of variables,

and the analysis of a fairly complex structure. Section D also requires short-term memory, and for Piaget, memory involves active construction in the same way as perception does (Piaget & Inhelder, 1966). Very little can be achieved on section E at CFL 1 and 2.

Cognitive functioning level 3 is described as the “transition from pre-operational mode to the threshold of concrete operations” (Appendix IV). Performance at this level is described as showing the increasing independence from the effect of immediate perception, as long as the number of variables is limited and the required transformations are simple. At this level the reversal of the given pattern, required on B3, can be achieved. Performance on D2 (Star) improves, showing an ability to take account of variables other than the periphery of the model, and in general the component parts of the models are more successfully integrated. Piaget and Inhelder (1948, 1956) provide a description of the process of perceptual exploration of shapes, decentration and the development of an understanding of Euclidean relationships (Euclidean geometry deals with the measurement and conservation of distances, angles and straight lines). In this discussion Piaget and Inhelder describe how the child develops the ability to return to a stable point of reference and to group elements around this, crucial for success on D2, for example.

Section E continues to be very challenging at level 3, and while the more straightforward sections of the first items can be achieved, the more difficult aspects are failed.

Level 4 of the cognitive functioning levels is the highest on the GCT and is described as “Advancement to the midstage of the concrete operational mode” (Appendix IV). During this phase, the ability to analyse and recreate fairly complex configurations and transformations is expected to emerge. Items on section C and D are expected to be performed with confidence, and the child is expected to be able to tackle the more difficult items in section E. There are two substages in this level. The first is characterised by a trial and error approach, where children show some difficulty taking all the relevant variables into account, while the second substage is characterised by a more systematic approach, in which the child attempts to solve the problem mentally before initiating any motor activity (Appendix I).

It is only at level 4 that any substantial score is expected on the items E2-E5. At this level, one sees the “increasing transition from what Piaget calls the figurative aspects of knowledge to the operational aspects which are not given directly in the observable data but must be derived by reflection upon and abstractions from the observed material” (Appendix I, p. 216). In Appendix I Grover quotes Piaget as saying that at about 9 years of age a decisive turning point occurs in the development of spatial concepts. This is the completion of a conceptual framework allowing for an understanding of Euclidean properties. These concepts are seen by Piaget as emerging at the same time as other forms of logical thinking (see below), hence it can be argued that performance on section E provides information on functions that are not directly assessed on the GCT.

Item E5, for example, examines whether the child can tackle the numerical aspect of the task (the fact that the squares in each column are repeatedly reduced by 2) without being distracted by the perceptual features of the task (which suggest the addition of one red square). This bears some similarity to tasks that examine conservation of correspondence, in which it is important that the child has an understanding of number independent from perceptual position. Inhelder and Piaget (1959) make the point that number is the extension of a class, and that classification and ordering are all involved in numbering. Successful performance on E5 could be expected to correspond to success on classical Piagetian tasks of classification and conservation of serial, ordinal and cardinal correspondence. Piaget and Szeminska (1941) argue that conservation requires the capacity to unite parts into a whole, to divide the whole into parts and to coordinate equivalences, all of which are strongly linked to conception of number.

Similarly, the ability to decenter, or to take several relevant variables into account, is assessed throughout the GCT. It could be argued that this should indicate ability to decenter in other ways, for example, the ability to work out how objects would look from another person’s point of view. Assessment of decentering in social relationships and in reasoning require verbal responses, and through its nonverbal nature, the GCT could be seen as providing a nonverbal way of assessing these abilities. Section 3 provides some discussion of whether performance on a particular task in an assessment context is a reliable predictor of competence in other contexts, or with other tasks.

2.3 The link to education and the problem of learning:

Grover (1990) argues for the identification of specific areas of weakness as a guide to the education of the mentally handicapped person, with an examination of social and emotional aspects as well as cognitive abilities. Few would disagree with this approach. Kahn (1977) describes the usefulness of Piaget's theory in planning intervention with severely and profoundly handicapped children. Shakespeare (1970), Woodward (1970) and others regard Piagetian theory as valuable in guiding intervention and placement.

All the above authors would stand opposed to the implementation of a non-individualised approach to education of people with special needs. Piaget advocated the importance of attending to the developing child rather than solely to the social, intellectual and moral values which the educator wants to impart (Piaget, 1935/1956). Piaget aimed to combine activity and understanding of the child with some of the aspects emphasized by traditional approaches to education, for example, memory, imitation and receptiveness. Piaget advocated a reciprocity in the educational relationship such that autonomy is fostered, rather than obedience. While Piaget did not fully address the issue of social transmission, he puts considerable emphasis on the social culture of the school rather than emphasising the work alone. Overall, Piaget's philosophy of education was highly progressive, and remains so.

The translation of this philosophy into educational practice has led to some controversy, however. Certain authors argue that Piagetian theory can itself be used in ways that obscure individual needs. Boyle (1982) argues that some interpretations of Piaget's theory lead to an overemphasis on activity and a tendency to undermine the importance of talking to children and explaining things to them. Fuqua, Alexander and White (1984) present research indicating that repeated exposure to a rigid framework of characteristic performances at different Piagetian stages can lead to limited understanding of the variable abilities of young children, and hence to restricted instructional approaches by teachers. Switzky, Rotatori, Miller and Freagon (1979) examined the developmental model as applied to teaching methods with severely and profoundly handicapped children. They

point out that non-normative sequences may be necessary to help severely handicapped people to acquire particular skills. As found by Fuqua et al. (1984), Switzky et al. report that information on developmental sequences tends to be used rigidly.

The position of learning within the Piagetian framework is of relevance here. While Piaget included social transmission and physical experience as important factors in development (Piaget, 1975) he excludes learning as an explanation of development (Miller, 1989), and places equilibration in a central position as the mechanism for cognitive development. Consistent with this position, Piaget developed methods that attempt to eliminate the effects of learning. This approach is reflected on the GCT in that items obviously related to rote learning or training were not considered for inclusion (for example, reciting the months of the year, or the ability to tie shoelaces) (V.M. Grover, personal communication, 1989). Learning is seen as limited and specific while development is seen as spontaneous, internally rooted and therefore generalisable. Elkind (1971) comments, however, that the freedom from educational input that is evident on Piagetian tasks can make it more difficult to translate results into educational terms.

Gruber and Voneche (1977) report that a group of Piaget's collaborators set up training programmes to evaluate whether this would speed up development. Very little change in cognitive structures was found, supporting Piaget's contention that internal processes are of primary importance. Interestingly, however, McCormick, Campbell, Paskin and Perry (1990) report that a group of children with mild mental handicaps were taught to classify on a number of dimensions, to seriate and to conserve for number, all in one semester. The key question, of course, is whether this training had generalised effects. In this research, overall scores on intelligence tests did not improve, but McCormick et al. refer to other research (with younger children) in which such training did have effects on overall intellectual functioning. This raises questions about the relationship between learning and development.

The role of learning is a crucial aspect of the debates and comparisons between Piaget and Vygotsky (see for example Miller, 1989; Tenzer, 1990), the details of which cannot be entered into here. Both theorists focus on the child as actively operating on the world, and

while Vygotsky makes learning a central concept in his theory, this is not seen as a simple stimulus-response or “naturalistic” process, in which the child is a passive recipient of knowledge. Tenzer suggests that Vygotsky sees development as occurring from outside in, while Piaget sees it as proceeding from inside out. For Vygotsky, social relations underlie all higher psychological functions and development involves the conversion of social relations into mental functions.

This leads to very different approaches to education. Piaget encourages the process of exploration and trial and error in order to foster development. Vygotsky suggests a more structured approach to foster cognitive skills that the child would not develop alone, in what is referred to as the zone of proximal development. This refers to the skills just out of reach of the child if she is operating alone, but available to her through the intervention of a teacher. Feuerstein’s (1979) dynamic method of assessment is an example of an approach based on this theoretical position.

An important point is the link between the issues of learning and culture. Miller (1989) argues that because learning is explicitly excluded, Piaget cannot find a satisfactory way to address the influence of culture. As will be discussed in section 3, the invariant sequences of Piagetian stages has been seen as confirmatory of an “organismic regulatory system” (Miller, 1989, p.8) while variations in the rate of acquisition of the stages are taken, by Piagetians, as evidence of the impact of culture. Miller sees this as allowing through the back door the notion of learning that Piaget explicitly excludes. He argues that the mechanism of cultural influences has to be built into the theory at the level of equilibration, which requires a neo-Piagetian theory. A brief discussion of this is provided in the next section.

2.4 Neo-Piagetian Theory:

In a detailed review of Piagetian cognitive developmental psychology, Halford (1989) examined whether the age levels for acquisition of certain concepts, predicted by Piaget, stand up to empirical examination. This review takes into account research in the neo-Piagetian tradition (within which Halford can be placed), which attempts to extend the

conceptual basis of Piagetian theory in the light of evidence that pre-school children have been found to succeed where Piaget predicted they should fail. Transitivity, seriation, conservation and class inclusion have been found to be understandable from about 5 years, rather than the 7-8 year baseline that classic Piagetian theory suggests. It is not appropriate here to go into the details of the conditions under which this unpredicted success occurs (such as reduction of the amount of information the child has to process), and the interested reader is referred to Halford's paper and the commentaries that follow it. (See also Elbers, 1984, on the conservation abilities of young children, Tamburrini, 1983, on the importance of the context of testing, and Buck-Morss, 1982, on socio-economic bias.)

Essentially Halford (1989) argues that the empirical work of 25 years has supported Piaget's empirical work in a number of areas. He concludes that some of Piaget's tests have produced false-negatives, thus underestimating children's understanding, and that the structural account Piaget gives for certain phenomena is inadequate in some areas. He points out that while there are always difficulties associated with stage theories, this "should not be taken to imply that there are no restrictions on the concepts that children can acquire at a given age" (1989, p.349). The neo-Piagetian theories set out to conceptualise the same progression observed by Piaget, but taking into account more recent data, and more recent theoretical tools.

The debates in this area are complex and at times are based on different readings of Piaget. Strauss (1989), one of the commentators on Halford's 1989 paper, argues that "Piaget never claimed that various concepts should appear at a certain age, even a certain wide age range" (p.380). Pascual-Leone (1989), another commentator on Halford's review and himself a noted neo-Piagetian theorist, states that "Halford oversells the advantages of neo-Piagetian models of developmental core structures over Piagetian ones" (p.376). He argues that Halford's review is based on Piagetian theory of the late 1950s and 60s, which has come to be considered as the classic Piaget, and which Pascual-Leone calls 'Piaget-III', as he sees this model as having superceded two earlier ones. He also argues that reviewers consistently ignore what he calls 'Piaget-IV', later work by Piaget that took a more dialectical view of core structures. Pascual-Leone suggests that the new models

should not entirely replace “*dialectically interpreted* Piagetian modeling” (p.377) but should be seen as supplementary.

2.5 Concluding comments:

In this section an attempt has been made to outline the theoretical roots of the GCT and to draw out the links between the processes the GCT aims to assess and certain important Piagetian concepts. Some critical literature has also been presented, and while some of this appears to be aimed at applications of the theory rather than the theory itself, there have clearly also been important developments that have required theoretical extension, in the form of neo-Piagetian theories.

Certain issues that have been raised in this section anticipate debates that are dealt with in section 3. One of these is whether it is central to Piaget’s theory that certain concepts should emerge at particular ages. Nyiti (1982) points out that findings are only explored if one is puzzled by them. Often, researchers were unsurprised by delays in the performance of non-Western testees, and Nyiti argues that this led to the failure to carefully examine methodological issues. This work will be returned to in section 3, but it is pertinent in relation to the work suggesting more competence in young children than had been supposed. Findings that support a theory will not necessarily be looked into. The discussion of the cross-cultural application of the theory therefore needs to be seen against the backdrop of these developments within Western groups.

The next section outlines some of the important issues and debates that emerge from the cross-cultural application of the Piagetian and psychometric approaches.

3. **Cross-cultural testing:**

3.1 Introduction:

In this section, a review is provided of some of the vast body of material about Piagetian studies in cross-cultural context. Given that the GCT does not consist of classic Piagetian

tasks, this review is highly selective, and attempts to connect the research in this area with the research on cross-cultural testing in general.

Perhaps particularly in South Africa in the 1990s, race comparisons of test results are emotionally loaded. McLoyd (1990), writing about research on minority children in the U.S.A., points out that enormous controversy has been engendered by the practice of comparing the performances of African-American children with Anglo-American children. This practice invariably involves the use of norms based on Anglo-American children and leads to interpretations of differences in terms of deficits in the black children. A further problem is that the emphasis on race comparisons has impeded the investigation of positive aspects of the development and abilities of black children.

Similarly, Liddell and Kvalsvig (1990) argue that the psychometric approach has contributed to the fact that “developmental research on black children in South Africa has been characterized by the projection of an overwhelmingly negative image of such children’s capabilities and accomplishments” (p.3). They go on to point out that little has been documented of positive aspects of childrearing and socialisation among black South Africans. One of the most serious dangers of the race comparison approach is the ease with which these studies can permit or even promote an individual, victim-blaming view of social problems (McLoyd, 1990; Richter, 1990). In South Africa during the colonial era, intelligence testing was certainly used to provide ‘evidence’ of the inherent inferiority of black people (Kendall, Verster and Mollendorff, 1988).

Researchers in the area of assessment in South Africa thus find themselves the inheritors of an awkward legacy when they confront findings of differences in test performance between black and white South Africans. In discussing the limited amount of research and clinical work taking place in black townships in South Africa, Richter (1990) points to the practical difficulties involved in such work, but also highlights the difficulty South African psychologists face in making sense of ‘cultural differences’ in an apartheid society that reifies the notion of cultural difference. Serious analysis of cultural factors is complex. Kendall et al. (1988) discuss the importance of “looking not at broad, multidimensional variables, but rather at their fundamental, component parts” (pp. 314-315). In order to

understand test performance, a description of someone as 'Zulu' or 'urbanized' is far less useful than a description, for example, of the amount and quality of formal education the person has received, the adequacy of her diet, and the emphasis in her upbringing on respect for elders and traditional explanations.

3.2 Cross-cultural application of Piaget's Theory:

A tremendous volume of cross-cultural work has been generated within the Piagetian tradition, demonstrating the hope that this tradition has offered in terms of elucidating universals in human cognition. Nyiti (1982) comments that the Piagetian framework "has been the single most widely used theoretical context for cross-cultural research during the past 20 years" (p.146). Kendall et al. (1988) discuss Piagetian research in South Africa as characterising the less pragmatic and more academic assessment phase of the 1960s. They report that by the 1970s research within the Piagetian tradition had "virtually displaced the earlier focus on normative trends" (p.302).

In terms of the actual findings, Curran (1988) reports that "children in other cultures have been found to achieve concrete operations sooner, at the same time or later than European and American children" (p.179). The overriding impression, perhaps because of the fierce debates about its meaning, is of developmental 'lag' in the performances of people from non-Western cultures. Curran points out that this 'lag' has been found in most studies involving children who have not attended formal, western-type schools. A number of other researchers and reviewers make the link between performance on Piagetian tasks and school experience (for example, Ghuman, 1982; Kendall et al., 1988).

A particular form of the 'performance vs competence' debate is raised when interpreting performance on Piagetian tasks. It is implied by the stage theory that if a child conserves on a Piagetian test for conservation of substance (for example), one can assume a generalised competence in terms of conservation of substance. Tamburrini (1983) argues that there is no controversy if the child provides a response showing conservation, and can clearly see the issue in terms of logical necessity. What is controversial is the reverse assumption that there is general absence of competence if one gets a 'pre-operational'

response. It is this sort of conclusion, for example, about adult members of non-Western cultures that has led to considerable unhappiness with the early cross-cultural applications of Piagetian theory.

Irvine and Berry (1988) refer to research indicating that, in certain societies, almost 50% of the adult population is unable to conserve quantity, weight or volume, according to their performance on standard Piagetian tasks. This 'flattening out' of performance at a certain level is referred to as *asymptote*. Irvine and Berry link this to the concept of *horizontal décalage*, the term used to denote unevenness of development, or failures to manage certain tasks that are expected if he is at the stage of concrete operations, for example (Boyle, 1982). Piaget and Inhelder (1963) see *décalage* as a result of the number of criteria to be considered together, the nature of the actual material used, and the information provided to the child.

Irvine and Berry (1988) argue that both *asymptote* and *décalage* can be explained by the inherent unreliability of a small number of tasks being given to "homogenous age groups of heterogenous ability" (p.31), leading to large standard errors. In cross-cultural work the groups are also usually very small due to the time required for individual interviews. Irvine and Berry argue that these results are essentially experimenter-induced, and invoke anthropological studies that show clear evidence of formal operational thought where the Piagetian studies showed *asymptote*. Anthropological work has clearly been very important in balancing interpretations of test findings. Curran (1988) points out that there are parallels between the issues raised in current research on culture and cognition, and early debates within anthropology.

Curran (1988) also makes the important point that most of the cross-cultural Piagetian work has focussed on the concrete operational stage, because the physical materials required in the tasks can be easily found in different cultures and because responses can be scored right or wrong in standardised circumstances. Interestingly, in describing the advantages of the Piagetian approach over the psychometric for purposes of cross-cultural investigation, Ghuman (1982) cites the process rather than the product approach of the model, the flexible methodology and the importance given to both genetic and

environmental factors within the theory. Curran's point is that the practical advantages of a more product-oriented approach, with standardised interviews, have influenced the form of much of this research, and this has complicated interpretation.

Nyiti (1982) addresses the findings of cross-cultural variation by highlighting methodological problems in much cross-cultural Piagetian research. In a tightly designed study, he shows that cross-cultural variation can result from the use of interpreters, or the practice of testing people in a second language. Irvine and Berry (1988) support this and Curran (1988) points out that "researchers rely on cultural knowledge of their subjects when designing and interpreting experiments so that they know, for example, how instructions would be interpreted and what reinforcements are required to engage their co-operation" (p.175). Piaget and his associates would not have found this concern surprising. Piaget and Inhelder (1963) discuss how a small difference in wording and technique alter the age at which a task can be successfully carried out.

As with other research done in this way, Nyiti (1982) found that cross-cultural variation disappeared when the children were interviewed in the vernacular by someone from their own cultural group. Nyiti also avoided the standard interview format, rephrasing questions and making suggestions and counter-suggestions. It is unclear how much Nyiti followed the classic clinical method, which itself has been seen as setting up an alienated relationship between researcher and testee, fraught with ambiguity and failing to fulfil frequently held expectations of an instructional discourse (Elbers, 1984; Reynolds, 1989). Woodward (1979) provides useful detail on the clinical method (also called the method of critical exploration), and the variations and extensions of this approach which tend to be relatively unknown outside of Geneva. Certainly this approach attempts to elicit the child's understanding of the tasks, and by comparison, ordinary experimental methods could be seen as considerably more alienating (see Claxton, 1988).

We have seen thus far that within the enormous body of cross-cultural Piagetian work, some findings have pointed to a 'lag' in the performances of non-Western samples. Some reviewers point out the inevitable problems when a small number of tasks are given to a small number of testees, others suggest that research within the Piagetian tradition has not

always reflected the best possible applications of the theory, by having to rely on interpreters and standardised procedures, for example.

The next point to be addressed is whether the endpoint of development in Piagetian terms, formal operational thinking, is culturally biased. Nyiti's work (1982) differs fundamentally from others in that he concludes that the cognitive structures Piaget describes are universal and not the product of a particular cultural milieu. Curran (1988) believes that formal operational thinking does reflect the values of a particular culture but argues that too much emphasis has been placed on Piaget's stage theory and not enough on his interactionist model of assimilation and accommodation. Curran regards this model as a meta-theoretical position which allows for the investigation of any culturally valued endpoint.

Important contributions have been made within the cultural practice (or contextualist) model of Cole, Scribner and associates (for example, Cole, 1988; Cole & Scribner, 1974). This group of researchers address the same problems as does Nyiti (1982) - the methodological problems that contribute to the findings of cultural variation. The approach within the cultural practice model is to adjust research methods, content and materials so as to make them culturally appropriate. The details of this enormous task cannot be discussed here, but once again, more competent performance is found under these conditions. The contextualist model rejects the concept of a unitary cognitive structure that operates across different knowledge domains, and presents learning as context- or task-specific. This orientation has similarities to the criterion-referenced approach to testing, discussed in Chapter 2.

Miller (1989) argues that the cultural practice model does not go far enough. As mentioned earlier, Miller believes that Piaget's model of equilibration fails to offer the theoretical tools to incorporate the effects of culture in a satisfactory manner. He presents Pascual-Leone's neo-Piagetian Theory of Constructive Operators, which aims to elucidate the processes within equilibration that have to do primarily with maturation and those that are highly influenced by learning. The model incorporates the Vygotskian concept of mediation which addresses the way in which intellectual tools for the acquisition of social knowledge are transmitted from adults to children.

The cross-cultural application of Piaget's theory clearly offers an arena for lively and complex debate. For current purposes, a useful summary of the findings in this area is provided by Miller-Jones, who reports that "there is evidence that individuals in most cultures display cognitive operations characteristic of Piaget's early stages, that is, pre-operational and early concrete operational thinking" (1989, p.363). He goes on to comment that there is a considerable variation in the age of attainment of later stages, and asserts that "both the forms of reasoning in these later stages and the measures used to assess them appear to be highly specific to and sensitive to cultural experience" (ibid).

In the next section, the question is addressed of whether cross-cultural variation should be seen as entirely artifactual. Results of research within the psychometric tradition are integrated into this discussion.

3.3 The issue of difference in performance: real or artifactual?

The previous section has highlighted some of the ways in which people from non-Western cultural groups may be disadvantaged on tests. These include lack of familiarity with the test materials, uncertainty about the social interaction within the testing situation and the implicit demands, and lack of connection between the abilities under examination and everyday life.

Interesting results have been found with the simple procedure of retesting. Miller, Pascual-Leone, Campbell and Jukes (1989) dealt with the issue of familiarity on a perceptual task by giving a second trial (with no training) to black South African children who underperformed on the first trial. Items were changed slightly on the second trial to prevent simple transfer of perceptual learning, or learning of specific items, and the children's performance on the second trial came up to the predicted levels. This clearly indicated that the children were not deficient in terms of competence. The significant effect of retesting has also been found in the area of ability testing. Kendall et al. (1988) reports work by Verster and associates, in which black mineworkers were retested, allowing them to develop test-taking skills and to demonstrate improvement.

It is important to note that it may not be useful to see deficits in performance as always artifactual, products simply of the testing situation. Reynolds (1989) found that her sample of South African black children had difficulty with the Piagetian tasks presented to them. Reynolds herself notes that initial performance in an unfamiliar situation may not reflect actual ability. Importantly, however, Reynolds found that the children in her sample failed to understand the importance of attending to the details of instructions and task performance. This was found among the schoolgoing children in her sample too, and in general, Reynolds found that the schoolgoing research participants were not literate and numerate to the extent she would have expected. Certain researchers have stressed the importance not only of formal schooling but of **good quality** schooling (Kendall et al., 1988) and Reynolds' findings are consistent with this.

In his review of Reynolds' work, Dawes (1990) comments on her finding that the children did not question the explanations of older people. While this is not necessarily unusual in 7 year olds, Dawes points out that if such an attitude pervades child-rearing, children might tend to become rather passive and fearful of behaving inappropriately. Their performances on tests would clearly be affected. While test situations might highlight the problem, it would be a mistake to see the issue as one simply created by the test situation. Authority-oriented approaches to child-rearing might also interfere with the process of integrating experiences encountered by the child herself, and might therefore hamper cognitive development.

From within the psychometric tradition, Richter (1990) considers that it is not at all surprising that there is a difference in performance of about one standard deviation between black and white children on various assessment techniques. (In Chapter 7 a similar discrepancy is reported on the Griffiths Scales of Mental Development.) There would be a certain comfort, for South African researchers in flight from apartheid and supremacist ways of thinking, in adopting the position that lower scores are obtained by black testees only because the test failed to elicit the skill or function in question. This could evolve into an extreme form of cultural relativism in which different groups are seen as equally effective in their own ways, while the power differences and real issues of

deprivation and oppression are ignored. It is in this form that cultural relativism can be considered essentially conservative (Miller, 1989). By contrast, it can be argued that the differences found on test performance reflect, to some extent, real deficits due to such factors as poor education and nutrition. Kendall et al. (1988) argue that while a considerable amount of research in Africa has been ethnocentric, there are real effects of factors such as poor schooling, which have a marked impact on the capacity to compete in the dominant, largely western culture.

It is worth reflecting, at this point, on the history of educational underachievement of poor white, mainly Afrikaans speaking children. In line with this educational problem, systematic studies of test score differences between English and Afrikaans children in the 1950s found that the Afrikaans children scored between half a standard deviation and about one standard deviation below the English speakers (Verster & Prinsloo, 1988). The problem was understood in terms of malnutrition and poor education (Liddell & Kvalsvig, 1990), and social programmes were instituted to correct the problem. Over 4-5 generations, mean test scores of samples of English and Afrikaans speakers have converged (Verster & Prinsloo, 1988).

Liddell and Kvalsvig (1990) point out that the educational under-achievement of black children has been associated, by contrast, with factors such as 'cultural impoverishment', nonwestern methods of child-rearing and disorganized social systems.

This, despite the fact that first, both malnutrition and poor education have been entrenched in black communities for several generations, and secondly that research elsewhere in Africa suggests that malnutrition (as opposed to social or cultural variables) constitutes the primary cause of educational underachievement in African children. (p.2)

This example highlights the widely reported correlation between tests of general ability and scholastic performance, and the link between test performance and socio-economic factors. It also illustrates the ways in which the old racist notion of the inferiority of black people can be replaced by victim-blaming as an avoidance of facing the major structural inequalities in the society. It is clear, however, that opportunities for valuable social action might be missed if such deficits are not investigated and documented.

3.4 Implications for the GCT:

The above discussion suggests that exposure to formal schooling can be expected to influence performance on an instrument such as the GCT despite its avoidance of specifically scholastic tasks. Research findings in the Piagetian tradition as well as the psychometric tradition repeatedly link test performance to experience at school. This is important given that one of the proposed uses of the GCT is with children with mental handicaps who may have had no formal schooling, or very limited exposure.

Secondly, lack of familiarity with the test materials, the test situation and its demands, and the relationship with the examiner are likely to impact on the testee's performance in ways that might be difficult to detect in a standardised interview through an interpreter. It seems unavoidable to conclude that initial performance by black South Africans should be interpreted with caution.

Reviews of the Piagetian research suggest that the pre-operational and early concrete operational stages are more successfully assessed across cultures than the later cognitive stages. This suggests that difficulties are most likely to manifest at the top end of the GCT.

In the context of Piagetian research in South Africa and Africa generally, Kendall et al. (1988) refer to a body of research that documents particularly weak performance by black children on tasks involving spatial relations. This is linked to difficulties noted among some samples of black people in the field of visual perception, interpretation of depth in pictures, spatial orientation of objects and appreciation of visual illusions (for example, Jahoda & McGurk, 1982). Many of these tasks are very different from the tasks presented on the GCT, and the complexity of variables makes it unwise to assume that results on one part of the African continent necessarily apply to another. Interestingly, however, Reynolds (1989) found her sample of 7 year old black South African children to lack familiarity with symbolic and pictorial representations. The pictorial material used with the advanced tasks on the GCT may therefore, create special difficulties for some black children.

In the next chapter, the clinical development of the GCT is presented, with attention given to the problems that emerged in the cross-cultural application of the test.

CHAPTER 4

THE CLINICAL DEVELOPMENT OF THE GROVER-COUNTER TEST:

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This chapter has as its aim the description of the clinical work on the Grover-Counter Test (GCT) from 1989 to 1993. During this time the test was modified in response to the results obtained with different groups. This is not, therefore, a description of a statistical or rigorously controlled procedure, but rather a description of a clinical process of application and re-evaluation of the GCT. Of particular importance is the issue of the applicability of the GCT to black children in South Africa.

1. An overview of the early changes in the GCT:

1.1 The context:

By 1989, when I became involved with the GCT, a great deal of work had been done and the whole structure of the test was in place, except for the analysis into cognitive functioning levels. Many changes were made within the structure from 1989 to 1991, and the most important of these are documented below. I have not included a number of small adjustments in administration and scoring that emerged from the work that both Grover and I conducted during this time.

By 1989 Grover had already piloted the test on samples of children from private schools and in 1989 I administered the test to a few children in order to familiarise myself with it. In 1990 I approached two private, integrated schools and tested 46 children (see Appendix V for an example of a letter to a school principal). Also in 1990, with the permission of the Department of Education and Training (DET) I tested 45 schoolchildren (6 to 11 years) in a black township. With the permission of the Department of Health I visited a creche in the same township and tested 15 children between 3 and 5 years old. Alongside this work, Grover and her associates in rehabilitation centres were testing mentally handicapped children and adults on the GCT and evaluating the results against other psychometric tests.

1.2 Changes to Section E:

Prior to my work with the schoolchildren, a number of changes were made to the final section of the test, section E. This is the section that required the most adaptation throughout the development of the GCT. As discussed in Chapter 3 difficulties have been found when attempts are made to assess concrete operational level reasoning in the cross-cultural context. There may also be difficulties with the use of pictorial material, and lack of familiarity with test materials, procedure and task demands may have a considerable effect on performance.

In early 1989 section E differed from the later version in terms of the items themselves as well as the order of presentation. Most important, perhaps, was the fact that there were no demonstration or practice items, and the scoring was heavily dependent on time (110 seconds was the maximum, with differential scoring on some items for performance below 70 seconds, 71-90 seconds and 91-110 seconds). The underlying philosophy here was to differentiate testees who could solve the problems without the need for a concrete 'trial and error' approach. Initial work in 1989 indicated that the timing on section E was too strict. A time limit was considered important in order to keep the overall testing time reasonably short, but Grover did not want to penalise children who were unfamiliar with the task demand of working against time. This was felt to be a particular issue with young children and also with many handicapped people.

By the time I began the work with the schoolchildren, the maximum time for items on E had been extended to 130 seconds and the differential time categories had been removed from the scoring. Additional time, in the form of an enquiry procedure, was permitted if the testee failed on his or her initial attempt on E4 and E5, the final items on the test. An initial demonstration item on section E had been included.

1.3 The development of the cognitive functioning levels:

A description of the cognitive functioning levels (CFLs) is provided in detail in Chapter 3. As mentioned in Chapter 3, the aim of CFLs is to allow a theoretically-based description of ranges of scores, replacing reliance on test-age equivalents of single scores.

2. The pilot work with schoolchildren:

2.1 The private schools:

Two local religiously based schools kindly allowed me to test their children. Both schools were mixed in terms of race, but there were relatively few black children. At both schools the majority of children are middle-class (personal communication, L. Davies and V. Veller, personal communications, 1993).

It was explained to the children, both in the classroom and individually, that they were helping me with a new test, and that they had not been chosen because they had a problem of any kind. The Draw-A-Man test was also administered to provide an additional source of information about the childrens' functioning.

At school 1, 20 children were tested, 5 from each of the first four standards of formal schooling (Sub A, Sub B, Standard 1 and Standard 2). The age range covered was 6 to 10 years. Overall the results were satisfactory, that is, the scores of the children followed the preliminary norm tables. There was some evidence, however, that the top end of the test was more difficult than expected. Some of the scores on section E, particularly, were rather low.

At school 2, it was decided to focus on the older children, and 26 children aged 8 to 10 were selected, with great care taken to request children who were average performers at school. The results once again followed the norm tables closely, but a few of the older children had depressed scores on section E, and the need for some revision of this section was accepted.

While small numbers were involved in this preliminary work, the overall scores and qualitative analysis of the childrens' performance supported the preliminary norms developed by Grover for most of the test, and allowed the identification of a problem at the top end of the test. There was no evidence of sex differences in performance, or differences based on racial classification.

As mentioned above, there were relatively few black children in these schools, and the preliminary work on the GCT, therefore, mainly involved children classified as white or coloured. The educational system in schools 1 and 2 differed markedly from the DET system in which most black children are taught. There was clearly a need to pilot the GCT on black children in DET schools, who would be living in the black townships. In terms of home environment, such children would be more comparable to the sample of handicapped children at Nompumelelo School than the children from schools 1 and 2 (see Chapter 8).

2.2 The black township children:

Langa is the oldest established township in Cape Town, having been in existence since the early 1920s (Harrison & McQueen, 1992). Langa was chosen partly because one of the school principals was amenable to participation in the research. This township also contains a spread of socio-economic conditions. Sections of Langa are very well established and middle-class, while conditions in other parts of the township are considerably poorer.

As the GCT was felt to be satisfactory at the lower levels, only 15 children were tested at the creche, and they ranged from 3 to 5 years. Two of the 3 year-olds were unable to score on the GCT, which was not unexpected. Overall, the scores obtained on these children correlated well with the expected scores, and on qualitative analysis the children performed as expected.

The children in the 6 - 9 year age range were selected from a primary school (Sub A to Standard 2) and the 10 year-olds were selected from a secondary school (Standard 3 to Standard 5). As before, every attempt was made to obtain children who were average performers.

The same procedures were followed with the DET children as with the private school children. It was much more difficult to communicate than in the private schools, and some children may well have been unclear about the context of the testing, or intimidated despite the explanations. It was clear that a few of the younger children had not had much contact with white people. I conducted the GCT in Xhosa, and could manage most questions put to me, but an interpreter was always present to assist. Space is at a premium in most black schools, and the rooms available for testing were often less than ideal. At one school, for example, a storeroom was all that was available, and we brought our own gas lamp as the lighting was very poor.

The performances of eight 6 year-olds were entirely as expected. At the 7 year-old level the mean chronological age of 8 children was 7 years 3 months, while the mean test age was 6 years 7 months. The scores were in a narrow range, with only one very low score (5 years 9 months). The Draw-A-Man test scores were similar to chronological age. On qualitative analysis the problem seemed to be in section E once again, with some children having slightly depressed scores on section D as well.

Of more concern was the result on the eight 8 year-old children, whose mean chronological age was 8 years 3 months and whose mean test age was 6 years 5 months. There was one very low score of 5 years 3 months; the rest ranged from 6 years 1 month to 7 years 3 months. Two children identified by teachers as bright scored at the top of this range. Draw-A-Man test scores were at chronological age levels or above.

This trend continued into the oldest age groups. Five 9 year-olds scored an average test age of 7 years 2 months; two children identified as bright did marginally better. Six 10 year-olds scored on average 7 years 5 months on the GCT and two 11 year-olds scored just over 8 years.

The protocols of the children from 8 years onwards were carefully scrutinized and the performances compared to the expected spread of scores at the child's chronological age. As was expected, the children were uniformly low on section E, with many of them scoring below expected levels on sections C and D.

2.3 Retests on the 8 year-old group:

It was decided to retest the 8 year-olds after 6 weeks. As discussed in Chapter 3, Miller et al. (1989) found that their sample of black South African children improved markedly on retest, and it was hoped that this would shed some light on the discrepancy between the obtained and expected scores.

On retest the mean test age of the eight children was 10 months higher than the test age on first testing. This was still a full year below their average chronological age. Of most interest, however, was that virtually all these children came up to expected performance for their age on sections C and D, while relatively little improvement was seen on section E.

2.4 Discussion of township childrens' results:

The lowered performance of the older township children is not surprising given the discussion in Chapter 3. The documented effect of quality of schooling, quality of nutrition and socio-economic status on test performance would lead one to expect reduced scores. In addition, there were the methodological issues of being tested through an interpreter by a stranger, who was white. The reasons for the testing were given through an interpreter, and thus there was less of a negotiated co-operation than there was when the children could be communicated with directly. In addition, the tendency for there to be very strict discipline at black schools has been documented (for example, Frets-van Buuren, Letuma and Daynes, 1990) and the use of corporal punishment was evident in some of the schools during our time there. This may well have led to anxiety about failure,

which may have been operative during the testing sessions, despite the reassurance and encouragement that was part of the assessment approach.

It is striking that up to the age of about 7 years, the township children performed at the theoretically expected levels, on both quantitative and qualitative analysis. The retests on the 8 year-old group was illuminating. No training was involved, and so improvement had to do with the ability of the children to generate appropriate strategies spontaneously on sections C and D. One could argue that the accumulated effects of the unfamiliarity of the tester, the testing situation, and the test materials undermined the abilities of these children to perform satisfactorily on initial testing.

These results suggest that section E presents different kinds of problems from sections C and D for the black children. This was not explored in the context of the preliminary work presented here, and would be an interesting area for further research. First, the numbers of children involved here are very small, and so are the number of tasks. As Irvine and Berry (1988) point out, a small number of tasks given to a small number of testees leads to large standard errors and therefore relatively unreliable results. Should similar results be obtained in a larger sample and perhaps with more items, it would be useful to explore whether the kinds of thinking processes that section E aims to elicit are demonstrated by the children in different contexts. This would support the opinion of Miller-Jones (1989) that the Piagetian stages later than the pre-operational and early concrete operational stages are particularly difficult to assess across cultures. Second, it would be useful to examine whether there are specific deficits (possibly attributable to the DET system of education) which affect both test performance and school work, and should therefore be seen as real, rather than artifactual, deficits. The issue of familiarity and competence with pictorial material might be particularly interesting to explore, as every item in section E is presented using cards.

2.5 Implications for the research sample:

The work described above was all based on very small samples, but nevertheless suggests caution in the use of this version of the GCT with black testees who might be expected to

function above 7 years developmental age. As a result of the work with the schoolchildren, as well as results Grover had obtained with her mentally handicapped testees, Section E underwent further changes in 1991. The order of items was changed and two practice cards were introduced for items E4 and E5. The rest of the test remained substantially the same, with one item in section B having been dropped.

It was clear that further evaluation with non-handicapped children would be required on the revised section E. It was decided nevertheless that the GCT (including the revisions on section E) could be administered to the research sample in 1991, as they were expected to score considerably below 7 years test age on the GCT. This was in fact the case, as 95% of the sample were found to score under the age of 7 years (2 testees obtained a test age of 7 years 2 months and 1 obtained a test score of 7 years 8 months).

3. Work on the GCT subsequent to the research sample:

3.1 Evaluation of the 1991 changes to section E:

In 1992 it was decided to test 8, 9 and 10 year olds at one of the private schools (30 children in all) to evaluate the changes to section E. Some 9 and 10 year old children still scored lower than expected on sections D and E. Careful qualitative analysis suggested that a bonus point system on section D was depressing scores. This was a system by which scores of 19 or 20 on section D warrant bonus points of 2 or 3 points respectively. This meant, in some cases, that a careless error resulting in a score of 18 rather than 20 actually cost the testee 5 points. It also became clear that 10 year old children were generally not reaching the highest test age of 10 years, and that a number of problems still remained in section E.

3.2 Changes to the GCT in 1992:

The first major alteration to the GCT was the reduction of the ceiling from 10 years test age to 9 years 6 months. This would not have affected the results on the sample as none of the group scored at this level.

The second important area involved alteration of the scoring on section D. This was necessitated by the removal of the bonus points and the allocation of these scores across the three items in section D. At the same time a more rigorous scoring system was introduced on D2 (Star). While it is difficult to evaluate with any certainty how the research sample would have fared with the new scoring on section D, an examination of protocols suggested that extra points would have been obtained on items D1 and D3, while the more stringent scoring on D2 would have reduced scores on this item. Overall, it is possible that the overall score on section D would have remained much the same.

The changes on section E were more considerable. The difficulty of two items, E2 (Half Design) and E4 (the first mathematical problem) was substantially reduced. Considerably more cues were provided on E2. E4 was simplified and in the new version only one practice card is needed instead of two.

3.3 Other research on the GCT conducted in 1993:

May (1993) used the GCT to assess 20 coloured and 20 black children of 8 and 9 years of age, from two schools under the control of the Department of Education and Culture (DEC), which formerly catered exclusively for coloured children. May used the 1992 version of the GCT with the changes described in section 3.2. On first administration of the test, May found underperformance in both the coloured and black groups similar to that found in the township children in the current research project. Interestingly, depressed scores were also found on the Draw-A-Man test among these children (M. May, personal communication, January 1994). May found some improvement on second administration of the GCT, during which unstandardised but structured interventions were made.

In preliminary work, May tested nine 6 year-olds and six 7 year-olds in the DEC schools. As in the current study, the performance of these children conformed to the preliminary norms (M. May, personal communication, January, 1994)

May refers to the findings of the current research project, and suggests that the black children in this research, and her sample, are both affected by marginalised educational environments. It can also be assumed that these groups have, on average, a lower socio-economic status by comparison to the children in private schools. While May's research is based on a small sample, it provides support for the position that educational system and socio-economic conditions are more important factors than racial classification, for the purposes of predicting test performance.

May's work also indicates that underperformance on sections D and E persisted in 8 and 9 year-olds despite the 1992 changes on the GCT.

3.4 Implications of the 1992 changes to the GCT for the results reported on the research sample:

It is difficult to assess the impact of these changes on the data obtained in the current research. May (1993) found similar levels of underperformance beyond the age of 7 despite the alterations to the GCT. In addition, the majority of the sample in this research (35 children or 62.5%) failed to obtain any score at all on section E, which includes a demonstration item before E1. Most research participants, therefore, reached a ceiling before the first item that underwent changes, E2. Of the 21 children who did obtain scores on section E, only two obtained scores on items E2 to E5, and only one obtained more than a score of 2 out of 6 on item E1. It is therefore hypothesised that the latest changes to section E would have had minimal impact on the overall results of this research project.

4. Conclusions:

This chapter has outlined the author's involvement in the clinical process of development of the GCT. It is argued that the later changes made to the test would not have significantly altered the results obtained in this study. Most important is the repeated finding that, up to the age of 7 years, children perform similarly on the GCT across racial categories and school settings. This has implications for the assessment of mentally handicapped people of all ages on the GCT, as many people falling in the more severe

categories of mental handicap would be testable only on the earlier items. In the next chapter an examination is undertaken of the ethical issues which required consideration in this research study.

CHAPTER 5

ETHICAL ISSUES

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1. Introduction:

The aim of this chapter is to explore some of the ethical issues and difficulties that emerged in the course of the research. Warwick (1980) notes that researchers in psychology tend to call attention to ethical issues far less often than researchers in disciplines such as anthropology and sociology. He calls for more detailed reporting on how politically and ethically ambiguous situations were handled, both to provide a context within which results can be placed, and to promote sharing of experiences in this area.

Warwick (1980) is writing here about ethics in cross-cultural research. In the current research both cross-cultural issues and issues relating to mental handicap are raised. Given that the central goal of the project is to evaluate a psychometric test, there is a pressure to focus on technical issues such as time intervals between retests and other requirements of the design of the study. Warwick comments on “the tendency of some social scientists to treat ethics as just another set of obstacles to be circumvented, much like uncooperative subjects, bad weather, or malfunctioning equipment” (p.322). A technical treatment of these issues is no doubt more comfortable than a process that involves detailed description, especially when shortcomings are evident and have to be discussed.

It must be mentioned that some of the concerns and issues raised here were not necessarily clear to me during the course of the research. Certain ethical aspects were given careful consideration prior to, and in the course of the research. These will be given attention, but an important aim of this chapter is to describe the areas that were not identified as problematic before the research was begun, and sometimes not identified during the research itself. It is hoped that this will be useful to other researchers, particularly in identifying circumstances that suggest careful re-evaluation of one’s ethical stance.

First, the context within which the research took place is described with reference to potential, and inevitable, ethical difficulties. Second, a brief overview of research ethics will be provided, identifying the most relevant areas for the current research. These

sections will provide a background against which the ethical issues, under goals and methods of the research, will be discussed.

2. The context of the current research:

As very different issues were involved with the research participants at the school and those from the waiting list, these will be discussed separately. The position of Nompumelelo Special School within the educational system, and a description of Cape Mental Health Society (CMHS) is presented in Chapter 2. In this section I describe my relationship with both institutions and the initial research contracts that were entered into.

2.1 The testees from the school:

My relationship with Nompumelelo Special School had extended over a number of years prior to the research project. As consultant psychologist at CMHS, assessments for admission to the school had fallen into my brief. This role fell away once an assessment system was put in place by the principal, staff at CMHS and myself. This involved the creation of a post for a sessional psychologist at Nompumelelo School. During the time that I was directly involved with the school, it was evident that teachers often felt the need for psychological evaluations of the pupils already in the school. This need remained unaddressed as the brief of the sessional psychologist continued, for the most part, to be the assessment of children for admission.

This situation made the school attractive as a research setting, as there was a clearly defined service role that a researcher could fill. The possibility of using pupils at the school as research participants was also appealing as they were a readily available group, at a facility with which I was familiar, and that potentially was very convenient for the research. There was space for private testing, for example, and I would not have to organize transport for testees.

Prior to contact with the school, some discussions were held with colleagues at CMHS, and consideration given to the question of what I could offer the school. The policy at

CMHS is that research may be carried out with the client's permission, that participation (or non-participation) in research does not prejudice CMHS service provision, and that the research should benefit clients in the long term. It was felt appropriate to offer detailed feedback on the pupils included in the research, and some sort of educative input about the process of psychological assessment.

This was put to the principal of Nompumelelo School, together with an outline of the research as a whole, and the inconvenience that might be experienced by staff (for example, possible disruption of classes due to children being taken out for testing, and my presence together with a research assistant and interpreter for a period of time).

The principal clearly saw the project as offering something of value to the school, and after taking the matter to the School Board, approved it. She also discussed the issue with the staff at the school, a process I was not involved in, and took responsibility for raising the matter at the next meeting with the parents, which was a quarterly event. These meetings were not attended by all parents.

No questions or concerns were brought back to me after the principal's consultations with the teachers or the parents. While this was convenient in that I could go ahead with planning, it also left me with concerns about the process, which was opaque to me. I was unable to ask to be more involved, and this was in part to do with being an outsider, but the situation was compounded by my position as a white researcher.

One of the most striking features of the school is the fact that obedience and respect towards authority is highly valued. The imparting of these values could be seen as an important part of the informal social skills training that took place at the school. This becomes important when the issue of consent is examined later.

2.2 The testees from the waiting list:

The organisation from which the waiting list children were obtained was CMHS, and the primary liaison person was the research social worker, whose responsibility it was to

maintain the waiting list for the facilities associated with the agency. The research social worker is also the person who screens research proposals submitted to the agency by students and researchers wanting access to clients for research purposes.

Some clients on the waiting list for special school were receiving social work services from CMHS, some had received such services in the past, and many had been referred by other agencies or institutions and were not known personally to CMHS. Most had been waiting for many years due to the shortage of facilities for black children and adults with mental handicaps. As described in Chapter 2, within the white educational system, special classes are available at some regular schools for mentally handicapped children falling into the mild category. Such classes were not available for black children prior to this research. As a result, black children who appeared to need special class placement were placed on two waiting lists, one for special class and one for special school (or training centre), in the hope that they would obtain some sort of educational placement rather than nothing.

My interest in the waiting list clients was primarily my need to augment the sample obtained from the school. The waiting list group also offered an opportunity to obtain a more representative sample of handicapped children than I would obtain using school testees only. The interest in my proposal on the part of CMHS had to do with the Society's plans to update the waiting list of black clients. This meant that information I might be able to obtain would be helpful.

The agency maintains great care in screening research proposals in which people are requesting access to clients of the agency. The general rule is that letters must be sent out to the group of clients requesting their participation, and only on the basis of a positive response can the researcher continue. This assumes, of course, that the aims and methods of the research have been approved by the agency.

It was no doubt an advantage that I was already closely connected with the agency, and that I had sometimes been consulted about research proposals. The ethical problems, particularly the risk of raising expectations of placement in the waiting list group were discussed at length with the research social worker, and the matter was taken to a meeting

of the Heads of Departments within the agency for discussion. This issue receives detailed discussion later and ultimately very few waiting list children were included in the study.

My responsibilities to the agency were also discussed, particularly my responsibility to share information with any social workers actively involved with research participants.

3. Ethics in psychological research:

In this section, I rely heavily on the work of Steere (1984), who points out that, until the Second World War, ethical codes for psychologists were drawn from codes for other professions, particularly medicine. The need for a more relevant code was taken up by the American Psychological Association (APA) in 1948, which published the *Ethical Standards of Psychologists* in 1953. This has been continually revised, and speciality guidelines (for example, for clinical, and industrial psychologists) have been published as adjuncts to the overall standards. The APA derived the original code by inviting all its members to document situations of ethical significance; the resulting code is strengthened by the fact that it reflects psychologists' experiences and requirements rather than purely philosophical principles.

The code attempts to make reference to all the areas of psychological practice, including overall issues of competence and responsibility, professional relationships and confidentiality, as well as direct work with clients/patients, assessment and research. Principle 9 of the code refers to research with human participants, and detailed treatment of ethical issues in research with human subjects was brought out by the APA in 1972. First, the decision to conduct research should be based on a judgement of how best to contribute to "psychological science and human welfare" (APA, 1981, p.637). Research methods are then referred to: "the psychologist carries out the investigation with respect and concern for the dignity and welfare of the people who participate and with cognizance of federal and state regulations and professional standards governing the conduct of research with human participants" (ibid).

Important underlying ethical principles which are implicitly incorporated into this code are the principles of autonomy, non-maleficence, and beneficence. These three principles offer a framework for discussion of the major issues that required attention in this research.

3.1 The principle of autonomy:

Autonomy refers to the right of individuals to act according to their own beliefs, as long as this does not harm others, and to the right to make informed decisions free of coercion. Much of the work of psychologists, in the form of counselling and psychotherapy, relates very clearly to this principle, which also underpins the right to decide whether or not to participate in research. The principle of autonomy is also used to support the importance of research: "all research which expands human knowledge is ethical because it provides humans with greater understanding of and therefore control over the environment" (Steere, 1984, p.67). This does not mean that the researcher can avoid an evaluation of whether the particular research question is of value, and whether it could be applied in unethical ways to the detriment of particular groups. Research in the area of intellectual ability has sometimes been highly contentious in this regard (for example, the well-known work by Jensen on race and IQ). Ultimately, the APA supports the importance of research in itself and does not hold the researcher responsible for any and all applications of his or her research. This issue remains important to address, however, and will receive attention later in this chapter.

The principle of autonomy is therefore applied in two very different ways to research. First, this principle informs discussion about the overall goals of the research and the potential benefit or harm the research results may bring. Second, the principle of autonomy has an important practical application in the issue of informed consent. In terms of research, this is taken to mean that the researcher should explain to the potential participant all aspects of the research "that reasonably might be expected to influence willingness to participate" (APA, 1981, p.638).

This has generated considerable debate, much of which centres on the issue of deception in research designs (see, for example, Callahan, 1988 and Kazdin, 1980). Deception was not

an issue in this research, and some authors separate the issue of deception from that of informed consent because of the element of bad faith (for example, APA, 1972). In this research project, the most important issue was the question of whether all those involved in the research were in a position to make an autonomous decision about participation.

Different issues were involved here: In the case of the mentally handicapped people, one needs to critically address the question of capability to make a responsible decision about participation; as important is the issue of compliance when asked to participate. The testees were children, which brings in the issue of guardians who make decisions about participation. In the case of the waiting-list families, a serious danger existed that people might connect participation in the research with increased likelihood of placement for their child, despite explicit information to the contrary.

Steere makes it clear that if there is a problem with the principle of autonomy the principles of non-maleficence and beneficence "must be strictly adhered to by the authority concerned, in making decisions on behalf of another" (1984, p.8). These principles, therefore, are clearly related to each other, and difficulties with one of them increase the weighting of others.

3.2 The principle of non-maleficence:

This principle comprises the directive to 'do no harm'. Intentional harm is always prohibited, and the primary issue therefore becomes the exposure of others to **risk** of harm. The risk of negative effects as a result of participation in a research project would clearly fall under this principle. Some of the examples discussed in the literature are research projects involving drugs, high levels of fatigue, electric shocks and stressful stimuli. Risk of harm is acceptable only when the likelihood of positive consequences outweighs the degree of possible harm. Steere (1984) notes that this involves assigning relative weightings to potential positive and negative effects, and that this is very difficult, especially when one is dealing with intangible factors such as psychological distress or well-being. She goes on to point out that the primary issue here is that 'due care' is taken

in weighing up the degree of risk; it is when such care is not taken that the researcher can be accused of negligence.

As with autonomy, the current research presented two important aspects to which the principle of non-maleficence had to be applied. The first involved the possibility of distress or discomfort for the children themselves during the testing sessions, especially when faced with failure, which was inevitable at some point. The second aspect involved the waiting list children and their families, who might have been hoping (despite information to the contrary) that placement might result from participation in the study. The risk was therefore of disappointment and distress when placement was not forthcoming. The issue here is different from the issue raised in the previous section in relation to these families: As far as autonomy is concerned, the danger is that the families' **freedom to choose** would be curtailed by the hope of placement, or the fear of losing possible advantage in terms of placement should they refuse to participate.

Should negative effects occur, despite due care, the researcher is responsible for amelioration of any distress caused by participation in the research (APA, 1972, p.XIV).

3.3 The principle of beneficence:

Beneficence is closely related to non-maleficence, and Steere points out that "this principle asserts the duty to actively contribute to others' health and welfare by preventing harmful consequences, removing harmful conditions and positive benefiting of others" (1984, p.9). The preamble to the APA's Ethical Principles refers to beneficence by stating that psychologists "strive for the preservation and protection of human rights" (1981, p.633) and that psychologists are "committed to increasing knowledge of human behaviour and of people's understanding of themselves and others and to the utilization of such knowledge for the promotion of human welfare" (ibid).

As with the principle of non-maleficence, the application of the principle of beneficence involves a cost-benefit analysis, where the ideal action provides the most benefits at the lowest 'cost' in terms of investment of resources and risk of harm.

The question of beneficence can be addressed at two levels: First, the goals of the research should be evaluated in terms of the potential benefits, in the case of this research, to children with handicaps or language difficulties with whom the GCT might be used. Potential dangers also have to be considered. On a more practical level, researchers need to address whether, and how, the research project will benefit those immediately involved with it. As Warwick (1980) points out, referring to cross-cultural studies, “a generic problem in field research concerns the obligations of the researcher to the individuals and communities studied” (p.321). This is certainly an important issue when the group being researched has limited access to psychological services, as was the case in the current study. The Ethical Principles of Psychologists also makes it clear that an agreement should be reached with research participants prior to the research, which clarifies the obligations and responsibilities on both sides.

4. The ethical issues in the current research:

The previous sections have described the context of the research and some of the major issues in the literature on research ethics. Some of the more taxing ethical issues did not have to be faced in the current research, such as the use of deception, aversive techniques, or the exposure to physical harm. The most difficult issues in this research revolved around power relationships. In this section, I describe the ways in which these difficulties were approached. First, however, an evaluation of the **goals** of the research will be presented.

4.1 The goals of the research: an evaluation from an ethical point of view:

Earlier in this chapter it was stated that in general, research extends personal and professional autonomy through the development of knowledge. Research in general is therefore considered to be a positive activity from an ethical point of view. This does not, however, exempt the researcher from a careful examination of the likely benefits and possible harmful effects of his or her research results.

In Chapter 2 the difficulties and deficiencies in assessment of people with mental handicaps are outlined. The GCT was developed out of a need of practitioners for an assessment tool that was appropriate for a population with handicaps, especially with expressive language deficits. As it seemed that this group was routinely being disadvantaged with the application of the regular battery of tests, research on the GCT can be seen in terms of beneficence. A test that allows people without expressive language to demonstrate their abilities, and that avoids fatigue while facilitating careful observation of cognitive reasoning, could be argued to offer a contribution to health and welfare, as described by the *Ethical Standards*.

Further, this research takes as its focus black children with mental handicaps. This group can be seen as doubly disadvantaged in terms of testing (Chapter 2), and therefore most in need of research in the area of assessment. Richter (1990) points out that in the current context in South Africa there is a huge practical need for assessment of black children, both on a personal level in order to obtain social benefits for those who qualify due to handicaps, but also on a wider level to promote visibility of the massive shortfall in services. On this level, the GCT could be very useful, and a critical evaluation of how the GCT should be used among black mentally handicapped people would seem to be a valuable research goal.

The argument against this position would avoid a focus on the specific test and its potential usefulness with particular groups of people. The potential for maleficence would be seen in the process of categorising and labelling people as mentally handicapped, and thereby marginalizing them and denying them rights enjoyed by others (Feuerstein, 1979; Lea, 1990; Sinason, 1992). This could be seen as even more of a danger in oppressed groups. As discussed in Chapter 2, however, this concern has to be seen in the context of longstanding neglect suffered by black people in terms of services and facilities. Categories and labels remain important for access to services and benefits, rather than functioning only as barriers to opportunities. Nevertheless, concerns about the effects of crude labelling remain important. These concerns have informed Grover's approach to scoring and interpretation of the GCT, which moves away from test age scores to the use of theoretically informed categories of functioning.

4.2 The methods of the research:

In this section the ethical difficulties encountered during the research will be discussed in detail. It is worth noting that writers in the field frequently frame ethical dilemmas in terms of conflicts between different ethical principles (for example, Steere, 1984) but in the applied setting it is also useful to document the conflicts between ethical principles and practical constraints on the researcher.

4.2.1. Informed consent:

As discussed in section 2, the issue of informed consent is connected to the principle of autonomy. Informed consent involves the provision of all the relevant information that might impinge upon the person's decision, and also relies upon a context within which the person is free to choose, i.e. to make an autonomous decision.

The bulk of the research participants in this study were taken from the school. Permission was obtained from the principal and the school board. Anastasi (1976) refers to this as "representational consent" (p.52), and makes the point that there are no clear rules for when individual consent, parental consent or representational consent is required in the assessment of children. Referring to the *Guidelines for the Collection, Maintenance, and Dissemination of Pupil Records* (Sage Foundation, 1970), Anastasi suggests that aptitude and achievement tests are the sort of assessments for which representational consent is adequate, while personality assessments would require individual consent. The APA guidelines point out that from a legal point of view, the permission of the child's legal guardian is best, while the underlying ethical principle requires permission from somebody "whose primary interest is in the participant's welfare" (1972, p.V11).

It could be argued that parental consent would have been appropriate for the type of testing used in this project. As mentioned earlier, the principal took the matter to the school board and to a Parent-Teacher meeting, and I accepted her view of what was acceptable in the situation. Written consent forms could have been sent to all parents of children within the

age-range of choice, and selection could have been made dependent upon the return of this form with parental consent. This process was never seriously considered, primarily because of the practical aspects of the process. The school has relatively little contact with a large number of the parents, and the response rate may have been very low. The acceptability of the research seemed to be confirmed by the home visits carried out by Ms Walaza and Ms Nqgakayi, who informed the families about their childrens' involvement in the research (often after the fact). No objections were raised by the families, and interestingly, none of the families took up the offer of contacting us for feedback.

In terms of the school testees, therefore, the principal and the teachers were the primary people I contracted with. I attempted to keep the principal and all the teachers informed about the demands I would be making upon them (chiefly removing children from class) and about what I would be offering. The latter - my feedback meetings - could also be seen as a demand of a sort. Times of these meetings were carefully negotiated. As far as I knew, attendance was optional. Certainly there were times when certain teachers were unable to attend, for various reasons, and other teachers appeared reluctant initially but then became more engaged. Feedback from the teachers was requested on a number of occasions and the format of the meetings was altered in accordance with this.

Although consent was obtained formally from the school, the children were always asked whether they would be prepared to participate in the research, as recommended by the APA 1972 guidelines. The child would be asked whether he or she would be prepared to help us, and was told that this would involve working with the research assistant and myself, doing tests and games.

Prior to each testing session it was reiterated that the child was helping us with research. When assessed on the GCT the children were told that this was a new test that we hoped would help other children, and that they were helping us to see if the test was adequate. Prior to the Griffiths the children were warned that some parts of the test would be more difficult than others and that they would not be able to do everything.

In retrospect, this process of obtaining agreement from the child was something of a formality. The children were faced with a request from adults who were clearly backed by the school authorities. Refusal would no doubt have led to repercussions with a teacher, no matter how we dealt with it. As mentioned earlier, respect and obedience was expected and fostered within the school. Morris, Niederbuhl and Mahr (1993) make the point that many mentally handicapped people have had little choice in what happens to them, and this can lead to compliance even when the researcher is at pains to present a choice. This research examined the capacity of mentally handicapped people to provide informed consent to hypothetical treatment situations, and Morris et al. found that many participants had difficulty with the idea that refusal of treatment would be honoured. This had simply not been their experience.

We had no outright refusals, and when a child appeared reluctant, we generally explained and coaxed them until they responded. On occasion children left the room during testing, and when this happened the tester found ways to continue the assessment and re-establish rapport. It could be argued that in appearing reluctant, or in leaving the room, the child was communicating that he or she did not consent to the process, or wished to withdraw from the study. By persisting with the assessment we could be seen as exploiting our position. On the other hand, we went to considerable lengths to avoid distress or feelings of inadequacy, and if a child were allowed to terminate the testing on an experience of failure, one could argue that we were allowing a negative outcome. By coaxing the child back and ensuring that the session ended on a better note, we were attempting to avoid a negative effect. Of course, we were generally completing the assessment as well, and this was clearly in our own interests. We dealt with this concern by making considerable efforts to avoid negative effects, and therefore an experience of being exploited. These are described in the next section.

As far as waiting list children were concerned, there was no question that consent had to be obtained from parents or guardians ('parents' will be used throughout, although the caregiver was frequently a grandparent or other relative). As with the children at the school, there were serious concerns about whether parents of waiting list children were really in a position to refuse. The English and Xhosa versions of the letters sent to the

families can be found in Appendices VI and VII. The letters make it clear that the information would be used for the updating of the records at CMHS, as well as for a research project. Confidentiality in terms of the written research is guaranteed. It is also explicitly stated that there would be no disadvantage to the child if the families do not wish to participate.

The question here is twofold: Firstly, whether this procedure could reasonably be expected to provide adequate information on which the parents could base their decision and secondly, whether it is realistic to expect that parents would feel free to refuse. In terms of the first aspect, the letter was written in language that was as simple and accessible as possible. For example, the English version of the letter refers to 'confidentiality', while in the Xhosa version this word is not used. It is explained that in what is written, no names will appear and we will not say where the information comes from. Nevertheless, assumptions were being made about literacy. In discussion with staff at CMHS, it was decided that it was reasonable to expect that if people were uncertain of the contents of the letter they would seek help from someone more literate. This was also to be the initial contact, and during further contact, when Ms Walaza or Ms Ngqakayi would visit, the validity of the families' consent could be assessed.

Information was not given about possible assessment of the child. This was because screening needed to be conducted first, and the issue of raised expectations was likely to be much more acute once the possibility of assessment was raised.

The second question was whether parents were in a position to refuse to participate in the research. We had no outright refusals, and generally parents seemed pleased at the interest in their child. As mentioned above, parents were initially told that the research assistants were representing CMHS, but that the information would also be used in a research project. If the child was found to be unsuitable, the contact ended after a brief information gathering interview. If the child was found suitable for the research project, further participation would be discussed with the parent by the research assistant, who could explain that a new test was under investigation, and that this project was separate from

services at CMHS and refusal would not compromise these services. The families were also informed that all transport costs would be covered.

Two points of explanation and opportunity for refusal were therefore provided, the first in written form and the second verbally by the person visiting the family. It is extremely difficult to evaluate whether families consented in the hope that some benefit would accrue. It is important not to rule out the possibility that people were willing to participate in research that would be of benefit to others, despite considerable unmet needs on a personal level.

Much of the above discussion rests on the assumption that inclusion in the study would not result in preferential treatment. This had to be critically evaluated, as there is always a risk that those whose needs become visible receive services ahead of others, particularly when there are many people needing placement. The number of waiting list children who obtained placement within a year of assessment exceeded my expectations, and this was a further reason to examine this issue.

All the placements but one followed routine channels. It was arranged with the principal of the school that she would not be informed of my test results and that she would ask for information on children I had assessed only when their names came up for admission to the school in the routine manner (by date of application). The case that received special treatment was a waiting list child that I assessed but had to exclude from the study. He needed special class placement, and these had just been opened at Nompumelelo Special School. As mentioned above, such a facility had never been available before for black children. The principal therefore asked me to alert her to any children who needed such placement, so that waiting list children would receive preference over the large numbers of children who would be referred from schools once they were informed that such classes were available. The child in question went straight into a special class, although it was established that he had been on the waiting list for some time. The speed of this child's placement certainly had to do with the fact that he had been selected for the research project. Another child was offered special class placement but it was decided that he would continue in his school for at least another year.

It was the case therefore, that certain children were in the right place at the right time due to inclusion in the research project. This was despite considerable discussion about how to avoid any preferential treatment. The fact that none of the families refused to participate may indicate that the parents, as black South Africans, recognised the potential value of having their child assessed. This raises the question of whether it is naive to separate research involvement from services in this kind of environment. Nevertheless, it remained important to make it clear that placement could not be expected to result from participation in the research.

In summary, the principal, teachers, School Board and some parents consented to the schoolchildren being included in the research. The children themselves were asked if they would participate, but there are real questions about whether they were free to refuse. The issue of consent was dealt with more thoroughly with the parents of waiting list children. Because of the difficulties with obtaining informed consent, it was particularly important to minimize any risk of negative effects, which will be dealt with in the next section.

4.2.2. Risk of negative effects:

Three areas were identified as having the potential for negative effects. The first was that children might misunderstand why they had been selected for the study. The second was the risk of strong feelings as a result of inevitable failure experiences on testing. The third was the risk of disappointment and distress among some waiting list children and their families who, despite information to the contrary, might have been hoping for placement. First I discuss the selection of children from the classroom, then the procedures during testing are described, and finally the waiting list children and their families are discussed in terms of the risk of negative effects.

When children were selected from the classrooms there was an immediate concern that they should not see themselves as having a problem of some kind. It was explained in the classrooms that Ms Walaza and I were evaluating a new test and needed some children to help us with it, and that we would take only some of the class. On occasion children asked

why they were not included and we would explain that we needed only a certain number of children at different ages. Children who were unable to perform at the baseline of the GCT were excluded from the rest of the testing; this was not told to the child and he or she was thanked for helping us. In general we could not detect that the children perceived this as exclusion or were distressed by it. We made it clear that different children were helping us in different ways, some were included in retest reliability studies, for example, and so there was no obvious standard testing time.

During testing the children were told once again that they were helping us and that this was appreciated. At the beginning of the GCT session they were told that this was the new test we had been talking about. If the child had fallen into the substudy which evaluated inter-rater reliability both Ms Walaza and I would be in the room. The reason for this was explained to the child (that we were checking each other on the scoring system) in the hope that this would reduce any additional anxiety evoked by having both of us there.

Inevitably testing faced the children with experiences of failure. Some children seemed unaware of the failures and this was accepted. In cases where the child was obviously aware of failures it was decided that reassurance alone was inadequate. One or more failed items were repeated at the end of the session, with cues, until the child mastered it. In all cases, the examiner would ask the child what they had found difficult and enjoyable, and the items on which the child performed best would be commented upon. In the cases of the children who were aware of their failures these would be talked about as well, with a focus on the positive aspects of the child's performance (perseverance on a difficult task, for example). Often a failure could be contextualised by the explanation that the item was meant for older children. Further involvement in the research was then discussed with the child, i.e. whether he or she was still to be tested by Ms Walaza, or myself, and whether the child had fallen into a retest study.

One case stands out in which the child was aware of, and distressed by his failures. This was a child with very marked reactions to failure in the classroom too, to the extent that he had been allowed to take on the role of 'teacher's helper'. He managed in this way to avoid tackling any work himself and was highly vulnerable to experiences of failure. In the

testing situation he was helped through one item and reassured. His dilemma was discussed in detail with the teachers in an attempt to help them find ways of developing his competence in a real and grounded way (this testee is referred to as 'Thando' in Appendix VIII). As recommended by the APA (1972) I attempted to ameliorate distress caused by the research, although clearly the problem extended far beyond the research situation itself.

After the entire project was completed a party was held at the school at which all the children were given gifts. Speeches in English and Xhosa were made, in which the teachers thanked me for the work I had done, and I thanked all the children who had helped me in my research. This served to emphasize the fact that the children were seen as contributors to the research.

The children selected from the waiting list presented particular problems, although the risk of negative effects during testing also applied. The main worry was that placement was being hoped for despite the contract set up between myself and the parent, which offered feedback only.

The testing was conducted at Nompumelelo School, and the question of whether this setting was appropriate had been debated at length with colleagues at CMHS. While the setting might have fed into hopes for placement, other options that were practical were difficult to find. On arrival at the school, the testee and the parent were thanked for participating, and the parent was offered tea while the child was assessed. Brief feedback was given after the testing, in which the parent was usually told in the child's presence about positive aspects of his or her performance, and the parent was informed about the feedback interview that would be held later. If the child fell into one of the substudies that required a further assessment, this would be discussed too. Transport costs were always covered.

In various ways, then, it was made clear to the testees and parents that they were helping us. It was also made clear that there was some service component in that information would be fed back to them and to CMHS.

One relative (an aunt who was the caretaker of the testee) became very tearful after her nephew had been assessed. She spoke of her desperation about finding a school for him and the interpreter and I sat with them and discussed the options, which were limited given the area that they came from. I was very concerned not only about the aunt's distress but also about how her nephew felt. After the interview I contacted the CMHS community worker in their area and discussed their situation, and they were ultimately involved in a community-based programme, which offered some support and stimulation for the testee. Once again I was required to follow up the case because of the distress that had been evident in the interview; the family would have been included in the community-based project anyway and my intervention simply called attention to their need for support.

It was after this interview that I stopped assessing waiting list children. This was due to a combination of the practical difficulties involved in tracing the children and screening them, as well as the risk of distress. No doubt I was also protecting myself from the feelings of guilt and helplessness evoked in such situations.

Interestingly, this research occurred at a time when placement was considerably easier than before, due to two developments. The first, as mentioned above, was the establishment of two special classes at Nompumelelo Special School. The second development was the desegregation of a special school that had previously been available only for white children. As a result, seven of the thirteen waiting list children were placed either the same year or the next year, and one was offered a place in the special classes but elected to remain in a regular class at school. As mentioned above, one child was involved in a community-based project. Three others were on the waiting list for the newly-integrated facility, and have a good chance of placement. Ultimately, there were only two of the thirteen who had little chance of placement due to the long waiting lists in their area.

The feedback interviews are discussed in section 4.2.3. Unfortunately, the two testees who were least likely to obtain placement were among those who could not be traced for the feedback interviews. If expectations had been raised, these are the two families who would have been most disappointed.

In summary, various procedures were built into the research specifically to address the risk of negative effects. Attempts were made to reassure those testees who did show distress, as well as to inform others working with them of their specific needs. The changes in facilities that were happening at the time of the research led to placement in about half the group, thus avoiding possible disappointment.

It is extremely difficult to evaluate the extent to which negative effects have been prevented in this type of research. The children who appeared to be unaffected by failure, and those who seemed unaware of their early exclusion from the study, may well have been more aware than was evident. Sinason (1992), writing from a psychoanalytic perspective, shows how intelligence may be masked behind compliance.

4.2.3 The feedback interviews:

The feedback interviews were part of my research contract with teachers and parents, and also offered an opportunity to counter any negative effects that might have occurred among the families of the waiting list group. The group meetings with the teachers will be discussed first.

The aim of these meetings was twofold. The first aim was to provide feedback on children selected by the teachers as being of particular interest to the whole group. Second, I hoped to offer some input on assessment of children, particularly ways in which they could informally evaluate different areas, such as speech, fine-motor co-ordination and social functioning.

I have no doubt that these meetings were of benefit to the teachers. They regularly expressed this and teachers who had missed initial meetings became regular attenders. The teachers frequently brought for discussion emotional and behavioural difficulties they had noticed among the children. Notes on one of these meetings can be found in Appendix VIII.

The manner in which feedback was given on the GCT was, in retrospect, inappropriate. As Anastasi (1976) points out, care must be taken with the reporting of results on a test which is still under evaluation. The teachers were told very clearly that the GCT was being evaluated by the research, and the written reports did not include the GCT results unless they offered important additional information, in which case the research context was made clear.

In my attempt to make the meetings as educative as possible, and to examine the challenges involved in giving feedback on the GCT, I made the mistake of discussing actual test items on occasion. As Anastasi points out “publicity given to specific test items will tend to invalidate the future use of the test with other persons” (1976, p.48). Teachers certainly might have decided to teach certain items to their classes in order to help them develop certain abilities. While I referred to items on both the Griffiths and the GCT, the latter was more cause for alarm. On the Griffiths, the teachers were interested in areas of the test that connected strongly with classroom activities - for example, recognition of letters, ability to write one’s name and counting. It is to be expected that if a teacher receives feedback that a pupil of hers is weak in one particular area, she will concentrate on this. Changes that result from this reflect a real improvement that would show up in a legitimate way on further testing. The dangers in breaching security of test items presumably lie in the possibility of future testees becoming ‘test-wise’ on items that should be unfamiliar.

On the Griffiths such items fall mainly in the Performance subscale, and as there are so many items on this test, only a few examples were presented to the teachers. On the GCT, however, all the items should be unfamiliar, and as there are relatively few items in the entire test, the risk of teachers remembering exact items was higher. There is no question that the nature of the test should have been explained using parallel items.

As far as the parents of the waiting list children were concerned, arrangements had to be made with staff at CMHS as these families were seen as clients of the agency, even if they had simply been placed on the waiting list by another agency. If a social worker was working with the family, the feedback interview was jointly planned and the social worker

attended the meeting. An effort was made to explore ways in which the child's development could be stimulated, and the Griffiths was helpful in this regard as areas of relative strength and weakness could be presented. Topics of concern that had emerged from the home visit, such as behavioural difficulties, were also raised. Everyone seemed glad of the feedback and often additional emotional, behavioural or educational issues were raised by the parent for discussion. Notes on a feedback meeting with a family member can be found in Appendix IX. The main weakness of this aspect of the study is that feedback was arranged some months after the assessment, and four families could not be contacted. The reports on these children were placed in the files at CMHS for use if contact was re-established.

Finally, as described in Chapter 6, many waiting list children were visited and screened out of the research. The information obtained on the children was relayed to the research social worker at CMHS so that the waiting list could be updated.

4.2.4. Confidentiality:

When the parents of children on the waiting list were approached, confidentiality was carefully dealt with. They were informed that they would not be identified in any written documents, and information was also obtained on the understanding that it would be given to CMHS where appropriate. This allowed feedback to CMHS about cases where social work services were needed.

It was part of my agreement with the school that detailed feedback on the childrens' test performances would be made available to the teachers. This issue should have been raised routinely with each testee as part of the process of obtaining consent. In fact, given the fact that the children routinely consented to all the conditions of the testing that were put to them, the issue of confidentiality was not always explicitly raised, and this was a weakness in the study. Ms Walaza and I assumed responsibility for decisions about what sorts of information to share with the teachers. For example, during one of the home visits conducted by Ms Walaza, it emerged that one of the testees at the school was being treated

for hermaphroditism. As far as we knew, this was not known by the school, and we decided to keep the information confidential.

In two cases among the school testees there was an urgent need for social work investigation. In one of these cases there was a need for removal of the child from the home, and in fact the caretaker had repeatedly asked a social worker from CMHS to remove the child. By providing additional information about the unsatisfactory situation at home, I was simply underlining the need expressed by the caretaker herself. In the second case, the child was behaving strangely and was very irregular in his attendance, and the school had little idea of his family situation. The decision to refer the case to CMHS was taken together with the teachers, and was based on concern about possible abuse. In both cases the unsatisfactory nature of the situation was very evident to others (the social worker in the first case and the teachers in the second), and my role was to confirm that there was a need for intervention.

The final issue in the area of confidentiality relates to the school itself. As there is no other special school for black mentally handicapped children in the Western Cape it would be clear that the facility used was Nompumelelo Special School, even if the name of the school was not used. This necessitated some care in how information about the school was documented.

5. Conclusions:

In this chapter ethical difficulties that arose in the research have been described. The adequacy with which these difficulties were addressed was influenced, in part, by the system I was involved with. My relationship with my colleagues at CMHS made it easy to develop a common language about my concerns, and about the concerns of the agency. This led to a more rigorous approach to the issues of consent and confidentiality with the testees taken from the waiting list. At the school, I was faced with the unspoken awkwardness of being a white researcher in a black school. Possibly in response to a desire to fit into the system, I abdicated responsibility to some extent, especially as far as the parents of the school testees were concerned.

My contract with the school meant that the teachers were the people to whom I offered a service. It is hoped that this translated into improved understanding of the pupils in their classes, but this is difficult to evaluate, and such evaluation is beyond the scope of this dissertation. As far as the risk of negative effects is concerned, 'due care' was certainly taken, as required by ethical guidelines. Whether these attempts were altogether successful remains an open question.

It is not surprizing that the APA's ethical guidelines rely heavily on examples of research conducted in academic settings. The authors of the 1972 document comment that they would have liked more information from non-academic settings such as the military, industry and medical settings. The subtle (and no doubt benevolent) coercion that exists in situations such as the special school used here, make issues of consent and confidentiality less salient. The added factors of language problems and mental handicap make for considerable difficulty in applying ethical principles. The influence of these difficulties is located in the overall methodology of the research study in the next chapter.

CHAPTER 6

METHODOLOGY

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1. Introduction:

This chapter presents the methodology and research design of the study. Three areas which could be expected to be discussed in this chapter are of sufficient importance to constitute chapters in their own right. These are the ethical issues that required attention in the study, (Chapter 5), the preliminary work done on the Grover-Counter Test (GCT) before it was administered to the sample, (Chapter 4), and the visits to the homes of a portion of the sample (Chapter 8). These areas are given brief mention in this chapter.

2. Research aims:

The broad aims of the study are:

1. To extend the work on the preliminary norms on the GCT by testing additional samples of non-handicapped schoolchildren in racially integrated schools.
2. To conduct a pilot study on the applicability of the preliminary norms on the GCT to black non-handicapped schoolchildren in racially segregated schools.
3. To undertake a construct validity study on the GCT. This is discussed in detail below.
4. To attempt to establish a measure of criterion or predictive validity, in order to examine the potential usefulness of the GCT in assessments for placement purposes.
5. To examine test-retest and inter-rater reliability.
6. To examine whether the GCT offers a better opportunity for performance to children with marked language disturbances than does the validating instrument.

3. The pilot studies on non-handicapped schoolchildren:

As discussed in detail in Chapter 4, samples of children from independent, racially integrated schools were tested on the GCT prior to this research. In 1990 and 1992 further samples were taken from integrated schools (46 and 30 children respectively).

Very few black children were included in these samples. Furthermore, as most black children attend schools falling under the Department of Education and Training (DET), the black children whose families could afford to send them to independent or private schools constituted an unusual group. There was a need, therefore, for a sample of black children attending DET schools, and in 1990 assessments were carried out on 54 black schoolchildren attending township schools and a creche. Details of this work are provided in Chapter 4.

4. The sample:

4.1 Nature of the sample:

The target population is children with mental handicaps, functioning within a mental age range of 3 to approximately 10 years, without serious visuo-motor problems. The sample, drawn from Nompumelelo Special School, constitutes a "purposive sample" (Sommer & Sommer, 1986, p.200), that is, a group selected because of its particular relevance to the research question. It was originally intended to include a substantial number of children from the Cape Mental Health Society waiting list, but for ethical reasons (detailed in Chapter 5) these assessments were discontinued.

4.2 Sample size:

The sample comprised 50 children attending Nompumelelo Special School and 6 children from the Cape Mental Health Society waiting list. A power analysis was conducted, following Howell (1989), based on an expected effect size of 0.6 (Gottfried & Brody, 1975). At a significance level of 5% the sample size was found to be adequate.

4.3 Screening of the sample:

An attempt was made to select children between the ages of 7 and 16 years. On occasion it would emerge that the child's age had been given incorrectly by the child and/or her teacher. More important was the concern to obtain a group of children who could score above the baseline on the GCT while not reaching the ceiling on the Griffiths. This proved to be difficult, in part because of the lack of documented information about the childrens' levels of functioning. As a result, ceiling effects on the Griffiths occurred, particularly on the Personal/Social and the Practical Reasoning subscales (see Chapter 7). As each subscale was developed as an independent scale, however, children could be included in the sample even if their score on one subscale only could be used.

As mentioned in section 4.1, children with serious visuo-motor problems were excluded. The reason for this exclusion is that throughout the GCT small metal counters are used, which require a certain amount of manual dexterity. The GCT can be used with some people who have motor difficulties, due to the fact that most of the test is not timed, and testees are therefore not penalised for a slow performance. For the purposes of this research, however, it was decided to exclude children with obvious visuo-motor problems as it might complicate interpretation of the results. The sample was therefore screened to exclude those with conditions such as spasticity or hemiplegia.

4.3.1 The testees within Nompumelelo School:

Time was spent in the classrooms after discussions with teachers and explanations about our requirements. One of the researchers would engage with children that seemed potentially suitable, and a brief assessment of the child's visuo-motor coordination would be carried out (using a tower-building task) unless the child's activities within the classroom provided evidence of an ability to cope with the first items on the GCT. The teacher would be asked questions based on some of the highest items on the Personal/Social and Practical Reasoning subscales on the Griffiths when there was a risk

of ceiling effects. Finally, the children would be asked if they would help us with the research.

4.3.2 The children from the Cape Mental Health Society waiting list:

As mentioned above, it was hoped to include a substantial number of children from the waiting list, but due to ethical issues, this was curtailed. The problem of raised expectations of placement among these children and their families is discussed in Chapter 5.

Initially, however, after detailed discussion at Cape Mental Health Society (CMHS), children from the established black townships who were on the waiting list were screened for suitability. A service aspect was involved here, as the waiting list was considered to be out of date and in need of review. Children were chosen who were within the appropriate age range, who were regarded as suitable for training centre placement, and whose listing had no mention of motor problems such as spasticity.

Letters were taken to these families (English and Xhosa versions can be found in Appendices VI and VII) in which it was stated that CMHS wished to update their records, and that the information would also be used for research purposes, if they agreed to participate. Confidentiality was guaranteed and it was also made clear that there would be no disadvantage in terms of service if the family did not wish to participate in the research aspect. The letter gave a date on which the family would be visited by a research assistant to discuss the matter further.

Sixty-three children were identified from the waiting list as potentially suitable. The process of delivering the letters, carried out by the drivers from Nompumelelo School, provided considerable information for CMHS about children who had moved, or had no further need of services. The research assistants then visited some of the families that had been found, sometimes interviewing them immediately if it suited the family, and sometimes arranging an alternative time to visit. If the child appeared suitable for the research, further participation was discussed with the child and the family. It was

explained that placement could not be offered but that detailed feedback would be given. Transport costs were covered. If the child was found not to be suitable, information was simply conveyed back to CMHS and the families were thanked for their participation.

4.3.3 Children excluded from the research after testing:

Some children (13) were found to be unsuitable after some testing had been done. In 6 cases, for example, the Griffiths Scales of Mental Development and the Draw-A-Man test (DAM) were administered but the child was unable to score on the GCT. With the exception of 1 child, whose unsuitability was evident very quickly, reports and feedback were given to either the school or the families.

5. Design of the main study:

5.1 The validity studies:

5.1.1. Criterion validity:

Criterion or predictive validity in research on assessment tools is usually based on a correlation between the test under study and some measure of performance. This is particularly important whenever prediction is involved (Rust & Golombok, 1989). As one of the aims of the study was to evaluate the usefulness of the GCT in terms of assessment for placement (a prediction), some sort of examination of criterion validity was required. This was difficult as examinations are not held at Nompumelelo School and this ruled out a commonly used criterion, end of year marks.

It was decided to use school stream as one criterion. The children are placed, after the first couple of years at the school, into regular classes or the more challenging special classes. Teachers' ratings of the children in the regular classes (the majority in this study) were obtained as a further criterion. The procedures by which the criterion scores were obtained are described in section 12. Only those children who were already placed at the school could be scored.

5.1.2. Construct validity:

An attempt was made, as described above, to evaluate scores on the GCT against some sort of criterion, but the GCT was evaluated mainly in terms of construct validity. This is a powerful form of validity (Kline, 1986), which evaluates whether a test measures what it purports to measure. The method of investigating construct validity is to set up hypotheses about the expected relationships between the test under investigation and validating instruments.

The primary validating instrument in this study is the Griffiths Scales of Mental Development (Griffiths), chosen because it has a number of subscales that could be expected to show differing correlations with the GCT. Considerable work has been done on the Griffiths in South Africa (see, for example, Luiz, 1988c) and it has been found to be useful with black South African children (Mothuloe, 1990).

It was expected that the highest correlations would be between the GCT and subscales D and E on the Griffiths. Subscale D is Eye and Hand Co-ordination, which includes items on drawing, writing and shape recognition which require reasoning ability as well as co-ordination. Subscale E is the Performance subscale which examines non-verbal reasoning through the use of formboards, models to be reproduced and patterns to be constructed with blocks (Griffiths, 1984).

It was expected that the GCT would not correlate significantly with the Locomotor subscale on the Griffiths, which evaluates gross-motor abilities. It was difficult to predict the relationship between the GCT and the remaining three subscales on the Griffiths. The Personal/Social subscale taps adaptive behaviour. The items on the GCT are very different, and were developed with an explicit avoidance of rote-learned tasks. A nonsignificant correlation could therefore be expected. Good reasoning abilities, however, as evidenced on the GCT, would also be expected to manifest in everyday functioning, despite the difference in tasks.

A similar difficulty arises with prediction of the relationship between scores on the GCT and the Hearing and Speech subscale on the Griffiths. The items on the GCT were developed specifically to reduce the verbal demand on the testee, and hence a nonsignificant relationship could be expected with a subscale that has as its primary aim the evaluation of language. This subscale is, however, described as the most intellectual of the Griffiths subscales (Griffiths, 1984) and might, therefore, be expected to show a significant relationship with the GCT.

The Practical Reasoning subscale would, at face value, be likely to correlate significantly with the GCT. Predictions were once again cautious, however, as this subscale comprises heterogeneous items, many of them verbally loaded. Knowledge of coins features strongly.

In summary, high correlations were expected between scores on the GCT and two subscales on the Griffiths, Eye and Hand Co-ordination and Performance. One subscale, Locomotor, was expected to have a nonsignificant correlation with the GCT. Predictions could not be made with the remaining three subscales, Personal/Social, Hearing and Speech and Practical Reasoning.

One of the central aims of the GCT is to avoid discrimination against people who have expressive and/or receptive language difficulties. Part of the construct validity study was an examination of whether there were differences in performance between those with and without language problems, on the GCT and on the Griffiths subscales. Language ratings were obtained on the children attending the school. For each testee, two teachers were asked to state whether there was a marked language deficit which interfered with classroom communication. One of the teachers was the child's current classteacher, while the other was a prior classteacher. In cases where the child had only ever had one teacher at the school, another teacher who knew the child was asked to act as the second rater. Two language ratings were obtained for increased reliability.

The DAM test was included as it is a commonly used screening test. A significant correlation with the GCT was cautiously expected, given the work of Richter, Griesel and

Wortley (1989) who found that the DAM underestimated the abilities of black non-handicapped children over the age of 8 years.

5.2 Order of testing:

The study was counterbalanced in terms of order of testing on the GCT and the Griffiths.

5.3 Pilot study at Nompumelelo School:

The first 17 testees constituted a pilot study which was analysed ahead of the main sample. Significant correlations were found between the GCT test age and mental age on a number of subscales on the Griffiths, and the first of the test-retest studies (see section 6.2.1) showed high correlations between the two administrations.

5.4 Home visits:

As discussed in chapter 8, home visits were conducted on 40 children in the sample. These visits were conducted by the research assistant (N. Walaza) and a colleague from the University of Cape Town (N. Ngqakayi). Ms Ngqakayi is a clinical psychologist who was in a research post in the Department of Psychology. She was conducting an overlapping research project in the area of mental handicap. Ms Ngqakayi was familiarised with the overall aims of the current research and the specific issues to address during the home visits.

6. Reliability studies:

Test-retest and inter-rater reliability studies were conducted. With the exception of the test-retest study on the pilot group (described below), the research participants were allocated to the different reliability studies using a table of random numbers.

6.1 Inter-rater reliability study:

A group of 11 children were tested on the GCT by one of the researchers, while the other observed and scored independently. The study was counterbalanced.

6.2 Test-retest studies:

The time period between first and second test required careful consideration. In general the period should be long enough to prevent carry-over, and some authors suggest a minimum of 6 months (eg. Kline, 1986). In this study, however, the participants were children and were therefore developing and changing, albeit at a slower rate than non-handicapped children. A 6 month period between testing was therefore considered to be too long. As handicapped children by definition have difficulty learning, the risk of carry-over was less than would be expected with a non-handicapped sample. In these studies, two time-periods were used, 3 months and 6-8 weeks.

6.2.1. Test-retest 1: Over 3 months:

The pilot group of 17 testees was retested after approximately 3 months. Both administrations were carried out by the primary researcher (the author).

6.2.2. Test-retest 2: Over 6-8 weeks:

A group of 11 children were retested after 6-8 weeks, both administrations being carried out by the primary researcher.

6.2.3. Test-retest using different examiners:

In this substudy, 16 children were tested by either the primary researcher or the research assistant, and retested 6-8 weeks later by the other. The study was counterbalanced for order of examiner. There was some evidence from the pilot study that test-retest reliability would be satisfactory, and it was expected that this substudy would provide an indication of whether the researchers were eliciting different levels of performance.

7. Training of researchers:

The primary researcher was trained in the use and interpretation of the GCT by Professor V.M. Grover, through trial administrations and discussion of the protocols obtained on the non-handicapped schoolchildren. The Xhosa-speaking research assistant (N. Walaza), who was an intern clinical psychologist at the time, was trained to use the GCT by the primary researcher. She conducted trial administrations and satisfactorily conducted an observed administration for Professor Grover. A colleague (Dr. J. Steere), trained in the use of the GCT by the primary researcher, assisted in the 1992 pilot study on non-handicapped schoolchildren.

Both the primary researcher and the research assistant (N.W.) were trained as users of the Griffiths by Professor D. Luiz in 1990.

8. Interpreters:

Although the primary researcher has a basic level of familiarity with Xhosa, interpreters accompanied her throughout, in order to help establish rapport and to help in instances of misunderstanding. A nursing sister, with many years experience as an interpreter in research projects, assisted with the non-handicapped schoolchildren and for the sample. A second interpreter, also with experience in research contexts, assisted with some of the feedback sessions with families.

9. Settings:

All the assessments were conducted at Nompumelelo School in Guguletu. Two offices were made available for the research in the administration section of the school. This section is situated away from the classrooms and playground and disturbances were infrequent. Feedback meetings with the teachers were held in one of these offices.

The head office of Cape Mental Health Society (CMHS) was used for feedback sessions with family members of the children taken from the waiting list.

10. Equipment:

Most of the material for the GCT (box, base with recesses, and the counters) was constructed at a protective workshop under the auspices of CMHS. The cards were made by the primary researcher.

As discussed in Chapter 7, a set of steps had to be constructed in order to administer items on the Locomotor subscale of the Griffiths, as there were no stairs at the school. A portable, wooden 4-step staircase was constructed with the advice of an occupational therapist.

11. Test Procedures:

11.1 Consent to inclusion in the study:

Permission to assess children at Nompumelelo School was provided by the principal, who also presented the research proposal to the School Board and to a Parent-Teacher meeting. Each child was also asked if he or she was willing to participate. A detailed discussion is provided in Chapter 5 of the difficulties in obtaining consent under the specific circumstances of this study.

11.2 General information given to research participants:

As mentioned in section 4.3.1 the researchers spent time in the classrooms prior to testing. It was explained in the classrooms that children were being selected for participation in a research study, and this was repeated at the beginning of testing sessions. Prior to testing on the Griffiths children were told that they would find some parts of the testing more difficult than others, and before the GCT was administered the children were told that they would be helping to evaluate a new test. Attempts to ameliorate failure experiences are described in Chapter 5.

11.3 Procedures on the GCT:

The GCT was administered in Xhosa by the primary researcher. The Xhosa instructions were drawn up using the back-translation method, and the procedures used broadly followed Brislin (1970). The English instructions on the GCT use very simple language, which facilitated translation. The research assistant (N.W.) translated the original instructions into Xhosa, and a Xhosa-speaking social worker at CMHS conducted a blind translation of this version back into English. Minor discrepancies were discussed in a meeting with both translators. The research interpreter evaluated the Xhosa version and pretests were carried out by the research assistant. Adequacy of the translation was difficult to evaluate at the top end of the scale as very few children, in the pilot studies and in the sample, could succeed on these items.

Details of administration of the GCT are provided in Chapter 3.

11.4 Procedures on the Griffiths Scales of mental development:

The Griffiths was administered in Xhosa following the translation of Nqweni (1988), but with simplification of language. Certain substitutions were made, which are presented in Chapter 7. In general, children were tested on the Griffiths in one session, but very slow children were tested over two sessions.

The Personal/Social scale on the Griffiths evaluates various areas of everyday functioning, such as dressing, washing and ability to communicate personal information, such as age and sex. Much of this scale can be completed through conversation with the testee (Griffiths, 1984), and there is evidence that mentally handicapped people with adequate verbal skills can act as reliable informants of their own everyday behaviour (Voelker et al., 1990). If there was doubt about scoring on a particular item, which occurred mainly with children who had expressive language problems, teachers were asked to assist. If difficulties remained, a home visit was scheduled in order to obtain the information from the family.

11.5 Procedures on the Draw-A-Man test:

The pilot group were given a separate DAM test, while the scores for the rest of the sample were taken from the drawings done on the Eye & Hand Co-ordination subscale on the Griffiths. It was decided to keep the two sets of drawings separate as the instructions given were slightly different. For example, it is permissible on the Griffiths to say to the child “Draw Daddy”, while this kind of suggestion is not permitted according to standard Goodenough technique (Goodenough, 1926). Also, the testees were asked whether they wanted to add anything once they had finished on the DAM, but not on the Griffiths drawings.

The Goodenough (1926) scoring was used, as this has been found to be more appropriate than the Goodenough-Harris scoring for black South African children (Richter et al., 1989).

12. Scores for criterion validity: school streaming and teachers’ ratings of functioning:

12.1 School stream:

The sample was drawn from 9 classes in Nompumelelo School. As mentioned earlier, two of these are entry classes, in which children new to the school remain for 2-3 years. After this a decision is made by the teacher and the principal about streaming into the regular classes or the more academically-oriented special classes, of which there were two in the school at the time of the research. The regular classes are divided into 3 levels, through which the children move as they become older.

For all except those in the entry classes, it was straightforward to obtain a ‘stream score’. Those in the regular classes were scored 1 and those in special classes were scored 2. For children in the entry classes, for whom the streaming decision had not yet been made, it was decided to ask the two entry class teachers for their evaluation of whether the child would be streamed into an special or regular class.

Stream scores were obtained in 1990 and 1992, which allowed for alterations in streaming. Both sets of scores were used in the final analyses.

12.2 Teacher's ratings of the level of functioning of testees:

Given that school streaming provides a rather gross measure of functioning, it was decided to add teachers' ratings as a further criterion. The teachers were asked, in private interviews, to evaluate the functioning of each of the pupils in their class that fell into the sample. Initially they were asked to use the ratings 'high' and 'low' but teachers frequently asked to use a rating of 'medium' and so this was added. In each case, detailed reasons for the ratings were elicited.

An attempt was made to obtain two ratings of functioning for each child, one from the class teacher and one from another teacher who knew the child. The second rating did not correlate well with that of the classteacher, however, and was dropped. This problem was due, first, to the fact that children may remain with one teacher for 2 or 3 years. Second, some of the children had only been taught by one teacher at the school for any length of time.

These ratings were obtained on the entry class and regular class children only. Teachers were asked to rate the children against the average level of functioning that they expected in their classes. This instruction was included in order to avoid the confounding effects of age. The ratings on the special class children were excluded because the expectations are very different in these classes, and the ratings would have had to be analysed separately. As the special class group was relatively small, it was decided to exclude these scores.

13. **Analysis of Data:**

The data was coded by the primary researcher. The data coded includes the age and sex of the subject, the dates of assessment and order of test administration. All the scores on the GCT were coded but only the subscale totals and overall total on the Griffiths were

included. Other information that was coded included whether the child had a language problem, the scores on the Draw-A-Man, and information from the home visits.

Analyses (mainly correlations and *t* tests) were conducted using Minitab Analysis Software. Many of the comparisons between the GCT and the Griffiths were done on the basis of mental age, and it must be noted that this is rather stringent. For most practical uses, categories of functioning would be used.

14. The service aspect of the research project:

In Chapter 5 the ethical aspects of the service component in this project is discussed in detail.

14.1 Services offered to Nompumelelo School:

14.1.1. Feedback sessions with teachers:

Some information on these meetings is presented in Chapter 5. In addition to periodic brief meetings with the staff at the school to discuss the research itself, the research assistant held 13 meetings with the teachers at a regular time between May and October 1990. Feedback about the performance of the children on the Griffiths was provided, as well as some information from the home visits. The primary researcher then took over and another 12 meetings were held in the second half of 1991, and into 1992. Information on the Griffiths, the GCT and the home visits were presented as well as general discussion about the teachers' experience of the children. As there was limited time in the group meetings, teachers were asked which children they would most like to discuss in this context. The performances on the remaining children were discussed privately with the classteacher. Feedback was also provided on children who had been assessed, or whose homes had been visited, but who were excluded from the research study for some reason.

Notes on one of the feedback sessions are provided in Appendix VIII.

14.1.2. Reports:

Written reports on all the research participants within the school were provided to the school, and an example may be found in Appendix X.

14.2 Feedback sessions with parents/caregivers:

These sessions were held with caregivers of the children from the CMHS waiting list, who were included in the sample. The aim of the sessions was to provide feedback on the child's performance, to suggest ways in which the families could foster the child's development (if this seemed appropriate) and to thank the families for their participation. As discussed in Chapter 5, behavioural and emotional issues were often raised in these meetings as well as family difficulties.

Family members of 3 of the 6 waiting list children were interviewed. Repeated attempts were made to contact the other 3 families. Of the 6 children from the waiting list who were assessed but then excluded, 4 family members were interviewed. One had moved to the Transkei, and the remaining family were in crisis and the social worker involved with them was of the opinion that it was not the right time for a feedback interview. In all cases, reports were placed in the CMHS files.

Notes on one of the feedback interviews are provided in Appendix IX.

14.3 Services provided directly to CMHS:

During the course of the research, a number of meetings were held to discuss what would be offered to the agency, as well as procedural matters and ethical issues. These meetings were held with the research social worker, the director, deputy director and head of the Intake Department. The ethical concerns about the testing of waiting list children was discussed at a meeting of the heads of Departments.

As mentioned in section 4.3.2, information obtained during the research was used to update the CMHS waiting list. In addition, a number of research participants were receiving social work intervention from CMHS. In all these cases, feedback was given to the relevant social worker about their inclusion in the research, a report was provided for the file, and the social worker was consulted about the feedback interview with the parents, if the child was on the waiting list.

As mentioned in Chapter 5, a training centre was desegregated during the research. As a result some children were transferred from Nompumelelo School to the new facility and the research reports were used for admission purposes.

Several of the children included in the research were in need of intervention. The problems included suspected child abuse or neglect, behavioural disturbances and caregivers who needed help in understanding the child's limitations. CMHS was approached in each case, after discussion with the school where appropriate, and files were reopened in some cases.

15. Concluding comments:

This chapter has presented the research aims and the methodology followed in the pilot work and the main research study. Before the presentation of the results, Chapter 7 outlines important points arising from the use of the Griffiths, and Chapter 8 summarises the main findings from the home visits.

CHAPTER 7

THE GRIFFITHS SCALES OF MENTAL DEVELOPMENT

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1. Introduction:

1.1 Aim:

The aim of this chapter is to document some methodological issues that arose in the use of the Griffiths in the research sample. The Griffiths was chosen on the basis of criteria important for the research (as discussed in Chapter 6) and would not have been the assessment of choice, in a clinical context, for some of the older testees. On many of the testees only certain subscales could be reliably used, leading to different sample sizes on each subscale. Full scale scores were obtained on a small group and these results are presented and discussed in terms of the clinical applications of the Griffiths with mentally handicapped children and adolescents. Reference is made to the entire sample in the discussion of methodological issues, in the statistical analysis examining the inter-correlations of the subscales, and in the examination of the effect of language problems on performance.

Beail (1985) makes two important points about research using the Griffiths with handicapped groups. First, he points out that there is little documentation on the use of the Griffiths with older children and adolescents, despite Griffith's assertion that "in their final form these tests are adequate for the testing of *mentally handicapped* children far *beyond* the eighth year" (1984, p.9). Second, he comments that developmental scales are used most frequently on children who are seen as handicapped, yet these children are not represented in the standardization samples.

This underlines the importance of the documentation of the use of these scales with handicapped children. Particular attention is given to the performances of those with severe language deficits. First, however, background information on the Griffiths, and its use in South Africa, is presented.

1.2 The Griffiths in South Africa:

The Griffiths Scales of Mental Development were developed in 1954 to assess babies up to 2 years. The Extended Scales were developed in 1970 and allow assessment up to 8 years. The 6 subscales were developed to stand as independent scales, but also to allow comparison between different areas of functioning at a similar level of difficulty at each age level. This permits a profile to be drawn up with ease. The subscales are A: Locomotor (gross motor co-ordination), B: Personal/Social (self-help and social skills), C: Hearing and Speech, D: Eye and Hand Co-ordination, E: Performance (eye and hand co-ordination tasks with the elements of speed and problem-solving) and F: Practical Reasoning (including counting, time telling and various conceptual items).

The Griffiths has been adapted for use in many countries, and a number of researchers see the test as potentially culture-fair (Bhamjee, 1991; Mothuloe, 1990). This is because an attempt was made to construct the test from the natural activities of children, including play. The Griffiths also draws on the normal development of language and motor skills, and these are seen to occur at a regular and fixed rate in different cultures. Bhamjee (1991) cautions against too hasty a dismissal of difficulties in cross-cultural testing, and makes reference to the importance of non-ability factors such as familiarity with the stimulus and motivation. As has been discussed in Chapter 3, cultural and class background may have a marked impact on test performance. In South Africa the Griffiths has, however, been found to be clinically useful with black and white children, as will be discussed below.

The original 1960 norms have been found to be in need of revision. Hanson and Aldridge Smith (1987) found a mean General Quotient of 111.7 (instead of 100) in a group of British children tested around 1980. They argue that many non-handicapped children beyond 4 years fail to reach a ceiling on the Griffiths. In a study of most common applications of the Griffiths, Hanson and Aldridge Smith (1982) found that the most common age range of children tested was 2 - 4 years. It seems therefore, that the performance of British children in the 1980s exceeded that of the original norm group. This has clearly altered the applicability of the Griffiths in older non-handicapped children.

In local research on the Griffiths, a group of white 5 year old children were found to be more comparable to the 1980 sample of Hanson and Aldridge Smith (1987) than to the original standardisation group (Allan, Luiz & Foxcroft, 1988). Bhamjee (1991) examined the performance of South African indian children and in general found that the 1980 norms were more applicable, especially for school-going children. Mothuloe (1990) found that the original norms were applicable to a group of Tswana-speaking black South African children.

Differences in performance according to socio-economic status were found in the study by Allan et al. (1988), confirming research that children from higher socio-economic status families do better on the Griffiths. Mothuloe (1990) posits that overall disadvantage due to the political context in South Africa might override socio-economic variables among blacks.

The local research suggests therefore, that there is a difference between the performance of black children and other groups of children studied. The black children conform to the original standardisation group while the others approximate the later groups. This difference on overall score, as mentioned earlier, is 11.7 points (Hanson & Aldridge Smith, 1987) which is virtually one standard deviation on the Griffiths. This is in line with differences between performances of black and white children on a number of instruments (Richter, 1990), and, as discussed in Chapter 3, these differences in performance are predictable, given the impact of factors such as apartheid education.

Concurrent validity studies have also been conducted with the Griffiths in South Africa. Mothuloe (1990) found that the scores on the Griffiths correlated significantly with a locally developed test, the Aptitude Tests for School Beginners (ASB), and both correlated well with end of year marks. Luiz and Heimes (1988) found the Griffiths to correlate highly with the Junior South African Intelligence Scales. High correlations were preserved when various subscales on the Griffiths were omitted. As Bhamjee (1991) points out, this means that the Griffiths can be flexibly used with people with handicaps, as one can omit the subscale most affected by the handicap.

There are a number of international studies illustrating the usefulness of the Griffiths in early evaluation of developmental delays (for example, Bidder, Bryant & Gray, 1975). In South Africa, subscale analysis on the Griffiths has been found to be very useful in the assessment of physically handicapped children (Krige, 1988) and in a case of hearing loss (Luiz, 1988a). In her case study, Luiz shows clearly how very specific fall-off was demonstrated in the two subscales most affected by speech and hearing (subscales C and F), and how improvement due to remediation could be monitored. Houston-McMillan (1988) has documented the usefulness of the Griffiths in screening and monitoring pre-schoolers found to have borderline mental handicaps.

In conclusion, a body of research on the Griffiths is being generated in South Africa, both with handicapped and non-handicapped children. Concurrent and predictive validity studies are encouraging, and most important for this paper, Mothuloe's (1990) study suggests that the original norms on the Griffiths are appropriate for use with South African black children.

2. Methodological points:

2.1 Language:

The research assistant, Ms Nomfundo Walaza, administered the Griffiths in Xhosa, following the translation by Nqweni (1988). Ms Walaza did, however, simplify the language as far as possible, and other alterations are discussed below.

2.2 Stairs:

A number of items on the Locomotor subscale deal with the testee's ability to walk up, walk down, jump off and run up and down stairs. As the school does not have any steps a portable wooden 4-step staircase (with a handrail) was constructed with the advice of an occupational therapist. This was adequate for most of the items, but A V 6 (running upstairs) and A VIII 1 (runs downstairs) remained difficult to evaluate.

2.3 Performance on the Locomotor subscale by older children:

Performance by adolescents on locomotor tasks had to be interpreted with caution. Some older testees were no longer running around or skipping with a rope as they may have done when they were younger. Obesity interfered with performance on this subscale in some cases.

2.4 The Personal / Social subscale:

As mentioned in Chapter 6, this subscale was one of those on which ceiling effects most often occurred. This is to be expected as considerable attention is given to the development of self-help and social skills at the school, and often at home. As this problem became evident fairly early in the research, the importance of this subscale was de-emphasised. Detailed attention was therefore not given to the problem of culturally loaded items, but these are mentioned here as they have clinical significance.

Problems were encountered on this subscale with items dealing with the use of table utensils and ability to lay a table. These items were administered as closely as possible to the set method. This led to many failures on these items in testees who were clearly regarded as independent eaters by their families, and who performed household chores adequately but were never called upon to lay a table as the family did not eat in such a formal manner.

Mothuloe (1990) deals with with these problems very constructively by replacing these items with more culturally appropriate ones. B V 3 and B VII 2, for example, require the use of knife and fork. Mothuloe changes this to the use of a spoon or fork. Two of the table-laying items are replaced with tasks of putting away eating utensils, and the most difficult of these items (B VIII 7: Can lay a table without help or supervision) is replaced by "Can wash dishes without help or supervision" (Mothuloe, 1990, p.81). Mothuloe does not mention standardisation procedures, but these appear to be useful and appropriate replacements for highly culturally loaded items.

Interestingly, Mothuloe (1990) does not mention any problem with B VIII 5, “Knows birthday - day and month”. It is my experience that many local non-handicapped black children are uncertain of their birthdays, and Ms Walaza confirmed that often birthdays are not given particular emphasis. It is likely that this too is a highly culturally loaded item.

2.5 The Hearing and Speech subscale:

Items C V 2 and C VIII 6 deal with opposites, and one of the items is “Coal is black, snow is ...”. Snow is outside the experience of most South African children, and Mothuloe (1990) substituted “clouds”. In this study, “clouds” was thought to be problematic as they may not be white. Milk (*ubisi*) was selected instead.

Two changes were made on the Similarities items (C VII 4, C VIII 2 and C VIII 5). ‘Potato’ replaced ‘turnip’ in “How are a carrot and turnip alike”; this is suggested in Griffith’s Supplementary Notes, in **The Abilities of Young Children** (Griffiths, 1984). ‘Lion’ (*ingonyama*) replaced ‘tiger’ in “How are a tiger and a cat alike”. Ms Walaza considered that tigers were not animals that black children were familiar with, and it is noteworthy that in Nqweni’s translation into Xhosa, the English word ‘tiger’ is used.

The items involving repetition of sentences also present problems in translation (6 syllable sentences, C III 4; 10 syllable sentences, C V 4; 16 syllable sentences, C VII 1). The original sentences have been translated into Afrikaans (Allan, 1986), Xhosa (Nqweni, 1988) and Setswana (Mothuloe, 1990) without preserving the required number of syllables. Thus one of the original 6 syllable sentences, “The mouse had a long tail” translates into “*die muis het 'n lang stert gehad*” (8 syllables, Allan, 1986, p.2), “*impuku ibinomsila omde*” (10 syllables, Nqweni, 1988, p.2) and “*legotlo le ne le na le mogatla o moleele*” (15 syllables, Mothuloe, 1990, p.167). This error was carried through into this study as well, and equivalent sentences will have to be developed.

2.6 Order of items:

Allan et al.(1988) found that items on the Griffiths are not strictly in order of difficulty for South African children. This was borne out in this study. On the Practical Reasoning subscale, for example, there are many items dealing with recognition of coins. Some of the testees in this study passed all these items while failing all the other items at a much lower level.

2.7 Administration time:

Ms Walaza assessed most of the testees in an hour and a half, but some took up to two and a half hours, which necessitated a break in testing. Even one and a half hours is rather demanding for a mentally handicapped child.

2.8 Feedback:

As mentioned earlier, detailed feedback was provided to teachers at the school, and in the case of waiting list children, to their parents. The Griffiths was found to be very useful in this regard. The teachers commented on the usefulness of subscale analysis, and it was hoped that these feedback sessions alerted the teachers to the importance of evaluating different areas of functioning.

Mental age scores were found to facilitate understandable and acceptable feedback to parents, confirming the experience of Houston-McMillan (1988).

3. Results:

3.1 The 14 testees with full assessments:

The 14 children on whom an entire Griffiths could be administered comprised 7 boys and 7 girls. The age range was 7 years 10 months to 16 years 11 months. The mean age was 11 years 6 months. Among the group was one child with Down's Syndrome, one child with

Treacher-Collins Syndrome (characterized by abnormalities of the facial bones and conduction deafness), two children with hemiplegia and five children with a history of epilepsy.

The General Quotient ranged from 24 to 53 in this group, with a mean of 35. Two children scored in the mild range (General Quotient scores above 50) and they were 7 and 9 years old. The means of the subscale quotients are presented in Table 1.

*Table 1: Means of Griffiths subscale quotients
(N = 14)*

	A	B	C	D	E	F
\bar{x}	39.2	39.4	30.3	35.5	35.6	28.7
s	13.09	12.94	12.84	11.95	9.28	10.63

Table 2 presents the numbers of children in categories reflecting differences between the highest and lowest subscale scores.

Table 2: Numbers of testees in categories reflecting differences between highest and lowest subscale scores

	1 - 15	16 - 30	31 - 45	N
Boys	2	4	1	7
Girls	3	3	1	7
Both	5	7	2	14

3.2 Inter-correlations between subscales:

*Table 3: Inter-correlations between Griffiths subscales
based on mental age scores*

	A	B	C	D	E
B	r = .369 n = 16 NS				
C	r = .354 n = 36 p < .034	r = .782 n = 17 p < .0004			
D	r = .481 n = 43 p < .001	r = .613 n = 18 p < .007	r = .578 n = 43 p < .0004		
E	r = .397 n = 39 p < .312	r = .474 n = 17 p < .055	r = .500 n = 38 p < .001	r = .708 n = 46 p < .0004	
F	r = .235 n = 21 NS	r = .739 n = 15 p < .002	r = .895 n = 25 p < .0004	r = .465 n = 25 p < .019	r = .301 n = 23 NS

Table 3 shows that, in this sample, performance on a number of the Griffiths subscales is inter-correlated to a significant degree (correlations were Pearson product-moment correlation coefficients). Some of these are entirely to be expected. The highly significant correlation between subscales D (Eye & Hand Co-ordination) and E (Performance), for example, is expected given that both are non-verbal subscales involving manipulation of materials. One might also expect that subscale A (Locomotor), tapping as it does gross-motor co-ordination, would correlate significantly with subscale D, fine-motor co-ordination. The significant correlations are also to be expected between subscales which have a high proportion of verbal items, C (Hearing & Speech) and F (Practical Reasoning). Strikingly though, there are significant correlations between subscale C (Hearing & Speech) and subscales D, E and A, none of which require expressive language.

3.3 Performance of those with and without language problems:

Table 4 presents a comparison of mean scores between testees with and without language problems, for each of the Griffiths subscales. These results are based on the entire sample. As was mentioned earlier, there are different sample sizes for each subscale.

Table 4: Comparison on Griffiths subscales of testees with and without language deficits

	A		B		C		D		E		F	
	r	\bar{x}	r	\bar{x}	r	\bar{x}	r	\bar{x}	r	\bar{x}	r	\bar{x}
Language Problem	10	52.2	9	48.9	10	33.3	12	51.5	31	48.2	14	35.6
No Language Problem	28	63.1	9	60.4	29	61.2	36	62.7	11	57.3	9	49.6
N	38		18		39		48		42		23	
	$t = 2.31$		$t = 2.38$		$t = 8.58$		$t = 2.61$		$t = 2.93$		$t = 3.12$	
	$p < .035$		$p < .035$		$p < .0004$		$p < .049$		$p < .0082$		$p < .0059$	

These results show that on each of the 6 Griffiths subscales, children described by teachers as having serious language problems did significantly less well than those without such problems. On the GCT however, there was no significant difference between these two groups. This result is reported in Chapter 9.

4. **Concluding comments:**

As discussed in Chapter 2, there is a considerable paucity of test material that can be used with black children with mental handicaps. It is therefore useful to consider the clinical possibilities arising from research use of the Griffiths in such a population. It seems that the Griffiths can be useful with moderately handicapped children and adolescents. Two of

the testees scored in the mild range; they were 7 and 9 years old, and obviously mildly handicapped children older than this may begin to reach the ceiling. Ceiling effects are not always easy to anticipate. This might mean that in a clinical setting the Griffiths may be started and then found to be inappropriate. The subscales on which ceiling effects were most commonly found were the Personal/Social subscale and the Practical Reasoning subscale.

This chapter has outlined some methodological problems in the use of the Griffiths in a sample of black children. Most of these difficulties seem reasonably easy to overcome. It was found that the Griffiths results facilitated feedback with teachers and parents, which is a considerable strength.

The size of subscale differences in this group were necessarily limited given the overall low scores (compare, for example, Luiz, 1988b). The inter-correlations between subscales are of interest as these do not appear to be commonly reported in the literature. Significant correlations were found between subscales where this would not, at face value, be expected.

The most interesting results pertain to the effect of language problems on performance on the Griffiths. The impression that this test is highly verbally loaded is borne out. In all subscales, including the ones that appear mostly nonverbal, those with language problems perform significantly below those without language problems. This was not the case on the GCT.

It is interesting that in documented case studies (such as Luiz, 1988a) a child with hearing loss showed a very specific deficit on the Hearing and Speech, and Practical Reasoning subscales. It is possible that children with mental handicaps show a different pattern of response if they have a hearing or language impairment. First, children with a mental handicap will have limits to their comprehension. The additional handicap of a speech or language problem will further limit their comprehension of instructions on verbal and non-verbal tasks, and they might have less ability to compensate effectively for their language difficulties.

In addition, certain authors describe particular problems with motivation in children with mental handicaps (for example, Balla & Zigler, 1979; Zigler & Hodapp, 1986). It could be postulated that children with a mental handicap and a particular weakness in the area of language, may respond with a low expectation of success on a test that has many verbal instructions. They may be less able than non-handicapped children to perform at their best on the less verbal parts of the test having battled on the verbal parts. That is, they may easily become demoralized as a result of a history marked by failure to achieve.

It must be mentioned that in the clinical setting, criterion-referenced testing with a view to a specific placement often makes more sense than developmental testing with older adolescents. An example is work skills assessment for a 16 year old who, within a couple of years, will require occupational placement. As far as any placement decision goes, the specific skills required for the particular facility make a most valuable basis for assessment, and one that seems most fair.

In conclusion, the Griffiths shows some potential for clinical use with black mentally handicapped children and adolescents. The results presented here suggest caution in the interpretation performance on the Griffiths if a mentally handicapped child is known to have verbal deficits, whether the child is black or not. Further investigation of this result would be worthwhile.

CHAPTER 8

HOME VISITS:

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1. Introduction:

The information presented here was originally gathered for service purposes. When asked what services the researcher could offer the school, the principal of Nompumelelo Special School reported that the teachers often know relatively little about the pupils' home backgrounds and that this was often a valuable aspect of psychological reports. In addition, it was felt that information about play materials and activities would provide a useful background for test performance.

In all, 40 of the 56 children were visited at home. The first 17 children, who constituted a pilot group, all received home visits. When it became clear that not all the children could be visited because of time constraints, the teachers were asked to choose the children about whom they most needed information. Children were added to the list when certain items on the Griffiths needed clarification.

In some cases, children were excluded from the list because they lived in squatter areas and their homes were likely to be difficult to find. There may be a bias, therefore, towards the children in the school who were more advantaged in terms of housing. One would certainly expect that homes in established townships would be better serviced in terms of provision of water and electricity, although this is not always the case in Khayelitsha. However, children in squatter areas are not necessarily worse off when one considers factors such as the number of people in the home, type of family relationships, and support networks.

The visits were carried out by the research assistant, Ms. Nomfundo Walaza and a colleague, Ms. Nomsa Ngqakayi, who was conducting an overlapping research study. A glossary was drawn up in an effort to standardise the interviews. The home visit schedule and glossary can be found in Appendices XI and XII.

Some of the parents/guardians had been informed by the principal about the research study at a quarterly parent/teacher meeting in early 1990. This information certainly did not

reach all the families who were visited. The research assistants arrived unannounced at the homes and requested an interview for research purposes, returning at a more convenient time if necessary. In the case of the waiting list children, the visit was preceded by a detailed letter, as described in Chapter 6. It was decided that the research assistants would conduct the interviews fairly informally and areas that seemed sensitive would not be probed. This approach seemed crucial given the lack of prior preparation of families for the visit, and as a result certain areas (for example, questions about income) were rarely covered in detail.

2. The Setting:

Of the 40 children visited, 67.5% (27 children) were living with at least one of their parents, often with extended family members as well. The rest (13) were living with extended family only, except for one child who was in foster care. The children were living mainly in council housing in townships in Cape Town (Guguletu, Langa, Nyanga, New and Old Crossroads, and Khayelitsha), with the exception of 3 who were living in squatter areas (KTC and Site B, Khayelitsha).

In 38 cases information was obtained on whether the child had lived anywhere else for more than one year. In 34.2% (13 cases) this was so. The other caretaker was generally a relative, often a grandmother, who was living in the Transkei or Ciskei (nominally independent homelands), and who took the child to allow the mother to return to work in the city. This clearly reflects the lack of facilities for the care of mentally handicapped children in Cape Town, and is an illustration of the way in which the homeland system has split many South African families. Reasons for the child being moved to Cape Town were not always documented, but in some cases the caregiver became ill or too frail to look after the child, in other cases, the child was brought to Cape Town in the hope of obtaining treatment and placement.

General issues about customary history-taking are raised by the fact that over a third of the sample had another caregiver. It is important to establish the various caregivers that the

child has had, and the significant moves (and possibly losses) that the child has dealt with. A full developmental history may be difficult to obtain in these cases.

On average, the homes had 4 rooms (including the bathroom if this was inside the house). In 2 cases, the family was living in one room, and in 2 cases the home had 8 rooms. The mean number of people per household was 7.6 with a range of 3 to 18. In 60% of homes, electricity was connected. In 77.5% of homes water was connected (sometimes in the yard outside) but only 5% had hot water. Five percent of the children had their own rooms (2 children) and 22.5% (9) had their own bed. While details were not obtained in all cases of children who did not have their own bed, at least 14 (45%) shared a bed/mattress with one other person. In a few cases it was documented that a large bed/mattress was shared by more than two people. Seven children slept on the floor; in 2 of these cases there were no beds in the household.

The average household size found in this study is higher than that found in Guguletu by Prinsloo in 1984, who reports a mean household size of 5.48. In this study, the 17 Guguletu households had an average size of 7.35 people. While these visits cannot be regarded in any way as a survey, an increase in overcrowding since 1984 would not be a surprising finding given the growing housing shortage in South African townships.

This information makes it clear that the middle-class researcher or clinician has to avoid making assumptions about the material conditions of a child from a township home. When examining adaptive behaviour, for example, practical constraints have to be considered when evaluating the child's ability to bath independently or make his own bed. A nuclear family structure clearly cannot be assumed, and neither can it be assumed that the child has been living continuously with the current caregiver. The issue of poverty is alluded to throughout these results and this is addressed further in the next section.

3. The informant:

The informant was a parent in 57.5% of cases (23), a grandparent in 22.5% of cases (9) and an aunt in 15% of cases (6). One sister and one foster-mother provided information. In

82.5% of homes there was somebody who was earning (this was frequently not the head of the household). 15% had an income based only on pensions, while 2.5% (1 case) had no regular income at all. The interviewers noticed signs of financial difficulties in most homes, and on occasion dire financial circumstances were evident (for example, evidence that there was no food for the next meal).

It is worth noting that in Prinsloo's 1984 study of various townships it was found that virtually all the households were "operating at extremely low economic levels and should be considered in poverty" (p.55). In the Cape Town townships approximately 10% of households were below the Minimum Living Level (i.e. in profound poverty) while in the squatter areas the percentage below the Minimum Living Level was approximately 30%.

Forty percent, or 16 of the children tested, have someone else in the home who is ill or handicapped. In 7 cases (17.5% of total) the problem was a medical condition (including diabetes, cardiac problems, tuberculosis and asthma). In 4 cases (10%) there was someone with a physical disability such as blindness or hemiplegia. (One person was included under both medical conditions and physical disability as she had had amputations as a result of diabetes.) A mentally ill family member was reported in 3 cases, in 3 cases there was another family member with mental handicap, and in one case a family member had epilepsy.

It should be noted that a number of the medical conditions reported in this study are associated with low socio-economic status (see De Beer, 1984, for a detailed analysis of the social context of tuberculosis). The prevalence of disability worldwide is estimated by the World Health Organization (WHO) at 10% (Disler, 1984). This includes blindness, deafness, general physical debility, mental illness and mental handicap. Disler regards this as a very conservative estimate, and reports that 80% of disabled people live in developing countries. One would therefore expect the percentage of disability in this kind of sample to be more than 10%. In this study, those with disabilities constitute 27.5% of those visited.

This study did not explore the effect of an ill or disabled person in the homes of the children. It can be assumed however, that illness or disability constitutes a considerable

burden in households that generally have little financial security. It must be emphasized that although 82.5% of the homes had someone who was earning, there were unemployed adults in virtually every home. The overall impression of poverty has a number of implications which will be taken up later in the chapter.

4. Educational levels:

It was decided to look at educational levels in the household as an indication of access to resources on the part of the family, and possibly as an indication of the availability of certain kinds of stimulation to the child. It must be emphasized that in this group poor scholastic achievement cannot be seen as any indication of intellectual ability. Economic pressures have tended to make basic education impossible for many black South Africans. This information, therefore, was not intended as an indication of familial retardation and certainly cannot be interpreted in this light.

The educational level of the primary caretaker was obtained in 27 cases.

Table 5: Educational level of primary caretaker

Education	N	%	Total %
Some primary school	6	22.2	
Completed primary school	3	11.1	33.3
Some high school	13	48.2	48.2
Completed high school	2	7.4	
Post-school training	3	11.1	18.5
N	27	100	100

This information was not obtained with great rigour, and it is possible that informants reported their educational level as the standard they were in when they left school, rather than the highest standard passed. There also may well have been a degree of response bias, particularly when educational levels of the primary caretaker were low. Especially when other family members were present, this may have been felt to be potentially undermining

of authority. On occasion, the interviewers felt that vague (and therefore unscorable) replies were due to embarrassment.

Post-school training, as used here, does not necessarily imply matriculation (i.e. a Std 10 school-leaving certificate). Included here were professional nurses, and a librarian. It is possible that they entered these fields on the basis of a standard 8 education, but it was felt that a professional status had been achieved and that this should be given separate mention.

The highest educational level in the household was obtained in 33 cases. This refers to the person in the household with the highest level of education, whether an adult or a child.

Table 6: Highest educational level in the household

Education	N	%	Total %
Some primary school	2	6.1	
Completed primary school	4	12.1	18.2
Some high school	17	51.5	51.5
Completed high school	6	18.2	
Post-school training	4	12.1	30.3
N	33	100	100

These results are more reliable than the previous ones because it was easier to obtain exact information on standards completed. As one would expect, the levels of educational achievement are higher when the entire household is taken into account, and it should be borne in mind that the younger members of the household may not yet have completed their education. Clearly the younger generation seem to be obtaining a higher level of education than their parents. It is sobering to note, however, that in 1984 Prinsloo found that occupations and incomes failed to reflect the steadily increasing educational levels, and this no doubt remains true. Unemployment and under-employment make it difficult to assume that with increased levels of education within the home, the family will have improved access to material resources. Access to professional help and literature about

disability may well be increased with higher levels of education, but these areas were not examined in this study. The implications of educational levels on availability of play materials is discussed in the next section.

5. Activities at home:

As mentioned earlier, one of the purposes of the home visits was to ascertain what materials were routinely available to the children at home. This was in part to find out about stimulation at home but also to establish whether the child was familiar with toys and games similar to the test materials. It was found that 50% of those visited had access to drawing materials but only 12.5% to 'building materials'. The latter may be an underestimate as the glossary was not specific, and the interviewers were not always clear on what was required. On occasion informants said that the child did not have such materials, referring to formal constructional toys, when the child was using wire and wood to make toy cars. Later in the questionnaire the informant was asked about the types of games the subject played, and this was scrutinized in an attempt to correct this problem. Twenty percent of the children were exposed to books at home.

As mentioned in section 4 above, it was hypothesized that there might be a relationship between educational levels in the home and availability of certain kinds of stimulation to the child. It was decided to look at the availability of play materials according to educational level of the primary caretaker. This analysis is based on 27 cases only; as a result some cell sizes are very small and the results have to be seen as tentative. In addition, it is to be expected that income would be an important determinant of the availability of play materials, and this is discussed below.

The data suggests an increase in the availability of play materials with increased educational level of the primary caretaker. The definition of 'building materials' was problematic, as mentioned above, and only one or two families in each educational category reportedly provided such materials, so this was excluded. Drawing materials were provided in about half the families in which the main caretaker had primary school (n=9) or some high school (n=13), while such materials were provided in 80% of homes in

which the primary caretaker had completed high school, or had post-school education. There were only five families in the last group, however. Books were provided in 11% of homes in which the primary caretaker had primary school only (n=9), compared to 33% in homes where the primary caretaker had some high school or more education (n=18).

When looking at highest educational level in the household, provision of drawing materials also showed some increase with higher educational levels. Drawing materials were made available in 33.3% of homes in which the highest household level was primary school education (n=6), 58.8% in homes with an educational level of some high school (n=17) and 60% in homes with educational levels of matriculation and beyond (n=10). Provision of books showed a slight increase across educational levels but low numbers make this unreliable.

It was hoped that detail on the childrens' activities at home would be obtained, but in fact the length of the interview mitigated against this. In commenting on these questions however, many informants said that there was no money for play materials or books. Others said that they did not know what would be most appropriate and useful to buy, information they would have liked to receive from the school. The drawing materials were often obtained from school or from 'One-to-One Day', which is a large yearly event organised by various service organisations, where mentally handicapped people are paired with non-handicapped volunteers for a day of games and activities.

As far as other daily activities were concerned, 47.5% of the children were found to carry some responsibility for household chores. This was defined as the performance of certain household chores without reminders. Others were able to help at home when asked, and a number of children appeared capable of taking responsibility for tasks but the informant added that the tasks were done only if the child was in the mood.

Of the testes, 85% (34 children) were reported to have friends outside of school. Details of the friends were obtained in 32 cases, and most of these (75%) were either younger or handicapped children.

This section on home activities was disappointing in that information was not sufficiently detailed to allow comment on the childrens' familiarity with materials similar to the test material. Some evidence was found linking higher levels of education in the home to greater availability of drawing materials and books. It is difficult to know whether income was a more powerful determinant of availability of such materials. This could not be examined here as information on income was not detailed. As Griesel and Richter (1987) point out in their work on malnutrition, education and earning power interact with lifestyle and social structure to affect the care of family members in ways that are difficult to separate out.

It must also be noted that the few questions on availability of particular materials cannot address the larger question of stimulation in the home, which could be high without formal toys. More open questions, and possibly observation of daily activities, would be required in order to comment in an informed manner about stimulation at home. Certainly the fact that almost half the sample were sharing responsibility for household chores says something about stimulation, and highlights the training received at home in self-help skills.

6. Behaviour problems:

Behaviour problems were included in the interviews because of the potential effect on the family's relationship to the child. In addition, studies generally find that children with mental handicaps have higher rates of psychiatric disturbance and behaviour difficulties, sometimes three or four times the rates in control groups (Corbett, 1977).

In 50% of the sample behaviour problems were reported. Of these 20 testees, 8 were reported to have one behaviour problem while 12 had more than one. In one child 5 problems were reported. The most common complaint was of aggression (17 children, or 42.5% of those visited.). This was followed by swearing (20% or 8 children), stubbornness (12.5%, 5 children) and irritability (10% or 4 children). Lying and stealing was reported in 3 children each, and bullying and destructive behaviour each in 1 child.

It is difficult to evaluate the results obtained in this study due to the fact that detail on the problem behaviour was not always obtained. The aggressive behaviour was sometimes reported to be in response to provocation, and on occasion 'stubbornness' seemed to be part of an adolescent rebellion (for example, refusal to do household chores). In some cases, the reports of behaviour problems had to be seen in the context of a very poor relationship between the informant and the child. This is discussed further below. Given that the information was obtained only through interview with a caretaker, it is crucial to bear in mind that many factors affect a parent's perception and labelling of a behaviour as a problem (Spiro & Swartz, 1990).

7. Perception of the childrens' difficulties:

The perception that the informant had about the child's difficulties was explored both as a gauge of the informant's approach and relationship with the child, and also to highlight cases in which the informant's view of the child contrasted with the view of the teachers and the researchers. This has implications for consistency in managing the child, and also might give an indication of adequacy of communication between school and home.

Informants were asked whether they saw the child as having a problem. In 35 of the cases (87%) the informant answered in the affirmative. A detailed examination of the protocols of the other five was undertaken.

Two of the five informants described problems in the past, such as developmental delay or school failure, but felt that the child could now cope in a regular school. Paradoxically, in one of these cases, the informant estimated the 13 year old child as having a mental age of a 6-7 year old, suggesting that the child was seen as delayed. The other child was one of the highest functioning of the sample, and she would very likely have coped well in a special class setting within mainstream education had this been available.

In 2 cases, specific difficulties were noted, including fits and speech problems. Again, in one of these cases the informant's estimate of the child's mental age was well below his chronological age. In one case the child was seen as having been bewitched.

Of these 5 cases then, one was a high functioning pupil who may well have coped in a special stream in a regular school. In two other cases, terms such as 'mentally handicapped' or 'slow' were avoided or specifically denied, but the informants' mental age estimate indicates that the child is, in fact, perceived as different from other children. In the remaining two cases there was evidence of real difficulty accepting the child's handicap.

The father who saw his child as having been bewitched acknowledged that she was scholastically delayed but saw this as a result of her placement at a special school. On assessment she was low functioning throughout, and there was no evidence that she could have coped in a regular school, although she clearly has developed very good self-help skills and copes well around the house. While this area of skill could be argued to possibly obscure other deficits from the father's point of view, he does seem to be denying his daughter's learning problems and blaming them on the school. In the other case, the parents described the child's difficulties as shyness and a speech problem. This response could be seen in terms of Hutt and Gibby's typology (as described by Lea, 1986) as a 'disguising' response; accepting that there is a problem but ascribing it to reasons other than limited intellectual ability.

Of those who answered in the affirmative, the informants' description of the problem was obtained in 33 cases. In 20 of these (60.6%) the problem was described in terms of mental handicap (slowness, lagging behind, mind does not work well). One case was interesting in that the child's intellectual deficit was ascribed to the fact that she had hermaphroditism. In 5 cases specific problems such as poor speech or fits were cited rather than mental handicap.

Six informants saw their family member as unable to cope due to emotional factors or behavioural problems. It is noteworthy that in 3 cases the child was described as mentally ill, or suffering from nerves, and all 3 of these homes appeared unsatisfactory. In one case, the child had been placed with an aunt and uncle who did not want him, after the death of his parents. The child showed clear signs of neglect and extreme unhappiness, expressed

through verbal abusiveness at times. In the second case, the mother had a chronic mental illness and the child was seen as having the same problem (and frequently told this), and in the third case there was also a mentally ill member of the family, and the caretakers appeared to be abusing alcohol.

The child's mind was seen as having been affected by *amafufunyane* in one case. *Amafufunyane* refers to a form of spirit possession. Various approaches to understanding this phenomenon are reviewed by Swartz (1986). This child appeared to the researcher to be very obviously handicapped. In one case anticonvulsant medication and placement at Nompumelelo School were seen as responsible for the child's difficulties. This child had developed seizures after a motor vehicle accident and his mother reported having been told at the time that his difficulties would become more apparent as he became older. He was, however, one of the higher functioning pupils at the school and will be placed in one of the special classes. It is worth noting, therefore, that even if informants see their family member as having a problem, they may not be willing to accept the diagnosis of mental handicap, and may view the problem in very different terms.

The problem was first noticed in infancy in 23.7% of cases, and before school in a further 50%. Twenty-one percent were noticed to have a problem at school-going age. This was usually due to failure to progress but in one case this was the age at which seizures began. In 2 cases (5.3%) the problem was noticed at about 10 years.

There was a history of epilepsy in 32.5% of cases. One child had Downs Syndrome, one had a history of hydrocephalus, one had hermaphroditism, one had had neurocysticercoma and one had Treacher-Collins Syndrome. Two had a history of head injuries.

These results indicate that the 'breaking of the news' often happens later than infancy. One would have expected that the children with post-natal causes of handicap might have been among those identified later, but this was not the case. The two head injuries occurred at seven months and two years, and the child with neurocysticercoma was infected at 3 years. In both cases where the parent identified the problem at 10 years there was evidence that earlier developmental assessment would have picked up the problem. It is possible,

therefore, that in many of the cases of later identification of the problem, access to early assessment would have been helpful. It was sometimes the case that the child was in the care of a family member in a rural area until several school failures led to assessment in Cape Town. Given the current situation, clinicians should be aware of the need to be sensitive to the perceptions of the child's difficulties that the parents may have developed over the years.

It is noted above that one child had Treacher-Collins syndrome, characterised by abnormalities of the facial bones and conduction deafness. Interestingly, the grandmother (the primary caretaker) reported that her daughter had worried excessively during her pregnancy and she saw this as the cause of her granddaughter's difficulties. This raises the issue of clarity of communication between clinicians and families. The diagnosis came to the attention of the researcher because the school had a copy of a hospital report on file.

This section highlights the importance of asking the caregivers how they view the subject's difficulties. There were a number of informants whose views differed markedly from those of the school. In addition, children who were at risk for emotional (and other) abuse could be identified.

8. Satisfaction with the school:

Informants were asked whether they would change anything about the placement at the school, if they could. Twenty-eight replies were obtained on this question. Of these, 18 (64.3%) reported some dissatisfaction. In 9 cases (just under a third of the 28 who responded), caregivers commented that they did not see enough scholastic progress, or were not informed about what the child was learning, or how the child was progressing. Three informants expressed concern about irregular transport to the school, which had been very problematic over the period of this research, especially in Khayelitsha, which is the furthest area from the school. There were extended periods when the transport to Khayelitsha did not run due to problems with the school bus. The families reported that they had not been informed about the transport problem and that on occasion the children had wandered about the township when they were not picked up. This evoked considerable

worry about the possibility of assault. It must be noted that many of these households do not have telephones, and postal services are unreliable.

In three cases family members expressed anger at comments or behaviour on the part of the school staff which they felt was insensitive. Three family members felt Nompumelelo Special School was not the right placement for the child and that the child could cope in a normal school. One parent reported that the school frequently expected them to help with fundraising (by bringing groceries which the school would sell, or by selling tickets). Although not documented, a number of other informants also reported this as an unwelcome demand.

Overall, there is evidence that some families were in need of information about the school programme and what to expect by way of progress. This is consistent with the fact that some parents reported (in section 5 above) that they did not know what sort of play materials to buy for their children. It must also be noted, however, that some of the families who wanted to see more scholastic progress may not have been fully informed about, or accepting of, their child's handicap. While the school has some responsibility in this regard, previous contacts with medical and other professionals might be implicated here, as discussed further below.

Families might feel resentful of demands made by the school (for example, to help with fundraising) if they do not feel sufficiently informed, involved and consulted by the school staff. On the other hand, staff complained that family members often failed to attend school meetings (N. Mxube, personal communication, February, 1991). This may often have to do with difficulties with transport and time, rather than lack of interest.

It must be borne in mind that 10 of the 28 respondents expressed satisfaction with the school, and details were not obtained. It appeared that a number of caregivers have developed a good relationship with the school staff, while some informants may simply be satisfied to have the child placed in a safe environment.

The fact that many informants felt some dissatisfaction with the school needs to be seen in the wider service context. Parents of mentally handicapped children frequently report dissatisfaction with medical services and social services (for example, Hannam, 1975). In a local study, Lea (1986) found that parents were very unhappy with the way medical professionals had dealt with them. They also reported inadequate co-ordination between social services and generally found facilities to be inadequate. These were families who were classified white and who therefore were considerably advantaged compared to the families in this study. It is not clear how the dissatisfaction with the school is perceived by families in this study in the general context of disempowerment and disadvantage.

Difficulty in communication between schools and families is not a problem peculiar to South Africa. Hannam (1975) documents in depth the experiences of 8 British families with a mentally handicapped child. He reports that communication between the teachers and the parents could frequently be better. He comments that formal parent-teacher events are important for contact but tend not to allow detailed communication, and suggests individual meetings and the use of a daily diary that the child carries between home and school. Most important, he describes the anxieties that both caregivers and teachers might bring to the contact. He underlines the value of good communication between the school and the home in providing consistency and continuity in the education of a mentally handicapped child.

There is no question that it would take considerable energy and ingenuity for the staff at Nompumelelo Special School to reach more of the caregivers. Many of the families live far from the school, there are often no telephones and people frequently work long hours. Aside from the practical demands, there is the further question of whether teachers see this kind of activity as part of their role.

9. Research questions emerging from the home visits:

Many aspects of the information obtained from the home visits suggest further areas for research. First, the perceptions parents have of their children's handicap offers an important area for investigation. Divergence and overlap between the understanding of

parents, teachers and clinicians would be useful to look at in detail. Parents' needs, and the ways in which these can be addressed by special facilities also require investigation.

It was hoped that the home visits carried out in this study would provide detailed information on the play activities of the children. In fact this kind of information received scant attention in the context of a long interview, and other data-gathering methods would possibly have been more useful. The informant may not have an interest in the details of the child's play activities, and interviews with the child, as well as observation, would probably be more useful. Carefully gathered information on a child's play activities could potentially offer interesting validation material on test results (Grieve, 1992).

Some important questions are raised by the material on when the child's problem was first noticed by the parents. In this research information was not gathered on what happened after this: Who the parents approached, how accessible assessment facilities were, and how satisfactory the service was found to be. In general, family interviews provide a valuable opportunity to evaluate services.

This chapter, and Chapter 7 have presented findings that have clinical and research implications, but were not part of the central research aims of the study. The following chapter presents the formal results of the central analyses on the research sample.

CHAPTER 9

RESULTS

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1. Description:

The sample of 56 comprised 26 girls and 30 boys. There were no sex differences in performance on the GCT or the Griffiths.

The age of the sample ranged from 7 years 10 months to 17 years 6 months, with a mean of 13 years 1 month (and a median of 13 years 2 months).

2. Construct validity results:

In this section a number of results pertaining to construct validity will be presented. First, comparisons between the results on the Griffiths and the GCT are presented. As presented in Chapter 6, certain Griffiths subscales were expected to correlate more significantly with the GCT than others. The most significant correlations were expected between the GCT and subscales D (Eye and Hand Co-ordination) and E (Performance). Subscale A (Locomotor) was expected to have a nonsignificant correlation with the GCT. Predictions were difficult to make on the remaining three subscales.

These comparisons are done in two ways. In section 2.1 mental age scores on the Griffiths are compared to test age scores on the GCT. In section 2.2 IQ range scores obtained on each instrument are compared. Section 2.3 deals with the comparison of the Draw-A-Man tests with the GCT. In section 2.4 children with and without language problems are compared on the GCT, and this is a particularly important aspect of construct validity as the GCT was developed to facilitate the assessment of people with language deficits.

2.1 Correlations of mental age scores:

The mental age scores obtained on each subscale of the Griffiths, as well as the overall mental age score on the Griffiths was compared to the test age on the GCT.

Table 7: Correlation of mental age scores on Griffiths and test age on the GCT (months)

Subscale	N	Correlation	T Test
A: Locomotor	43	r = .410 F = 8.26 df 1,41 p<.006	t = 2.49 p<.017
B: Personal/Social	18	r = .319 P<.197	
C: Hearing and Speech	43	r = .399 F = 7.78 df 1,41 p<.008	t = -.46 p<.65
D: Eye/Hand Co-ordination	54	r = .744 F = 64.61 df 1,52 p<.0004	t = 1.54 p<.13
E: Performance	48	r = .801 F = 82.47 df 1,46 p<.0004	t = -2.06 p<.045
F: Practical Reasoning	25	r = .224 p<.282	
Overall mental age	14	r = .046 p<.876	

Variances were found to be sufficiently similar, following Howell (1989). Significant correlations are found between the test age on the GCT and the Locomotor subscale, Hearing and Speech subscale, Eye and Hand Co-ordination and Performance. Correlations

with small numbers of testees are vulnerable to a strong biasing effect of unusual scores, and this occurred in some cases in this set of analyses. This problem will be addressed in the next analysis.

The correlations between the GCT and the Eye and Hand Co-ordination subscale and the Performance subscales were the strongest of this set of analyses. It must be noted here that the title of the Eye and Hand Co-ordination subscale obscures the importance of perceptual exploration and cognitive skills required on many of the items. For example, item III 2 on this subscale is “Threads 6 beads”, while item VI 1 is “Threads 12 beads to colour pattern”. The latter involves perceptual and planning skills that go beyond eye-hand co-ordination. Similarly, the drawing items (including a man and a house) and the writing items on this subscale cannot be seen purely in terms of eye-hand co-ordination. The Performance subscale, with the emphasis on the reconstruction of patterns and models, is clearly connected to the cognitive skills that the GCT aims to evaluate. These results were expected and are seen as supportive of the construct validity of the GCT.

The significant moderate correlation with the Hearing and Speech subscale is not unexpected. While the GCT is largely nonverbal, and therefore would not be expected to correlate with a scale that taps verbal expressive skills, the Hearing and Speech subscale is regarded as “the most intellectual of all the scales” (Luiz & Heimes, 1988, p.3) and one would therefore expect some degree of correlation with a nonverbal test of reasoning ability. This result is therefore also in line with expectations.

The moderate and significant correlation with the Locomotor subscale is the most unexpected finding in this set of analyses. It is interesting to note that the Locomotor scale was found to correlate significantly with Hearing and Speech, Eye-Hand Co-ordination and Performance subscales (Chapter 7). It might be argued therefore, that the Locomotor subscale, while most obviously eliciting gross motor skills, correlates significantly with subscales tapping fine-motor co-ordination, and that it is this that explains the significant correlation with the GCT. In addition, the moderate but significant correlation with the Hearing and Speech subscale shows that even within the Griffiths there is a connection between the Locomotor subscale and an intellectual subscale. Given that these children are

functioning at a generally low level, this could simply reflect (in part, at least) their ability to comprehend and follow instructions.

For clinical application it was necessary to know whether actual scores were similar on the GCT and those scales which correlated significantly with it. In cases of a significant correlation *t* tests were done to establish whether there was a significant difference between the means of the two distributions involved. In table 7, it can be seen that in two cases significant *t* ratios were obtained. Scores on the Locomotor subscale were found to be significantly higher than scores on the GCT, and scores on the Performance subscale were found to be significantly lower than on the GCT. In all cases of *t* tests, the difference scores were obtained by subtracting the GCT score from the Griffiths score. It is on these difference scores that the *t* test is performed. A positive *t* test score indicates that the Griffiths score was the higher, negative *t* test scores indicate that the GCT was the higher.

Further examination was required to evaluate the clinical importance of these differences, as the *t* test is rather sensitive. There are statistical methods for evaluating effect size, but it was decided that a clinically-based evaluation was more appropriate with this data.

The mean difference between the scores on the GCT and the Locomotor subscale was 5.28 months, and the standard error of the mean was 2.12 months. Assuming a normal curve, 68% of the discrepancies between the two scores would fall between approximately 3 months and 7 months. The top end of this range could potentially be of some clinical significance given that mental age scores are under 8 years. However, given that these two scores would not be used clinically to evaluate the same ability, this result is not regarded as particularly important. It would be expected that children with mental handicaps would perform better on gross motor tasks than on tasks requiring reasoning ability.

The second significant *t* test was between the GCT and the Performance subscale. Here the GCT scores were higher than the scores on the Performance subscale. The mean difference was 2.15 months, and the standard error of the mean was 1.04. This is not felt to be of clinical significance.

2.2 Comparisons using range scores:

In clinical practice, especially where placement decisions are concerned, scores in the form of ranges are preferable to mental age or IQ scores. All the mental age scores on the GCT and the Griffiths were converted to ratio IQ scores by dividing by chronological age. Range scores were obtained using the categories provided in the Diagnostic and Statistical Manual, 3rd edition (American Psychiatric Association, 1980). These are: 50-70: Mild retardation, 35-49: Moderate retardation, 20-34: Severe retardation and <20: Profound retardation. A category was also provided for scores above the mild mental handicap category, which fell within the IQ range 71-85. This is sometimes informally referred to as the 'borderline' range, following earlier categories of mental handicap (Luckasson et al., 1992). The borderline category is no longer formally recognised, however, and performance in this range is referred to here as 'low average'. The debate about the extension of the upper limit of the category of mild mental handicap to 75 by the American Association on Mental Retardation is briefly discussed in Chapter 2.

As expected, there were very few scores in the low average and profound categories. Three children obtained scores in the low average range on their drawings and one obtained a low average score on the Locomotor subscale of the Griffiths scales as well as on his drawing. Scores in the profound range were obtained on the Hearing and Speech subscale, and the Practical Reasoning subscale by one testee each, and two testees obtained scores in the profound range on both of these subscales. These were mostly children with serious verbal deficits.

For the older testees, a cutoff of 15 years was used. This is somewhat arbitrary (see Vernon, 1956, pp. 69-71) and Terman (1919) uses 16 as a cutoff. As Vernon argues, the upper limit of intellectual performance varies with different tasks, and if a person's education continues, one would expect increase in ability beyond 15 years, for example on complex verbal tasks. Nevertheless, 15 years is a figure commonly used (V.M. Grover, and V. Nel, personal communications, October, 1992) and the alternative of 16 would have made a negligible difference.

Table 8: Correlation of IQ range scores on Griffiths subscales and general quotient against range scores on the GCT

Subscale	N	Correlation
A: Locomotor	43	r = .404 F = 8.02 df 1,41 p < .007
B: Personal/Social	18	r = .603 F = 9.14 df 1,16 p < .008
C: Hearing and speech	43	r = .614 F = 42.83 df 1,41 p < .0004
D: Eye/Hand Co-ordination	54	r = .729 F = 58.81 df 1,52 p < .0004
E: Performance	48	r = .714 F = 47.79 df 1,46 p < .0004
F: Practical Reasoning	25	r = .474 F = 6.67 df 1,23 p < .017
General Quotient	14	r = .670 F = 9.77 df 1,12 p < .009

It needs to be noted that the Pearson product-moment correlation coefficient is used in Table 8, despite the fact that this data is ranked. Spearman's correlation coefficient for ranked data could have been used, but Howell (1989) notes that these two correlation coefficients are in fact algebraically equivalent, and that the real issue is the need for careful interpretation, given that the data is ranked. Hence it was considered acceptable to use the Pearson product-moment correlation coefficient, while being alert to the difficulties of interpretation raised by the use of ranked data.

Normality of distribution was checked on the data in Table 8 as well as the mental age data presented in Table 7. In most cases the data did not deviate markedly from a normal distribution. The distribution of the range scores of E (Performance subscale) was, however, markedly skewed. This was due to the fact that the testees generally found this subtest difficult and therefore there were a large number who scored in the severe range on this subtest. Interestingly, the mental age scores on this subtest produced a much more acceptable curve, and this confirms that the very skewed distribution is a result of the imposition of the range categories. Fortunately, the statistical tests used are robust in this regard, and so this violation of the assumption of normality is seen as acceptable (Howell, 1989).

This set of results is unexpected in that every subscale of the Griffiths, as well as the General Quotient, now correlates significantly with the GCT. Those subscales most expected to correlate with the GCT remain the most highly significant (Hearing and Speech, Eye and Hand Co-ordination and Performance).

It must be borne in mind that this correlation reflects five ranks, which in turn reflect IQ categories. The data is, therefore, considerably simplified compared to the mental age score data. In other words, the range of the data has been restricted. This usually means that correlations are reduced (Howell, 1989, p.113) as additional information has been lost. This is evident in the reduction in the size of r on the Locomotor subscale, the Eye and Hand Co-ordination subscale and the Performance subscale, although they all remain significant.

On some of the data, however, the correlation increased when the simpler, ranked scores were used. Howell (1989) notes that "with the exception of very unusual circumstances, restricting the range of X will increase r only when the restriction results in eliminating some curvilinear relationship" (p.113). Scrutiny of the dotplots of correlations on the original mental age data did not reveal curvilinear tendencies. In this data it seems that correlations become significant once range scores were used because the ranked scores pulled a few unusual scores into line. The relatively small sample sizes contributed to the

strong depressing effect of unusual scores, and those analyses that were significant only on the range score data were those with the lowest number of testees.

Once the effect of unusual scores was reduced, therefore, the range scores on two more subscales and the overall General Quotient correlated significantly with the GCT range score. This is not a particularly desirable result in terms of a construct validity study, but each result is understandable, and this set of significant correlations has considerable implications for clinical use.

The Personal-Social scale covers self-help skills, the ability to provide personal information and sociability. It is not surprising that this kind of adaptive behaviour should be related to reasoning ability, in that someone with extremely poor cognitive abilities would no doubt struggle with everyday tasks as well. This scale is sensitive to the effects of the home environment however, and a low score may simply reflect lack of opportunity to learn the relevant skills. Similarly, one would expect this scale to reflect the considerable input at the school on social and self-help skills, and in fact this was the subscale on which ceiling effects were most evident (see Chapter 7). It is also worth noting that many of the self-help skills tapped by this subscale require fine-motor co-ordination, such as the ability to fasten buttons and shoes. Table 3 in Chapter 7 indicates that the correlation between the Personal-Social subscale and Eye-Hand Co-ordination subscale is one of the higher of the significant intercorrelations among the Griffiths subscales, as is the correlation between the Personal-Social subscale and Hearing and Speech. The interrelationship between the Griffiths subscales no doubt goes some way towards accounting for this rather unexpected result.

The significant result on the Practical Reasoning subscale is probably the most difficult to interpret as a result of the heterogeneity of the items on this scale, which range from items with strong conceptual loading (such as F VIII 4: Knows 'heavy' and 'light') to items requiring education (such as F VII 4: Can say the days of the week) to items strongly dependent on exposure (such as the items tapping recognition of coins). This subscale is described by Luiz and Heimes (1988) as "recording the earliest indications of arithmetical comprehension and the realisation of the simplest practical problems" (p.4) and this

description would suggest that a significant correlation with a reasoning test should be found. Although no firm predictions were made about the correlation of this subscale with the GCT (see Chapter 6), this is an understandable result.

The significant correlation with the General Quotient on the Griffiths is interesting despite the small numbers. This suggests that, in clinical use, the IQ category obtained on the GCT might be expected to correlate with the General Quotient on the Griffiths. This is an interesting result because the GCT aims to evaluate a circumscribed aspect of the testee's functioning while a scale such as the Griffiths aims to provide a wide-ranging assessment. However, the very small sample size of 14 does necessitate caution, and this result should be regarded as preliminary.

2.3 Draw-A-Man results:

Two groups of drawings are described here. The first consist mainly of the pilot group who were all asked to draw a man by the researcher. These drawings are referred to simply as 'Draw-A-Man'. The second, larger group are the drawings done on the Griffiths (Eye-Hand co-ordination subscale), and this group of drawings is called the 'Griffiths Draw-A-Man'. The reasons for keeping these sets of data separate are provided in Chapter 6.

Table 9: Correlations between mental age on Draw-A-Man and test age on the GCT

Test	N	Correlation	T Test
Draw-A-Man	17	$r = .470$	$t = 4.55$
		$F = 4.26$	$p < .0003$
		$df 1,15$	
		$p < .057$	
Griffiths Draw-A-Man	43	$r = .598$	$t = 5.80$
		$F = 22.58$	$p < .00004$
		$df 1,41$	
		$p < .0004$	

As can be seen on the table, the Griffiths Draw-A-Man was found to correlate significantly with the GCT, while the Draw-A-Man narrowly misses significance at the .05 level. As with the previous analyses, scores were also converted to ratio IQ scores and placed in categories. The correlations on this data add little to the above results. In the case of the Draw-A-Man scores, the correlation was markedly reduced once the data was in category form, while the correlations on the Griffiths Draw-A-Man data remained much the same.

Normality of distribution was checked. The Griffiths Draw-A-Man data has a distribution that seems to be bimodal, but as discussed above, the statistics employed here are robust enough to be reliable despite this. Variances were found to be sufficiently similar.

While both sets of drawings were found to correlate at a moderate level with the GCT, the *t* tests revealed a significant difference between the means on both sets of drawings and the GCT. In both cases the scores on the drawings were higher than the scores on the GCT. On the Draw-A-Man and GCT data, the *t* test showed a mean difference of 15.18 months, with a standard error of the mean of 3.33. Assuming a normal distribution, 68% of difference scores between the two tests would fall between 11.85 and 18.51 months, which is of considerable clinical significance.

Similar results were obtained on the Griffiths Draw-A-Man data (the mean difference here was 13.42 months, and the standard error of the mean was 2.31). Once again this difference is of clinical significance.

Fifteen children produced drawings under the Draw-A-Man and the Griffiths Draw-A-Man conditions. The correlation between the two drawings was high ($r = .761$, $F = 17.89$; df 1,13; $p < .001$) A *t* test was nonsignificant. Despite these results, which suggest considerable consistency between the two sets of drawings, it was found that in only 7 of the 15 cases did the two drawings fall into the same IQ category. While on statistical analysis the two sets of drawings appear consistent, from a clinical point of view there was a significant variation (of one IQ category) in almost half the group.

2.4 GCT performance of testees with and without language problems:

Only those attending Nompumelelo School were rated for language problems by their teachers (50 children). In each case, two teachers who knew the child were asked whether he or she had a language problem that was gross and interfered markedly with communication. Twelve were rated as having a language problem. The agreement between the teachers was 96%; in the 2 cases of disagreement the opinion of the child's current teacher was taken.

A two-sample *t* test was conducted on the test age scores on the GCT. The difference between the mean of those with speech problems (55.8 months) was not significantly different from the mean score of those without speech problems (59.9 months) ($t = 0.75$; $df = 13$; $p < .47$).

As expected, therefore, the GCT was found not to discriminate between testees with and without speech difficulties. The significant differences between these two groups on the Griffiths are discussed in Chapter 7.

2.5 Summary of the construct validity results:

Overall, the Griffiths subscales that were expected to correlate significantly with the GCT did so, and other significant results were also obtained. When the GCT and the Griffiths subscales were compared on mental age scores, significant correlations were found on the Performance, Eye and Hand Co-ordination, and Hearing and Speech subscales. It is argued that all of these subscales tap reasoning skills. The significant correlation between the GCT and the Locomotor subscale might be explained by the significant inter-correlations between the subscales on the Griffiths.

Once range scores on the GCT and Griffiths subscales were compared, the Personal/Social and Practical Reasoning subscales showed a significant correlation with the GCT as did the General Quotient on the Griffiths. The most significant correlations, however, were found once again between the GCT and the Eye and Hand Co-ordination, Performance,

and Hearing and Speech subscales. While firm predictions had not been made about the correlations with the Personal/Social and Practical Reasoning subscales, both results are understandable. The significant correlation between the GCT range score and the General Quotient on the Griffiths was based on small numbers, but has clinical significance. Overall, these results are supportive of the construct validity of the GCT.

The Draw-A-Man and the Griffiths Draw-A-Man scores correlated at moderate levels with the GCT, and this correlation was significant in the case of the Griffiths Draw-A-Man. This result was expected as the Draw-A-Man test is often used to obtain an approximate developmental level. However, the scores on the drawings were found to be markedly higher than the scores obtained on the GCT.

As expected, the GCT was found not to discriminate between testees with and without speech difficulties. This is an important result, as one of the primary aims in the development of the GCT was to provide a means of assessment that did not disadvantage people with language difficulties.

3. Criterion validity:

3.1 GCT results against school streaming:

Details of how streaming was obtained are provided in Chapter 6. Briefly, each child was given two 'stream' scores. The first score was the stream the child was in during 1990, and the second was his stream in 1992. Testees were given a score of 0 for regular class placement and a score of 1 for placement in one of the adaptation classes in the school.

As the streaming variable was dichotomous, the use of the point biserial correlation rather than Pearson's r was considered. Howell (1989) notes, however, that it is equally correct to use Pearson's r (p.116).

Table 10: Correlation of school stream and GCT results

Stream	N	Test Age	IQ Range
1990	50	$r = .374$ $F = 7.80$ $df 1,48$ $p < .007$	$r = -.533$ $F = 19.04$ $df 1,48$ $p < .0004$
1992	49	$r = -.439$ $F = 11,24$ $df 1,47$ $p < .002$	$r = -.589$ $F = 25$ $df 1,47$ $p < .0004$

Three pupils were moved from the lower to the higher stream between 1990 and 1992. One child left the school. The negative values of r under IQ range scores reflects the fact that the highest IQ category was given the rank of 1 and the lowest 5. This table indicates that the test age and IQ range obtained on the GCT both correlate significantly with school stream allocation.

3.2 GCT results against teacher ratings:

The class teacher in the regular classes in the school rated the child as a high, medium or low performer. (In Chapter 6 it is discussed why the special class pupils were excluded.) It should be noted that the teachers' ratings constitute ranked data, and a discussion on the use of Pearson's r rather than Spearman's r_s is provided in section 2.2.

Thirty-five children in the school were rated in this way. The teachers' rating correlated significantly with the GCT scores whether these were in the form of mental age scores or IQ category scores. The correlation between the teacher's rating and the test age on the GCT (in months) was .621 ($F = 20.73$; $df 1,33$; $p < .0004$). The correlation was somewhat

reduced with the restricted range of the IQ category scores ($r = -.518$; $F = 12.12$; $df 1,33$; $p < .001$). The negative value of r reflects the fact that the highest IQ category was numbered 1 and the lowest 5.

3.3 Summary of the criterion validity results:

The test age and IQ range scores obtained on the GCT were found to correlate significantly with school stream (special class or regular class). Pupils in regular classes were rated on a 3 point scale by their teachers and this was also found to correlate significantly with the GCT. Examination results are often used to evaluate criterion validity, but as Nompumelelo School does not have formal evaluations, the school streams and the teachers' ratings were used. While these are relatively crude measures, the results provide support for the criterion validity of the GCT.

4. Reliability studies:

A number of reliability studies were conducted, testees being assigned by the use of a table of random numbers (with the exception of test-retest 1, which was done on the pilot group as described below). The methods involved in these substudies are described further in Chapter 6. The test age (in months) on the GCT was used throughout. Homogeneity of variance was checked and found to be acceptable throughout.

4.1 Inter-rater reliability:

Eleven testees fell into this substudy. In the case of 5 children, the research assistant conducted the GCT with the primary researcher (the author) sitting in and scoring at the same time. In the remaining 6, the primary researcher was the tester and the research assistant scored alongside. Keeping the data separate (according to tester) t tests were conducted and were found to be nonsignificant; this allowed the data to be combined.

Correlation of the scores obtained by the two researchers was .942, and this was highly significant ($F = 71.39$; $df 1,9$; $p < .0004$). A t test on the combined data was nonsignificant. The strength of this result is reassuring given the small numbers involved in the substudy.

4.2 Test-retest 1: 3 months:

The pilot group of 17 testees were retested after approximately 3 months by the primary researcher (who also conducted the first GCT). A highly significant correlation was found ($r = .884$; $F = 53.64$; $df 1,15$; $p < .0004$) and the t test was nonsignificant.

4.3 Test-retest 2: 6 weeks:

Eleven children were retested by the primary researcher 6 weeks after the first administration of the GCT. Once again, a highly significant correlation was found ($r = .968$; $F = 133.17$; $df 1,9$; $p < .0004$) and the t test was nonsignificant.

4.4 Retest with different testers:

A test-retest study was undertaken with different testers in the hope that the GCT would be found to be reliable on retest (same examiner). As this was the case, the retest study involving different examiners could be utilized in an attempt to evaluate the effect of an examiner fluent in Xhosa (the research assistant) against an examiner with little Xhosa (the primary researcher). Nine children were tested first by the primary researcher and retested approximately 6 weeks later by the research assistant, and 7 were tested in the reverse order, again over approximately 6 weeks.

A 2 way ANOVA (repeated measures) was conducted on the data. The computer programme (Gilbert, 1979) took into account the fact that there were unequal cell sizes. Homogeneity of variance was found to be acceptable.

The results indicated that there was a significant main effect for examiner, which was the repeated measure ($F = 5.98$; $df 1,14$; $p < .05$; $MS \text{ error} = 11.05$). The order variable (i.e. which examiner tested first) and the interaction between the variables were nonsignificant. Essentially what was found was that the research assistant's scores were found to be

significantly higher than the scores obtained by the primary researcher. This was an puzzling finding in the light of the results reported in section 4.1, where inter-rater reliability was found to be high, with no significant differences between the scores obtained by the two examiners. An evaluation was undertaken of the size of the examiner effect found on the ANOVA, and it was found that the effect was small ($\chi^2 = .021$). This means that 2% of the total variance can be explained by the examiner effect. It seems, therefore, that the significant result obtained on the ANOVA was indicative of the sensitivity of the repeated measures design.

Overall, the correlation between scores obtained with the primary researcher and the research assistant was high ($r = .877$; $F = 46.87$; $df 1,14$; $p < .0004$) as was the correlation between first and second scores ($r = .875$; $F = 45.90$; $df 1,14$; $p < .0004$).

5. Conclusion:

The results presented in this chapter cover substudies concerned with construct validity, criterion validity and reliability. While the construct validity substudy yielded some results that were not firmly predicted, the outcome is supportive of the construct validity of the GCT. Results supporting the criterion validity of the GCT were also obtained, although the criteria used were, unavoidably, rather crude. Test-retest, and inter-rater reliability were found to be high.

In the following chapter, these results are discussed in the context of the study as a whole.

CHAPTER 10

DISCUSSION AND CONCLUSIONS

In this chapter, the main empirical findings of the study are presented, and discussed in the context of the clinical and theoretical issues raised. Difficulties and limitations in the study are also examined.

The findings of the research will be briefly discussed, first, in terms of the preliminary norm work on the non-handicapped children, and then in terms of the sample itself. The preliminary norm work was not intended to be a rigorous, statistical process, but was part of the clinical process by which the GCT was applied to different samples, evaluated and re-applied. As a result, relatively small numbers of children were tested, and the results need to be seen in this context.

The early preliminary norm work was carried out at racially integrated, non-government schools; the majority of the children at these schools are classified white and coloured, and in general the pupils at these schools are middle-class. The sample of children at Nompumelelo Special School were black and largely working-class, and it was therefore important to pilot the GCT on children attending township schools.

Black township school and creche attenders between the ages of 3 and 11 years were then assessed. It was found that up to the age of 7 years the performance of these children was entirely consistent with their counterparts in the integrated schools, both in quantitative and qualitative aspects. This is an important finding, despite the small numbers involved, because it indicates that the GCT may be of considerable use with black children, handicapped or not, who are expected to function under the age of about 7 years.

It was beyond the scope of this study to investigate the difficulties that were experienced on the GCT by the older black township children. Results on retests with a small group suggested that the initial underperformance on sections C and D of the GCT had to do with unfamiliarity, as the children performed at the expected levels on retest, with no training.

The final section (E), however, remained a problem for these children on retest, and this section therefore seems to pose additional difficulties, possibly to do with the representational material used in this section.

These results bear some similarity to research with traditional Piagetian tasks, in which difficulties have been found in the cross-cultural assessment from mid-concrete operational levels onwards. Findings of 'lag' in black, minority or non-Western samples have provoked energetic debate, some researchers pointing to cultural bias within the Piagetian framework. Others argue that cross-cultural work has not always represented the best within the Piagetian tradition, due to reliance on interpreters and standardised procedures. While these issues are no doubt very important in understanding the 'lag' found in this study, it is crucial not to neglect the possible impact of educational deficits resulting from the decades of apartheid educational policy.

As very few of the children in the research sample scored at the 7 year level or above on the GCT, the normative problems at the top end of the test could be set aside for the purposes of this study. Subsequent to the research sample, changes were made to the GCT, substantially affecting section E. May's research (1993) indicates that, even with the alterations to the GCT, underperformance is still found in black and coloured children attending schools that have been marginalised and underfunded as a result of the apartheid system. May's results also suggest that the results of this research would not have been significantly altered had the final version of the GCT been used.

The main body of the empirical work on the research sample comprised a construct validity study on the GCT, using the Griffiths Scales of Mental Development and the Draw-A-Man test. In addition, criterion validity was examined, and various reliability substudies were carried out. The results of the construct validity study will be briefly discussed first.

As predicted, highly significant correlations were found between the GCT and the Eye and Hand Co-ordination and Performance subscales on the Griffiths, both on the analyses using mental age or test age, and those using IQ range scores. It is argued that while these

subscales are described in terms of fine-motor co-ordination and speed of manipulation, many of the items of both subscales require increasingly complex perceptual analysis and non-verbal reasoning skills. These results are therefore seen as confirmatory of the construct validity of the GCT.

Predictions were difficult to make on the relationship between the GCT and a number of the Griffiths subscales. Significant correlations were found between the GCT and the Hearing and Speech subscale on the Griffiths on both the age correlations and the IQ range correlations. As this subscale is regarded as “the most intellectual of the scales” (Griffiths, 1984, p.45) this result is confirmatory of the GCT as a measure of reasoning ability. Sample sizes were small on the Practical Reasoning and Personal/Social subscales, and significant correlations were found between these subscales and the GCT on the simplified IQ range data only. The Practical Reasoning subscale should certainly be expected to correlate with a reasoning test such as the GCT; in fact it could be argued that this is the subscale most likely to correlate significantly with the GCT. This prediction could not be firmly made, however, due to the heterogenous nature of the items on the Practical Reasoning scale. This results is therefore entirely understandable, and supportive of the construct validity of the GCT.

The significant correlation with the Personal/Social subscale, while not entirely surprising, should be seen in the context of the interrelationships between the Griffiths subscales. The Personal/Social subscale was found to correlate significantly with subscales C, D and F. This subscale was also the most sensitive to cultural factors, and hence the validity of the scores on this subscale are open to question.

The interrelationships between the Griffiths subscales is also seen as the reason for the unexpected significant correlation between the GCT and the Locomotor subscale. An interesting result was the significant correlation between the IQ range scores on the GCT and the General Quotient on the Griffiths. As very small numbers were involved here, this result has to be seen as preliminary. Nevertheless, it is of clinical significance that the overall IQ range on the GCT was found to correlate significantly with the IQ range obtained on a developmental test covering many areas of functioning.

It must be noted here that the GCT has never been seen by Grover as a replacement for developmental or other kinds of scales that examine a number of areas of functioning. The GCT is seen as a useful supplement, particularly where there are verbal difficulties (Appendix I). In addition, the GCT, like all other psychological tests, should be used and interpreted in the context of an overall assessment which includes information on adaptive functioning. When placement is at issue, it is naturally important to assess whether the child meets the criteria of entrance to particular facilities. For a school such as Nompumelelo, for example, it is required that the children are ambulant, toilet-trained, able to comprehend simple instructions and free of severely disruptive behaviour. The usefulness of the GCT for placement decisions is discussed later in this chapter.

The Draw-A-Man test was included in the study due to its popularity as a developmental screening test with black handicapped children. As expected, a significant moderate positive correlation was found between the GCT and the Griffiths Draw-A-Man, but the scores on the drawings were significantly higher than the GCT scores, both in statistical and clinical terms. It is difficult to evaluate this finding, in part because of the paucity of local research on drawings by black mentally handicapped children. The original Goodenough scoring system was used, as local research has indicated that while this system underestimates the abilities of local black children over the age of 8 years, the later Goodenough-Harris system underestimates the abilities of black children even more (Richter et al., 1989). This research suggests however, that the Goodenough scoring of drawings done by mentally handicapped children may yield inflated scores. It would be interesting to examine drawings in a larger group of black mentally handicapped children.

A group of testees produced drawings on two occasions, and a comparison of these led to a further interesting finding. While the correlation between the two drawings was highly significant, it was found that in just under half the cases, the scores on the two drawings fell into different IQ ranges. It appears, therefore, that performance on the Draw-A-Man is not as reliable as the statistical finding suggests. This highlights the importance of a clinical as well as statistical evaluation of performance differences. This finding supports the need for caution in the clinical interpretation of drawings in this population,

particularly in the light of the conclusion by Richter et al. that “the task of drawing a man, simple though it may seem, is a fundamentally different task for local children as compared to their Western counterparts” (1989, p.4).

An important result, in terms of construct validity, was that the GCT was found not to discriminate between children with language difficulties and those without. By comparison, those children rated by teachers as having no language difficulties scored significantly higher than those with language problems across all the subscales on the Griffiths. It is interesting that children with speech difficulties scored lower even on subscales dealing with non-verbal skills on the Griffiths. It is possible that with some mentally handicapped testees, speech difficulties do not show up as specific weaknesses on certain subscales, but affect performance on the entire test. This could be due to the level of receptive language required by the instructions on the Griffiths, or with motivational problems experienced by handicapped children with speech difficulties when faced with a verbally loaded test. Further research is warranted in this area.

Crucially, therefore, the GCT appears to fulfill one of the most important goals of its development, which was to provide an assessment tool that does not require expressive language and requires minimal receptive language abilities.

This research study could not examine the extent to which interpretation of performance on the GCT could provide a useful framework for intervention for teachers. This is one of the functions that Grover intended for the GCT (Appendix I). Due to the fact that the GCT was still under evaluation, detailed feedback on the test was not regularly given to teachers and parents. A particularly important issue is the question of how much training in Piagetian theory is required for teachers or trainers to usefully and flexibly incorporate the test results into intervention programmes in the way in which Grover envisions. The other side of the same question is the level of theoretical sophistication required in the psychologist who administers and interprets the GCT and gives feedback to the teachers. This raises theoretical and practical questions about the nature and extent of the training required in order to use and interpret the GCT in the way Grover intended.

Some critical writing on the use of Piagetian theory in education points to the dangers of the loss of complexity of Piagetian theory when conveyed to teachers, and the risk of aspects of the theory being used in a simplified and rigid manner in the classroom (see Chapter 3). Further research is needed on this issue. It would be particularly valuable if this question were examined in the context of special schools for black mentally handicapped children, as teachers in these schools generally have relatively little specialised training. Such research would extend the evaluation of the construct validity of the GCT.

In addition to the work on construct validity in this study, it was decided that there should be some examination of criterion validity, particularly as one of purposes of the GCT was to help with placement decisions. The evaluation of criterion validity was made difficult by the lack of traditional criteria, such as examination results, at Nompumelelo Special School. The GCT correlated significantly with school stream and with teacher ratings of the children, and this provides some evidence for criterion validity of the GCT.

It must be noted that the criteria used were not entirely predictive. Ideally, the sample should have been assessed prior to school entry, and the criterion ratings gathered some time later. In fact, the sample was assessed in 1990/1991, and the childrens' stream in 1990 and 1992 was used in separate correlations with GCT test age. Teachers' ratings were obtained in 1992. While some time did elapse, therefore, between assessment and rating on the criteria, it could be argued that the stream in which the child was placed influenced educational input and therefore influenced scores on the GCT. Given that there were limitations on the choice of criteria, and the design of the criterion validation study, there is some support for the predictive power of the GCT in terms of level of functioning within the school. While this cannot be seen as a definitive result, it suggests that the GCT can provide useful information for placement decisions.

A number of reliability substudies were conducted. Inter-rater reliability was found to be high, and test-retest reliability was high in two studies using different time periods. This result is interesting given that in the preliminary work with non-handicapped black children, considerable changes were evident when a small number were retested on the

GCT. It could be postulated that more spontaneous learning could be expected in a non-handicapped group than in the handicapped sample, and that the high test-retest reliability is associated with a characteristic of mental handicap, which is difficulty with learning. Although small numbers were used in the reliability substudies, highly significant results were obtained.

A drawback in the design of the study was the fact that the primary researcher administered the GCT to most of the sample, while a Xhosa-speaking research assistant administered the Griffiths scales throughout. This was unavoidable due to the high verbal content of the Griffiths, which required an examiner fluent in Xhosa. The possibility of measurement bias was therefore introduced, that is the two examiners may have elicited different levels of performance on the two instruments. The review of work in cross-cultural testing (Chapter 3) highlights the influence of cultural and language factors in the establishment of rapport and understanding of test performance.

An attempt was made to address this drawback by conducting a retest substudy on the GCT using different examiners. This was conducted in the hope that the test-retest reliability would be high. As this was the case, the retest using different examiners could be used to evaluate measurement bias on the GCT. While a statistically significant result was found, closer examination revealed that this could be explained in terms of the sensitivity of the statistical procedure, and that the effect of the different examiners on test performance was minimal. This emphasises the importance of careful examination of statistical significance.

While it appears that the two examiners did not elicit different performances on the GCT, it remains possible that some measurement bias occurred across the two instruments. The construct validity study used IQ range scores as well as test age scores however, and given that there was no evidence of gross disparities in performance with different testers on the GCT, it could be argued that any differences that did occur would have been absorbed within the range scores.

Other areas of difficulty will now be discussed. Some of these would occur in similar research elsewhere in the world, particularly the problems associated with conducting research with handicapped children from a deprived community. Research in deprived communities always raises questions about the ethical obligations of the researcher to that community. Research with mentally handicapped children often raises complicated ethical questions about informed consent and freedom to refuse participation.

In South Africa, particular difficulties are introduced by the legacy of apartheid and by the neglect and segregation that preceded the formal apartheid system. In the Western Cape, as well as nationally, there is an acute shortage of facilities and services for black mentally handicapped children, adults and their families. This situation created special ethical dilemmas, especially when children who were on the waiting list for placement were considered for inclusion in the study.

It was found that, at least for one family member, the desperate need for placement led to an expectation of help in this regard, despite repeated explanations that participation in the research was not connected to placement. As a result of this family member's distress, assessment of the waiting list subjects was stopped. This had two important effects. The first was the limitation of the overall sample size. The second was the restriction of the sample, in the main, to children who were already placed at a special school.

This practical and ethical problem introduced a source of sampling error. There is the possibility that those already placed in a facility may perform differently from those not yet placed. As discussed in Chapter 3, test performance has been found to be strongly related to formal schooling. Special school placement, although very different from regular schooling in terms of content, no doubt also develops skills that affect test performance.

It could be argued, therefore, that children awaiting placement would tend to perform less well than those already in a facility. A further question is whether this effect would be uniform across the tests used in this study. It could be argued that the relationships between the measures might remain the same, and it is the relationships between the measures, rather than absolute values, which this study aims to examine.

This issue is complex, however, as it is difficult to predict the effects of placement in a regular school. A child on the waiting list for admission to a special school may have had years of regular school placement, which may have equipped him with certain skills. On the other hand, attendance at a regular school (without appropriate help) exposes a handicapped child to repeated experiences of failure, which may have a detrimental effect upon motivation to perform. It cannot be assumed that children who have attended school will have had equivalent experiences, or that those who have remained at home have not had input that might be helpful to them in the testing situation.

These complexities notwithstanding, it certainly would be useful to examine performance on the GCT among children who had no history of formal input. Due to particular features of the local situation, and practical constraints, it was not possible to include a substantial group of such children in this study. This means that a certain group with whom the GCT was designed to be used, was not represented in this study.

As mentioned above, one of the effects of the difficulties with the waiting list children was reduction in sample size. The sample size was further reduced by lack of information on the levels of functioning of many of the children at the school. Had it been possible to predict the problems with the sample size, a fuller battery of tests might have been included to strengthen the construct validity study. This would have led to a further difficulty, however, namely choice of tests to use with this population. There are very few instruments that have a low enough baseline to be used in this group, have been the subject of local research with black children and can be expected to have some meaningful relationship to the GCT. The choice of the Griffiths was based on the range of subscales it includes, the low baseline and the local research with a number of South African samples. There is not a great deal of information on the use of the Griffiths with black mentally handicapped children, however, and so to some extent, this research was investigating the usefulness of the Griffiths in this group. The validity of the validating instrument is open to question therefore, but this is inevitable when a particular group has been neglected and under-investigated, as has been the case with black mentally handicapped children in South Africa. Clearly, further research is indicated.

It should be noted that this research has been conducted within the developmental paradigm, as indicated by reliance on the concept of mental age. As was discussed in Chapter 3, there is an alternative position, sometimes called the 'difference' position (Zigler & Balla, 1982). Proponents of this stance would suggest that it is more useful to look at the functioning of mentally handicapped people in terms of specific deficits (in memory or attention, for example) rather than equivalence to people functioning at a lower chronological age. Certainly there is research suggesting that in particular situations, the performances of mentally handicapped adults differ in important ways from the performances of children (for example, Clare & Gudjonsson, 1993).

The issue can be seen, however, in terms of level of analysis. A different sort of analysis of performance on the GCT by some of the sample would no doubt reveal particular deficits. For the purposes of the current research questions, and the practical need for assessment tools in the South African context, it was felt that the developmental model was appropriate. This is not to suggest that alternative forms of analysis, particularly among those children with obvious organic conditions, might not be very useful.

In summary then, the GCT was found to adequately assess non-handicapped black children up to the age of approximately 7 years. The GCT was found to have high inter-rater and test-retest reliability in the research sample of mentally handicapped black children. Significant correlations were found with a number of subscales on the Griffiths Scales of Mental Development, and those correlations found to be most highly significant were those that were expected. A significant correlation was also found with the Draw-A-Man, and the GCT does not discriminate against testees with language difficulties. Overall, therefore, there is evidence supporting the validity of the GCT as a test of aspects of non-verbal reasoning ability in young black children with or without handicaps. The nature of the test makes it especially valuable with children with language difficulties. This is a group for which very few assessment instruments exist. The GCT also correlated significantly with performance at the school, measured by school stream and teachers' ratings.

These results suggest that the GCT can be regarded as a useful supplementary instrument for the assessment of black children who are expected to function under the mental age of about 7 years, and especially those with language deficits. The test was developed to assist in the process of making decisions about placement. This research provides evidence that, with black mentally handicapped children, the GCT is a valuable instrument for this purpose.

Some areas for further research have already been mentioned. A number of other fascinating areas presented themselves for further research in the course of this study. The information obtained during the home visits raises a number of important and interesting research questions. One of these is the question of how caregivers in this community perceive their handicapped family member, and how they understand mental handicap. The needs of the families of black handicapped children have received virtually no attention in the South African context. The development of services would be aided by research into the ways in which families currently seek help and their experience of the help they receive, limited as it is. A further interesting area would be the play activities of handicapped children in the townships, and how these could be incorporated into assessment techniques.

The views of the participants in this research, and their thoughts about the test requirements, were not obtained in this research. This kind of information would not be easy to obtain, given that mentally handicapped children, in a school system that emphasises obedience, may not feel free to express their opinions. Nevertheless it would no doubt be valuable to attempt to explore the ways in which testees construe test requirements and the conditions of their participation in this kind of research.

As mentioned earlier, the preliminary work on non-handicapped children could usefully be extended, as the GCT was developed for use with children who are not globally impaired as well as with handicapped children.

A final point about the GCT, which is not immediately obvious in the search for valid and reliable assessment tools in the South African context, is that this test offers an important

contribution on the level of training and academic discourse. In order to use the test in a sensitive and responsible way with black mentally handicapped children, clinicians will have to think carefully about ethical, social and environmental factors impinging upon performance. The way in which the GCT has been constructed, and the manner in which it will be distributed, suggests that this kind of understanding and reflection will be encouraged.

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APPENDICES

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APPENDIX I

THE GROVER-COUNTER TEST: THEORETICAL BASIS AND THE INTERPRETATION OF RESULTS IN TERMS OF COGNITIVE FUNCTIONING LEVELS

PROFESSOR V.M. GROVER

The theoretical basis of the test is derived from the genetic epistemology of Piaget with its conception of orderly sequential stages or modes in intellectual development. These modes are characterised by the progressive appearance of new cognitive structures brought about by the interplay of assimilation and accommodation as the child interacts with widening aspects of the environment and increasingly uses reflections upon and abstractions from the immediately given data to solve problems.

The test covers the period extending from approximately three years of age to approximately nine and a half years in normal development. This period, in Piagetian terms, embraces that stage immediately following the sensori-motor mode through to a stage approaching the mid-point of the concrete operational mode.

The test aims at revealing the cognitive mode at which the subject is currently functioning within this period. It is a full understanding of this, rather than a single quantitative result such as an I.Q. which makes possible meaningful recommendations regarding the kind of teaching or training programmes that will be most effective, the choice of precise remedial measures matched to clearly observed weaknesses, and correct placement in an educational or work setting.

For this purpose performances on the test are graded into four main cognitive functioning levels (C.F.L.), all but Level 1 being divided into two sub-levels. If required, a finer distinction can be made by indicating whether the subject is at the lower, mid or upper

point of a level. Allocation to a C.F.L. depends upon total score together with certain other requirements (See Table 1) (*This table is presented in Appendix 4, BJD*).

Table 2 (*not presented in this thesis, BJD*) presents test performances in another form. It shows not only the total score expected at six monthly intervals from three years onward but also how that total is expected to be accrued. Marked variability from the characteristic performances presented in Table 2 highlights individual strengths and weaknesses which are very important in making sound recommendations.

[When an I.Q. is an essential requirement for legal or other such purpose, this, within narrow ranges, can be calculated. However, where the ceiling of the test is attained or almost attained (total score above 90) the assigning of a test age or I.Q. is not admissible since the subject's true potential may well not have been fully assessed. In such cases a test demanding more advanced cognitive processes should be administered.]

THE COGNITIVE FUNCTIONING LEVELS (C.F.L.)

These are described not only in terms of which items are likely to be, to some extent at least, within the competence of the subject, but also in terms of the characteristic ways or procedures adopted by the subject in the attempt to solve the presented problems.

C.F.L. 1: Early pre-operational, symbolic perceptual mode.

Approximate age range: 3 years to 3 years 11 months

During the second year of life, the child makes the transition from the sensori-motor stage into the stage described above. Interaction with objects is characterised by a more objective approach to the material presented, that is, the realisation that there is a particular end result to be achieved through the application of explicit acts. Attention can be focussed briefly on at least some relevant features of the stimulus material, the goal held in mind and behaviour actively persisted in long enough for the child to indicate that the task is completed.

The child is now capable of mentally combining schemes of action, imitation, and the use of images to evoke familiar objects and situations. In addition to language, imitation and use of images may both be considered as elements in the development of the symbolic representative process by means of which a degree of anticipation and planning for appropriate action become possible.

The term 'perceptual' is used in the description not to suggest that perception is absent at higher levels but to emphasize its tendency to dominate the child's approach to problem solving at Levels 1 and 2.

Section A of the test, items B1 and C1, which are tackled with some degree of success at the mid-point of Level 1, require in addition the following cognitive skills: discrimination and matching of two colours (black and red) and three forms (circle, square, triangle) and grouping in terms of these variables; the reconstitution of simple spatial sequence and order provided no reversal or transformation of the material is involved which conflicts with perceptual information.

C.F.L. 2: Development to more advanced staged of the pre-operational, symbolic, perceptual mode.

Approximate age range: 4 years to 5 years 11 months

This level sees the extension and greater stability of the processes revealed at Level 1.

Performance on section A is marked by a less tentative, more assured approach suggesting that an internalised plan now precedes and guides the motor behaviour. Some children, for instance, gather up all the black circles and place them then select the next category of counters and proceed in this way. Full score on section A is attained during Level 2.

B2 may still cause some difficulty. This item demands an active process of reconstructive memory which is influenced by the general cognitive functioning level the child has reached. For success the child must retain and reproduce not merely what has been perceived (perhaps just a random set of counters) but what has been understood, namely, a

regular alternation of two forms. Children between 4 and 5 years may succeed in alternating the two forms which make up the pattern but show uncertainty as to which form to start with. They are also quite liable to work from right to left, the convention of working from left to right probably not being well established until the elements of reading and writing have been introduced.

B3 may be considered easier than B2 by virtue of the fact that the model is present but this in itself can produce a conflict between what is seen and what must be reproduced.

There is gradual improvement on section C. This section depends heavily on perceptual-motor matching, a skill which is essential for many further kinds of learning. Even here, however, knowledge does not stem merely from a passive registration of the given sensory data leading to a sort of photocopy. Improvement in performance results largely from increased perceptual activities, that is better, though still incomplete, exploration of the configuration.

Section D again requires reconstructive memory and a kind of information processing since direct perceptual support is removed at the time of reproduction. Virtually every normal child from 4 years of age is able to recognise and give a meaningful name to the three presented models. Thus, the child is dealing with identifiable objects. However, the previous knowledge of or familiarity with these objects varies greatly among the three.

D1 (Man) does not show marked stages of improvement after about 5 years. This is probably because the individual parts making up the model together with their positions relative to one another are already well known to a five year old child.

D2 (Star) presents a far less familiar situation and one which involves difficult relationships of the parts to the whole. The child under 5 years of age seems at a loss as to how to tackle this item. From about 5 years the approach is rather more confident but the main difficulty is to achieve a properly co-ordinated closed figure. After placing the 6 red triangles to form about three-quarters of a circular outline, the child searches for more red triangles to fill the gap but not finding any, either leaves the reproduction wide open or

fills the gap with black triangles. Occasionally a child may spontaneously push the 6 red triangles together to achieve a rough closure.

D3 (Car), though familiar and concrete in nature, is complex in structure and demands, in the brief exposure time allowed, a close analysis of the parts and the way they are integrated.

The types of performances at Level 2 on items D2 and D3 clearly reveal some characteristic features of the pre-operational child's limitations in dealing with spatial representations.

At Level 2a the child may simply omit several details of the model reducing it to those basic elements that match his understanding. Thus, in the case of D3 (Car) the reproduction may consist only of one or two squares to which two circles (wheels) are attached.

Throughout Level 2 there is the tendency towards centration or the focussing of attention on only one dimension of the configuration at the expense of other equally important ones. This is illustrated in D2 (Star) where the child centres on the outline or periphery of the model with the results already described.

Closely associated with these features is synthetic incapacity. While several of the component parts of a model may be reproduced, these are not in proper relationship to each other but merely juxtaposed or joined together in a random fashion. Examples of this are shown for D3 (Car) on the Scoring Examples Sheet (*not reproduced in this thesis, BJD*).

C.F.L. 3: Transition from pre-operational mode to the threshold of the concrete operational mode.

Approximate age range: 6 years to 7 years 11 months

A chief characteristic of this level is a lessening of the deforming effects of a response based on the immediate impact of perception as new cognitive structures come into operation to interact with, modify and even contribute to refinements in perceptual processes themselves. However, this growing independence of thought from perception is achieved only in those problems where the number of dimensions to be considered is limited and necessary transformations of the given data remain simple. Full score on sections B and C is expected during this level.

There is gradual improvement on items D2 and D3. At Level 3a performances on these items still show a reliance on topological properties rather than a true and consistent understanding of Euclidean relationships involving a system of reference. According to Piaget “a system of reference presumes operational co-ordination of several fields one with another” (*Grover does not include references in these unpublished notes, BJD*). The attainment of such a system indicates the extent to which the child is moving into the concrete operational mode.

Section E confronts the child with new tasks in which some of the props provided in previous sections have been removed. E dem. (Butterfly) and E1 (Church) may be considered as providing links between these earlier sections (C and D) and the more difficult items; but whereas in C and D both the whole model and its component parts are clearly visible, the reconstruction now has to be carried out from discrete units whose boundaries and inter-relationships are not defined in the presented model.

Even before Level 3 is reached the very attentive child may achieve some success on E dem. (Butterfly) because of the detailed demonstration that has been offered, and may also score one or two points on E1 (Church).

During Level 3 perfect or near perfect performance is achieved on E dem. but E1 continues to cause difficulty. The ‘tower’, being made up of squares placed one on the other and topped with a single triangle is not a problem though judgement of height may be faulty. Construction of the ‘body’ of the church requires inferential processes based on a far better grasp of geometric forms. The approach at this Level remains a trial and error

one in which the child may attempt to produce the oblique lines of the roof by setting squares at an angle.

C.F.L. 4: Mid concrete operational mode.

Approximate age range: 8 years to 9 years 6 months

During this Level the ability to analyse and re-construct with accuracy quite complex configurations and to transform these in particular ways as, for instance, in the vertical transposition of E2, and the figure ground problem of E3, becomes more evident.

According to Piaget, "the age of 9 or thereabouts, which lies midway through the period in which concrete operations first take shape thus marks a decisive turning point in the development of spatial concepts; that of the completion of the framework appropriate to comprehensive Euclidean and projective systems".

Items E4 and E5 give opportunity for yet another manifestation of the application of concrete operational thinking processes.

There are two very different ways in which these items can be approached: the trial and error or groping approach on the one hand and the systematic or logical approach on the other. At Level 4a the former predominates. The child now has some understanding of the goal but attempts to meet it remain at an essentially practical level of manipulating the counters in various ways, a method which may or may not lead to ultimate success. At Level 4b a more systematic approach emerges in which the performance is governed by some sort of plan. It might be said that the child attempts to solve the problem mentally before any motor activity is initiated.

Both E4 and E5 require that the child perceives the pattern as a whole or integrated unit but is also able to discover how each row and/or column is logically related to the preceding and succeeding ones.

In E4 there are three variables to be taken into account: the number of counters in a row, the colour, and the form of these. At Level 4a difficulties arise in taking all these variables into account simultaneously, in other words there is a failure of decentration. At Level 4b the child appears to have carried out a careful preliminary analysis of the pattern considering all the variables and then unhesitatingly completing the missing row.

E5 is more complex than E4. It requires the discovery of the additional factor of the arithmetic progression in the four columns, namely the repeated reduction by two counters. At Level 4a the first two counters are likely to be correct but then the child, over-influenced by the 'perceptual pull', that is the appearance of squares in all other columns, adds a single red square. At Level 4b this, or some other error in the initial attempt may be spontaneously corrected. Verbal children at this Level are able to explain how they reached the correct solution.

There is, then, during Level 4 an increasing transition from what Piaget calls the figurative aspects of knowledge to the operational aspects which are not given directly in the observable data but must be derived by relection upon and abstractions from the observed material.

APPENDIX II

EXTRACT FROM: THE GROVER-COUNTER TEST: INTRODUCTION

PROFESSOR V.M. GROVER

The appearance of yet another test may seem superfluous and it is therefore necessary to indicate clearly the specific reasons for introducing the Grover-Counter Test.

The Test is not intended to replace a recognized and well standardized predominantly verbal type test for use with subjects who have well developed verbal skills. It is not intended as an all-round development scale, though in both such cases it can serve as a valuable supplement.

The Test had its origin in an attempt to address practical problems arising predominantly in the field of mental handicap. The assessment of the level and nature of current intellectual or cognitive functioning in a mentally handicapped child or adult is one basic requirement for all further management. Decisions regarding such important matters as the correct placement in an educational or work setting; the precise kind of teaching or training programme that will be most effective at any particular time; the choice of exact remedial measures matched to clearly observed cognitive weaknesses - all these should rest on an assessment of cognitive functioning which is well focussed and accurate and the results of which can be translated into meaningful recommendations.

A major aim in devising the Grover-Counter Test was to provide an instrument which can reveal such cognitive functioning (within a defined range) in persons with extremely impaired verbal skills, whether receptive or expressive or both.

Impaired or limited verbal ability, especially of the expressive kind, is characteristic of many mentally handicapped persons but may stem also from other causes such as defective hearing, aphasia, elective mutism, or the fact that the language medium of the test used is not the mother tongue of the subject, a situation which can, unfortunately, occur in a multi-linguistic society. One of the settings in which the need for an alternative test has become increasingly clear is that facing the psychologist who must assess and make meaningful decisions about mentally handicapped African children, for instance, the child's suitability for admission to special education.

In all such cases the subject may be able, if given the chance, to solve a problem behaviourally although unable to do so in the form of a verbal response.

Additional objectives in designing the Test were to ensure that :

1. The Test enables the procedures adopted by the subject on each item to be clearly observable and the scoring system should take this and not merely the final product (Pass/Fail) into account.

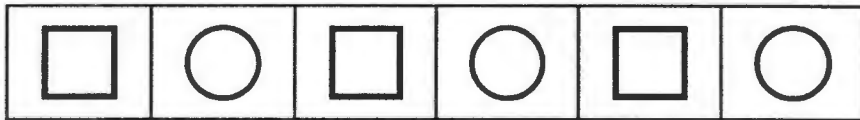
- 2 The Test, being one of cognitive functioning, is not adulterated by items which no longer have any significant cognitive component. This occurs particularly when test of the mosaic type designed for young children are administered to adults. Certain items of development significance in childhood may be achieved by mentally handicapped adults simply through years of practice and repetition, for example, tying a bow knot, naming the days of the week.
- 3 The material is inherently appealing to children and mentally handicapped adults.
- 4 A minimum of simple equipment is required both for convenience, easy replacement, and to avoid prohibitive costs.
- 5 Testing time is relatively short.

Considerable experience in the use of the Grover-Counter Test with a wide variety of subjects has indicated that these objectives have been reached.

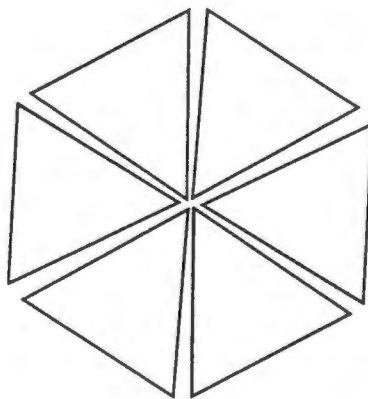
APPENDIX III

SELECTED ITEMS FROM THE GROVER-COUNTER TEST

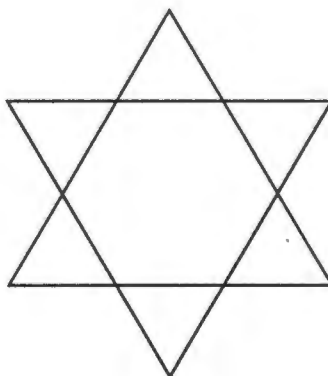
ITEM B3:



ITEM C1: FLOWER



ITEM D2: STAR



APPENDIX IV

**REQUIREMENTS FOR ALLOCATION TO PROGRESSIVE COGNITIVE
FUNCTIONING LEVELS (C.F.L.)**

PROFESSOR V.M. GROVER

C.F.L.	1	2a	2b	3a	3b	4a	4b
Total Score	8 - 21	22 - 37	38 - 52	53 - 64	65 - 76	77 - 85	86 - 93
Test Age	3 - 3.11	4 - 4.11	5 - 5.11	6 - 6.11	7 - 7.11	8 - 8.9	8.10 - 9.6
D Minimum	/	/	6	10	14	17	20
E Minimum	/	/	/	3	7	15	21
Mid Point							
Total Score	14	29	46	59	70	81	90
Test Age	3.6	4.6	5.6	6.5	7.5	8.4	9.3

C.F.L.s are described as follows:

LEVEL 1: Transition to pre-operational, symbolic, perceptual mode.

LEVEL 2: (2 substages)
Development to advanced stage of above mode.

LEVEL 3: (2 substages)
Transition from pre-operational mode to threshold of concrete operations.

LEVEL 4: (2 substages)
Advancement to mid stage of concrete operational mode.

APPENDIX V

Beverley Dickman MSc

CLINICAL PSYCHOLOGIST

202 Queensmead
Queen Road
Rondebosch
7700

Telephone: 685-4250

6/10/89

Dear

As we discussed on the telephone, I am doing research for a PhD. in the area of assessment of black mentally handicapped children - an area that has had little attention and is becoming more urgent as facilities are being developed in the Western Cape. This interest comes from five years work as the sessional psychologist at Cape Mental Health Society, where I do many assessments of handicapped people, and where it became increasingly obvious that available tools are inadequate. Currently educationally deprived people, who often are black, are assessed using outdated tests that do not allow for detailed and useful feedback to teachers in special facilities.

Professor Vera Grover, a major contributor to work with mental handicap in South Africa, has developed a new instrument called the Counter Test. It has been designed with moderately and severely handicapped people in mind, does not require formal educational experience, and does not rely on verbal responses. It is not an IQ test, but a test of certain cognitive abilities in the developmental age range 3 - 10 years. This test shows promise for use with very low functioning adults as well, and may be applicable to other educationally disadvantaged groups, such as streetchildren. The test begins with very simple tasks of colour and shape recognition, and memory of spatial arrangements, followed by increasingly complex tasks involving construction from models and cards, and finally tasks involving analysis and restructuring are presented.

I am planning a validity study of the test, using a large sample of mentally handicapped children. My supervisor at the University of Cape Town is Ann Levett (Department of Psychology). The reason I am approaching you is that I need to train myself on the test and to familiarise myself with the responses of non-handicapped children to the items. It takes 20 - 30 minutes to administer, and I would very much like to spend time with about 30 children between 5 and 10 years of age. Given the early stage of the research, I will be unable to divulge any results. The results would not be used for the research proper, but may yield information for the modification of administration and/or scoring.

I would need a room, a table and two chairs. I would tell the child that I am working on games to help children with problems at school, and that I am asking children at his/her school to help me with it, to see whether I am getting the games right. I have found that children accept this, and they tend to enjoy the tasks. I make sure that the child ends on an experience of success, and they are given plenty of praise and encouragement.

If there are any questions or concerns from teachers or parents I would be happy to give further information, or to visit to discuss it. Thank you very much for considering this request.

Sincerely

Beverley Dickman

APPENDIX VI

ENGLISH TRANSLATION OF LETTER TO PARENTS

Dear parent

We are glad to have located you. As mentioned in the first letter, we would like to check on how your child is getting on. This information will be of benefit to Cape Mental Health Society in knowing more about your child and what he/she may need. The information will also be used for research I am doing, and the information would be treated entirely confidentially. *(The Xhosa version explains that no names will appear in what is written, and it will not be said where the information comes from.)*

If you do not wish to participate in the research, please feel free to tell the person who will be visiting you. There will be no difference in the services you will receive *(Xhosa version: Your child will not be disadvantaged)* if you elect not to be part of the research.

Thank you for your consideration

Sincerely.

APPENDIX VII

CAPE MENTAL HEALTH SOCIETY

REGISTERED WELFARE ORGANISATION FUND RAISING NUMBER 08 800302 0009 MEMBER OF COMMUNITY CHEST

ALL CORRESPONDENCE TO THE DIRECTOR
PRIVATE BAG X7
OBSERVATORY
7935
ADDRESS 22 IVY STREET
OBSERVATORY
TELEPHONE (021) 47-9040
FAX (021) 47-7261
OUR REFERENCE
YOUR REFERENCE

Bazali abathandekayo

Sinovuyo lokuba side sanifumana. Siqwenela ukuza kutyelela ikhaya lenu, nokuzakubona ukuba umntwana uqhuba njani njengoko sesichazile kwileta yethu yokuqala. Inkcazo esiyifumene kolutyelelo izakunceda i-Cape Mental Health Society ukuba yazi ngomntwana, ikwazi nokubona indlela angancedwa ngayo. Kwakhona le nkcazo izakusetyenziswa kuphando oluqhubekayo. Siyathembisa ukuba oko usixelele kona siyakukuphatha ngencubeko. Oko kuthetha ukuba asiyikwazisa ukuba inkcazo ivela phi. Kwaye igama losapho kwakunye nelomntwana aliyi kuvela kokubhaliweyo.

Ukuba akunqweneli kuthabatha nxaxheba koluphando nceda wazise lo mntu uyakube etyelele ikhaya. Sifuna uqonde ukuba ukungathabathi kwakho nxaxheba koluphando akuyi kwenza ukuba angalufumani uncedo umntwana wakho.

Enkosi kakhulu ngoncedo lwakho.

Ozithobileyo.

APPENDIX VIII

FEEDBACK SESSION WITH TEACHERS AT NOMPUMELELO SPECIAL SCHOOL

6 / 8 / 91

This session was at the regular time of 11 am. Four of the 10 teachers could not be present as they were organising a large sports meeting. Three assessments were presented to the teachers. In each case, the profile of the child's performance on the Griffiths Scales of Mental Development (Griffiths) was put up on a white board. This profile indicated the Griffiths subquotients for each subscale, as well as mental age scores for each subscale. Overall score was reported in the form of a category of functioning, for example, mild mental handicap. The teachers had been thoroughly introduced to the Griffiths and its scoring system. At the teachers' request, the feedback was conducted in English, and those who were less fluent in English would indicate when they were not following. As a result, there were periods of discussion in Xhosa during which the teachers would clarify issues among themselves. Sometimes a concern or question would emerge from these discussions.

The first child to be presented, who will be called Lindiwe, was a 9 year old child with poor hearing. Her Griffiths profile, as one would expect, showed marked weaknesses on the more verbal subscales. Lindiwe's performance on the GCT was significantly better than her performance on the nonverbal Griffiths subscales and this was discussed. Her classteacher informed me that Lindiwe had an unusual syndrome and undertook to find the medical report on her. A home visit was due to be carried out and I offered to discuss this with the teachers at a later meeting.

The second child to be presented, Thobile, was a 12 year old with echolalia, which complicated the assessment. He also would remain in the room only if his best friend was present. The teachers were amused to hear about this, especially as the friend had been excluded from the research as he failed to reach the baseline score on the GCT, and clearly had difficulty understanding what was required from him. Yet in his capacity as assistant,

this child grasped the situation with no difficulty, clapped his hands in praise when we did, and otherwise remained unobtrusive throughout.

Thobile's performance was discussed, in the context of a previous assessment I carried out on him 3 years before, at Cape Mental Health Society. His echolalia, in particular, was of interest to the teachers, as well as the habits he had developed around this problem (such as singing the words over and over, especially his name). Thobile's classteacher was surprised by some of the items he completed successfully, and was interested to hear that if one persevered despite the echolalia, Thobile would often be able to respond eventually.

Thando was a 15 year old boy who was excluded from the study due to his inability to reach the baseline on the GCT. Although the results on the Griffiths were presented to the teachers, it was made clear that this was an underestimate of Thando's abilities due to his marked performance anxiety. Thando impressed as verbally proficient and 'streetwise'. Once testing began, however, it emerged that he was very fearful of failure and loss of face. Thando attempted to coerce help out of the researchers, tried desperately to cheat and then to cover this up and constantly sought reassurance. His anxiety seemed to prevent any useful reflection and he tended to persist in obviously poor strategies.

This presentation led to animated discussion that went well over time. Thando had established for himself the role of 'teacher's helper' in the classroom which allowed him to avoid actually attempting any of the tasks given to the class while allowing him to exercise his verbal skills. Thando was regarded as having major behaviour problems. He tended to be stubborn and to insist he was right, he was unable to apologize and on occasion was extremely rude to teachers and other staff at the school. The teachers expressed concern about whether he would survive, as his rude behaviour could lead to assault in the townships. We discussed some strategies for encouraging Thando to attempt work, and to help him succeed. Subsequent to this meeting it became clear that Thando's emotional difficulties were too severe for the staff at the school, and he was later expelled.

APPENDIX IX

FEEDBACK INTERVIEW WITH THE GRANDMOTHER OF A CHILD INCLUDED IN THE RESEARCH

In these notes, the subject will be called Sindiswa, and her grandmother will be called Mrs April. Sindiswa was a 12 year old girl who had been on the Cape Mental Health Society (CMHS) waiting list for placement at a training centre. In 1991 the home had been visited by the research assistant, who had found Sindiswa suitable for inclusion in the study. Mrs April had brought Sindiswa for assessment, and by the time of the feedback interview early in 1992, Sindiswa had been admitted to Nompumelelo School. The feedback interview was arranged by the interpreter, who visited the home once again.

Mrs April is a domestic worker. Her daughter abandoned Sindiswa at an early age, and Mrs April has taken care of her. They live with other members of the extended family, who depend largely on Mrs April's income. Sindiswa was diagnosed as having brain damage at birth and had been treated regularly at the Department of the Neurology at the local Childrens' Hospital.

At the interview Mrs April was offered a cup of coffee. I began the interview by asking her how Sindiswa was settling in at Nompumelelo School. She reported that there had been some problem in the first week, Sindiswa had been placed in the wrong class, but she had contacted the school and the matter was sorted out. Mrs April told us that Sindiswa could write her name and that for some time she has been bringing crayons and paper from work for Sindiswa to use. Some aspects of the history were clarified - during the home visit Mrs April had informed the research assistant that Sindiswa had been attending a day care centre for disabled children and this was explored. It emerged that the family were unable to afford the monthly transport costs and Sindiswa had attended only for a short time. Mrs April told us about the person she had employed to care for Sindiswa after school, while Mrs April was still at work. This person was leaving for the Transkei but Mrs April hoped to retire by then and we discussed the process she was going through in order to secure her pension and a maintenance grant.

It had also been mentioned previously that there were behaviour problems. Mrs April had reported during the home visit that Sindiswa tended to dominate and sometimes strike other children. On exploration this seemed to have settled down.

Sindiswa had reached the ceiling on three of the subscales on the Griffiths (the Locomotor, Personal-Social and Practical Reasoning subscales). Her performance was lowest on the Eye and Hand Co-ordination subscale and on the Performance Subscale, and the feedback to Mrs April centred around the area of fine-motor co-ordination. We discussed how Mrs April might use everyday tasks that Sindiswa regularly performs to alert her to simple shapes. Sindiswa had some deficits on the Hearing and Speech subscale as well, and the importance of naming objects and colours was discussed with Mrs April.

Although Sindiswa reached the ceiling on the Practical Reasoning subscale, she had difficulty with time concepts and Mrs April was encouraged to begin by emphasizing the time of day (morning or afternoon), and then once this was clear to Sindiswa, to move onto more detailed markers of time.

When asked if there was anything else she would like to discuss, Mrs April asked whether she should begin to prepare Sindiswa for menarche. She felt that Sindiswa was 'sick' and therefore would fail to understand. It emerged that by 'sick' Mrs April meant 'a slow thinker'. I agreed that this was an accurate description of Sindiswa and that what this meant was that she would require repeated explanations in order to understand, and that it was important to begin in a simple way. On further exploration it emerged that Sindiswa had tended to run around naked but as she was beginning to develop physically she was told by her grandmother not to do this, and she has complied. This success was used as an example of Sindiswa's ability to learn and behave appropriately.

Mrs April told us she was of the 'old school' and had never been able to discuss sexual matters with her children. A neighbour had helped with one child. We encouraged her to obtain help again in order to assist her in this task. She then informed us that the 15 year-old son of a neighbour had once tried to assault Sindiswa, who had screamed and had

managed to break away. This highlighted the importance of some basic sex education. I provided Mrs April with some detailed information about where to start with the sex education, building on Mrs April's instruction that Sindiswa should cover herself.

Mrs April had already given permission for the assessment to be used in the research study but this was confirmed. She was informed that a report on the assessment would be lodged with CMHS and had no objections. There was some discussion about the importance of attending the parent-teacher meetings at school, which Mrs April had been attending, in order to co-ordinate Mrs April's work with Sindiswa with that of the school.

As Mrs April had had to take time off from work to attend the interview, she was asked whether she would like a letter to her employer. She said this was not necessary as she had a very good relationship with her employer, and had worked for the family for 15 years. We offered to reimburse her for her travel costs and she accepted this.

At the end of the interview Mrs April informed us that she also cares for Sindiswa's sister of 7 years, who was also left with her by her daughter. As she was leaving there was an interchange with the interpreter about Mrs April's name, which is not Xhosa. She informed us that her mother had been coloured but that she follows the Xhosa rituals.

APPENDIX X

EXAMPLE OF A REPORT FOR NOMPUMELELO SPECIAL SCHOOL

NAME: NONTOMBI (Identifying information has been changed)
DATE OF BIRTH: 21/5/76
DATE OF TESTING: 22/5/90
AGE: 14 YRS

This pupil was included in a research project carried out at Nompumelelo Special School in Guguletu, Cape Town. The Griffiths Scales of Mental Development was used. This scale is intended for use with children aged between 2 and 8 years, but it has been found to be useful with older children who have mental handicaps.

HOME VISIT:

Ms Walaza conducted a home visit in September 1990. The family live at _____ Guguletu, and Nontombi's mother, Mrs Thambo, was the informant. The house has four rooms, is electrified and has a connected water supply. Nontombi shares a room and a bed with her older sister. The family seems reasonably comfortable financially. Mrs Thambo is a nursing sister, and has a Std 10 education. Mr Thambo is employed as a baker. Nontombi is the second youngest of 5 children. According to Mrs Thambo, Nontombi has a good relationship with her siblings, despite occasional arguments. She appeared to have a close relationship with her mother.

HIGHLIGHTS OF PERSONAL HISTORY:

Pregnancy and birth were reportedly normal. Nontombi's milestones were delayed and she could not cope at school. Mrs Thambo feels that Nontombi is quite capable of looking after herself in terms of washing, dressing and eating, but she is oppositional and often

refuses. She is strong-willed and sometimes becomes aggressive if she does not get her way. She was also described as hyperactive and restless and has a short attention span, and Mrs Thambo feels Nompumelelo Special School is the right placement.

Nontombi plays with puzzles and dolls and enjoys colouring. She has a number of friends both older and younger than herself, but none of these are close friends. She has a few responsibilities around the house but sometimes insists upon attempting tasks beyond her ability, such as ironing. She is taken to the museum sometimes and particularly enjoys trips to the swimming pool.

The teachers at Nompumelelo who know the family commented that Mrs Thambo may not be supervising Nontombi as much as she requires. She is sometimes inappropriately dressed and not properly washed. Mr Thambo was seen as well aware of Nontombi's limitations however. Aggressive behaviour is not a problem at school. Nontombi is seen as low functioning with a poor grasp of what is going on around her.

TEST BEHAVIOUR:

Nontombi was generally neatly dressed but had a strong body odour on occasion. She laughed inappropriately at times and was quite restless throughout the testing. Her speech was rather inaudible and it was unclear how much she understood. Her attention was poor and one had to work hard to keep her interest.

TEST RESULTS:

GENERAL QUOTIENT:

Nontombi obtained a General Quotient of 26 which indicates a mental age of 3 years 8 months. If one excludes the two most verbal scales, the General Quotient is 30, corresponding to 4 years 4 months. The scores (subquotients) on the subscales are provided below. A subquotient of 100 reflects average performance.

A. LOCOMOTOR SUBSCALE:

Physical development is observed on this subscale, including the ability to run fast outside, to bounce and catch a ball and to jump over a rope. The subquotient was 36 which corresponds to an age of 5 years 2 months.

B. PERSONAL-SOCIAL SUBSCALE:

This subscale examines personal and social development and includes the ability to provide accurate personal information, ability to wash and dress oneself and the development of relationships with others. The subquotient was 30 which corresponds to an age of 4 years 4 months.

C. HEARING AND SPEECH SUBSCALE:

This subscale is the most intellectual of the scales and examines the development of language and understanding. Items include the naming of colours, repeating sentences, and comprehension items. The subquotient was 18, corresponding to an age of 2 years 6 months.

D. EYE AND HAND CO-ORDINATION SUBSCALE:

Here perceptual and co-ordination skills are assessed on such items as drawing, writing and threading beads. The subquotient was 26 with a corresponding age of 3 years 8 months.

E. PERFORMANCE SUBSCALE:

Here skill in manipulation, speed and precision are evaluated using such tasks as pattern making and fitting shapes into formboards. The subquotient was 29, corresponding to an age of 4 years 2 months.

F. PRACTICAL REASONING SUBSCALE:

On this subscale the beginnings of arithmetical comprehension are assessed, as well as the appreciation of simple practical problems. Knowledge of coins is also tapped. The subquotient was 15, corresponding to an age of 2 years 2 months.

SUMMARY:**CHRONOLOGICAL AGE: 14 YRS 3 MTHS**

LOCOMOTOR	:	5 YRS 2 MTHS
PERSONAL-SOCIAL	:	4 YRS 4 MTHS
HEARING AND SPEECH	:	2 YRS 6 MTHS
EYE AND HAND CO-ORDINATION	:	3 YRS 8 MTHS
PERFORMANCE	:	4 YRS 2 MTHS
PRACTICAL REASONING	:	2 YRS 2 MTHS

GENERAL QUOTIENT: 26**MENTAL AGE EQUIVALENT: 3 YRS 8 MTHS****CONCLUSIONS:**

Nontombi Thambo (14 years) appears to be functioning in the severe range of mental handicap (ICD 9 range 20 - 34), with particular difficulties with speech. Her attention is also poor.

PSYCHOLOGISTS:

MS N. WALAZA

MS B. DICKMAN

APPENDIX XI

SCHEDULE FOR HOME VISITS: CMHS WAITING LIST FEBRUARY 1991

DATE:

NAME OF CLIENT:

NAME OF INFORMANT:

ADDRESS:

DETAILS OF PEOPLE IN HOUSEHOLD:

DETAILS OF PARENTS/SIBLINGS LIVING ELSEWHERE:

DETAILS OF OTHER HOMES CLIENT HAS LIVED IN:

DOES ANYONE ELSE IN THE FAMILY/HOUSEHOLD HAVE A HANDICAP?

1. YES

2. NO

IF YES, DESCRIBE.

OCCUPATION OF THE PRIMARY BREADWINNERS:

HOUSEHOLD INCOME:

TYPE OF HOUSE:

NUMBER OF ROOMS:

NUMBER OF PEOPLE IN HOUSEHOLD:

NUMBER PER ROOM:

IS THE HOUSE ELECTRIFIED?

1. YES 2. NO

IF NOT, WHAT FUEL IS USED?

IS THERE RUNNING WATER?

1. YES 2. NO

IF NOT, WHO FETCHES WATER AND FROM WHERE, AND HOW FAR IS IT?

IF YES, IS THE HOUSE SUPPLIED WITH HOT WATER?

1. YES 2. NO

DOES THE CLIENT HAVE HIS/HER OWN ROOM?

1. YES 2. NO

IF NOT, GIVE DETAILS.

DOES THE CLIENT HAVE HIS/HER OWN BED?

1. YES 2. NO

IF NOT, GIVE DETAILS.

DAILY ROUTINE, IN DETAIL:

IF NOT ALREADY COVERED, ASK THE FOLLOWING:

IS THE CLIENT TOILET-TRAINED?

CAN THE CLIENT FEED HIM/HERSELF INDEPENDENTLY?

CAN THE CLIENT DRESS INDEPENDENTLY?

CAN THE CLIENT WASH INDEPENDENTLY?

**CAN HE/SHE FIND HIS/HER WAY AROUND THE IMMEDIATE
NEIGHBOURHOOD/**

DOES HE/SHE SHOW AWARENESS OF COMMON DANGERS (STOVES, CARS)?

CAN HE/SHE BE SENT TO THE LOCAL SHOP?

WHAT DOES THE CLIENT HABITUALLY PLAY WITH?

IS HE/SHE EXPOSED TO DRAWING MATERIALS?

1. YES 2. NO

NOTE DETAILS.

IS HE/SHE EXPOSED TO BUILDING MATERIALS?

1. YES 2. NO

NOTE DETAILS.

IS HE/SHE EXPOSED TO BOOKS?

1. YES 2. NO

NOTE DETAILS.

DESCRIBE PEER RELATIONSHIPS:

WHAT RESPONSIBILITY DOES THE CLIENT HAVE FOR HOUSEHOLD CHORES?

BEHAVIOUR PROBLEMS:

WHAT ACTIVITIES OUTSIDE THE HOME IS THE CLIENT INCLUDED IN?

IS THE CLIENT SEEN AS HAVING A PROBLEM?

1. YES

2. NO

IF NOT, HOW IS THE PLACEMENT ON CMHS WAITING LIST ACCOUNTED FOR?

IF YES, HOW IS THE PROBLEM DESCRIBED?

WHEN WAS IT FIRST NOTICED?

HOW DOES THE INFORMANT SEE THE CLIENT'S MENTAL AGE, BY COMPARISON TO OTHER CHILDREN?

APPENDIX XII

GLOSSARY FOR SCHEDULE FOR HOME VISITS

FEB. 1991

DETAILS OF PEOPLE IN HOUSEHOLD:

Find out who is living in the house at the time of the visit. Note educational level of each person if possible; the educational level of the primary caretaker is of particular concern. Indicate if a particular person is living there temporarily. Note people who might spend time at the house during the day (eg. helper, or children who are cared for during the day). Ask who the client is closest to, and whether there is anyone he/she does not get on with. Take note of any other obvious conflicts in the home.

DETAILS OF PARENTS/SIBLINGS LIVING ELSEWHERE:

Note the amount of contact with the client, especially when a parent lives elsewhere.

DETAILS OF OTHER HOMES CLIENT HAS LIVED IN:

In cases where the client has lived elsewhere for a period of his/her life, find out where and when this was. Ask whether, in the informants view, the previous home was satisfactory. If not, in what way was it unsatisfactory.

DOES ANYONE ELSE IN THE FAMILY/HOUSEHOLD HAVE A HANDICAP?

This may be easier to introduce by asking about illnesses in the family. Note physical and mental handicaps, as well as serious illness in someone close to the client. Describe the nature of the problem and how it affects others, especially the client.

OCCUPATION OF THE PRIMARY BREADWINNERS:

Obtain details of occupation, eg if the mother is employed at a factory, find out exactly what sort of work she does. If a parent is currently unemployed, ask what kind of work he/she held before.

HOUSEHOLD INCOME:

Elicit approximate total household income if possible. Check that the amount given is the regular income.

TYPE OF HOUSE:

Describe the house, including the materials from which it is built. Include separate structures at the back of the house. We will code this item later.

NUMBER OF ROOMS:

Include bathroom and toilet, if inside.

NUMBER OF PEOPLE IN HOUSEHOLD & NUMBER PER ROOM:

This is simply for coding and can be done after the visit.

IS THE HOUSE ELECTRIFIED? TO OWN BED:

Self evident.

DAILY ROUTINE:

Attempt to obtain as detailed a picture as possible of the client's daily activities from waking to going to bed. Find out who helps/supervises the client when necessary, what he/she manages alone, and how well this is done. Find out who is at home with him/her after school.

SUPPLEMENTARY QUESTIONS:

These areas may be covered spontaneously in the DAILY ROUTINE section.

TOILET-TRAINED:

Establish whether the client is clean and dry, day and night. Ask whether he/she has accidents during the day.

FEEDING, DRESSING, WASHING AND FINDING WAY AROUND:

Establish the extent to which the client can manage these tasks independently and how much help is required.

AWARENESS OF DANGER:

Ask whether the client understands the need for care, needs reminders, or whether constant supervision is required.

SHOPS:

Establish whether the client is sent to the shops, whether he/she remembers items or has them written down, about how many items he/she is expected to buy, and whether he/she calculates change.

DRAWING AND BUILDING MATERIALS AND BOOKS:

Describe the materials in each case, and find out how often the client uses these materials (per week or per day). Also find out how available the materials are to the client. They may be easily accessible, or only brought out at a specific time. We will code these items later.

PEER RELATIONSHIPS:

Ask whether the client plays regularly with other children, and how old they are. Ask whether there is a special friend (this will provide collateral for one of the Griffiths items). Find out whether there are any problems in this area.

WHAT RESPONSIBILITY DOES THE CLIENT HAVE FOR HOUSEHOLD CHORES?

Find out what the client is expected to do at home. Note whether he/she assumes responsibilities for particular tasks (eg. sweeping the yard each day) or needs reminders. Does he/she require supervision/help.

BEHAVIOUR PROBLEMS:

If there are any behaviour problems, find out how severe they are and how often they occur. Ask how they are handled and by whom.

WHAT ACTIVITIES OUTSIDE THE HOME IS THE CLIENT INCLUDED IN?

Attempt to find out how much exposure the client has to the environment portrayed in the Griffiths large picture. Find out whether he/she goes on trips to the sea and to town, and whether there are other regular outings, eg to church.

PROBLEM TO MENTAL AGE:

Self evident.