UNIVERSITY OF NATAL (DURBAN)

CENTRE FOR INDUSTRIAL, ORGANISATIONAL AND LABOUR STUDIES

INDUSTRIAL PSYCHOLOGY

AN INVESTIGATION INTO THE ATTITUDES, OPINIONS, AND FEELINGS OF PSYCHOMETRIC TEST ADMINISTRATORS TOWARD THE APIL B AS A CULTURE FAIR ASSESSMENT WITH SPECIAL REFERENCE TO THE EMPLOYMENT EQUITY ACT

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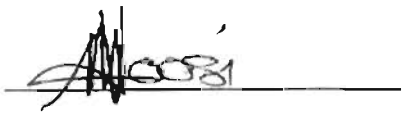
DECLARATION OF ORIGINALITY

I hereby declare that this dissertation is my own original work, unless it is specified to the contrary in the text. This dissertation has not been submitted for a degree at any other university.



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ABSTRACT

This research is an investigation into the Apil B as a culture fair assessment tool for the purpose of recruitment and selection. The Employment Equity Act stipulates that "psychological testing and other similar assessments are prohibited unless the test or assessment being used :-a) has been shown to be **valid and reliable** b) can be **fairly applied** to all employees and c) is **not biased** against any employee" (Employment Equity Act, 1998). The primary objective of this research is to evaluate the Apil B with regard to validity, reliability, cultural fairness, and bias via a consideration of the attitudes, opinions, and feelings of psychometric test administrators in the Kwa Zulu Natal region. The secondary objective is to ascertain whether the Employment Equity legislation has influenced the attitudes of test administrators toward psychometric testing, and the implications for psychometric testing in South Africa following the Act.

The sample in this research consists of 20 qualified test administrators of the Apil B. The administrators are affiliated with the following companies : Beacon, Durban Electricity, Profiled Appointments, Mondi, McCann and Associates, Saunders and Associates, Tetrapak, Ithala, and Mangosuthu Technikon.

Qualitative and quantitative methods are used. A self-administered questionnaire is used to investigate the attitudes, opinions, and feelings of the respondents toward the Apil B as a culture fair assessment, specifically in relation to validity, reliability, cultural fairness, and bias. Although most of the questions are qualitative, quantitative questions are also included. Therefore, this research requires numerical data as well. The quantitative questions include yes and no responses, as well as rating scales. The quantitative data supplements the qualitative data and therefore facilitates a more concrete data base.

The results indicate that all respondents feel that the Apil B is valid, reliable, culture fair and fairly applied. Respondents feel more positively toward the new updated psychometric tests. They expressed greater confidence in terms of knowing which tests are inappropriate and which tests are relevant to specific jobs.

It is also evident that the Employment Equity Act has strongly influenced the attitudes of respondents, in a very positive light, toward the use of psychometric testing. The respondents do however mention some concerns with regard to language based tests, and the ethical use of tests.

According to the research conducted, the Apil B is regarded as a valid, reliable, and culture fair assessment tool in the opinion of the respondents utilised in this study. It is therefore recommended that the Apil B is used in organisations as a test that does not discriminate against any culture or subculture.

CHAPTER 1

INTRODUCTION AND STATEMENT

1.1. INTRODUCTION

This chapter provides an introduction to the topic and research problem underlying this study. The value of this research is clearly explicated. The aim of this research is to investigate the attitudes, opinions, and feelings of test administrators in the Kwa-Zulu Natal region concerning the use of psychometric tests following Employment Equity legislation. Special reference is made to the learning potential test, the Apil B.

1.2. BACKGROUND OF THE STUDY

Psychometrics played a central role in the development of psychology in South Africa and continues to affect more South Africans than any other branch of psychology. For this reason the transformation of psychology in South Africa will not be complete until psychometric testing practices have been transformed. Workers tend to have little trust in tests and the testing process. The solution for them lies in the formulation of explicit testing policies arrived at through a process of consultation. Personnel practitioners, while acknowledging cultural bias in testing, tend to think that it could be overcome through the construction of non-biased tests. Such views tend to coincide with regard to the popularity of interviewing as an alternative to testing. This places a heavy burden of responsibility on experts in psychological testing to help redeem psychological testing, and psychology, in the eyes of South Africans (Schlapelo and Terreblanche, 1996).

It is generally agreed that South African psychology is at an historical crossroad as it tries to free itself from the Eurocentric theories, naively positivist methodologies, elitist service delivery mechanisms, and legitimation of the status quo which has characterised it in the past. However, much of the debate around the transformation of South African psychology has been characterised by an emphasis on academic and clinical issues rather than on psychology's role in industry (Schlapelo and Terreblanche, 1996).

Why is industrial psychology, and more particularly psychometrics, important? Two reasons for psychometrics' importance in the transformation of South African psychology have been identified: Firstly, its central role in the development of South African psychology as a profession and, secondly the extent of testing in South African society (Schlapelo and Terreblanche, 1996).

Arguably the first contact ordinary South Africans had with scientific psychology was through the early research of Rich (cited in Schlapelo and Terreblanche, 1996). He was concerned with adapting European-designed psychometric tests for use on Zulus. The pre-war history of South African psychology is dominated by psychometric work relating to the education of 'natives' and their intellectual standing relative to 'Europeans' (Fick cited in Schlapelo and Terreblanche, 1996). Several decades after the war psychometric testing in industry (particularly as practised at the National Institute of Personnel Relations) was a central concern of academic and professional psychologists such as Biesheuvel and Hudson (cited in Schlapelo and Terreblanche, 1996).

Since the 1960s there has been a steady decline in academic publications on psychometrics but the practice of psychometrics has continued to grow . Although no exact incidence figures appear to be available the level of test use in companies in the United Kingdom is between 63 and 68 percent. Some indirect indicators of the scope of testing in South Africa are the following: The Human Science and Research Council sells more than a 105 000 answer sheets annually. In the 1970s as many as 10 000 workers were tested monthly in the mining industry alone and 91,7% of large companies use psychometric tests to select artisans is thus entirely possible that psychology touches the lives of more South Africans through testing than in any other way (Schlapelo and Terreblanche, 1996).

Given South African psychology's intimate historical connection with psychometrics and the continued prevalence of psychometric testing in modern-day South Africa, it should obviously be an important site of transformation The fact is that psychological tests are used on a large scale to determine who gains access to economic and educational opportunities. The reform of testing practices should therefore be one of the priorities of psychologists.

However, testing practices, i.e. the day-to-day use of tests as opposed to technical issues of test construction and validation, tends to receive inadequate research attention, not only in South Africa but internationally (Fletcher, 1994). This research presents some attitudes, opinions, and feelings regarding a newly developed culture fair test, the Apil B, with regards to its fairness, validity, reliability and applicability. What do psychometric test administrators in South Africa think of psychometric tests and testing? What suggestions can be made by such experts with regards to what factors can lead to the creation of culture fair tests? Has employment equity legislation influenced the attitudes of test administrators toward the use of psychometric tests in South Africa? This research attempts to present some of the answers to the above questions.

1.3. LEARNING POTENTIAL TESTS

The popularity of learning potential in South Africa is due to its promise of providing a means of fair assessment despite unequal and inadequate educational opportunities. The extent to which testees benefit from the instruction is taken as indicative of their potential also to benefit from future learning opportunities. Despite its popularity there are numerous technical measurement issues which have yet to be adequately resolved (Boeyens, 1989).

There is also a paradox in the simultaneous endorsement of the importance of learning potential and job specific skills. While job specific skills expressly depend on previous learning, and therefore disadvantage those who have not had learning opportunities, learning potential is assumed to equalise opportunity.

Although it is encouraging to see such a high degree of agreement among workers, trade unionists, academics, and personnel practitioners, a danger inherent in the learning potential discourse is that it may come to be seen as a technical solution to problems which are fundamentally socio-political in nature. To be labelled as lacking in potential is, if anything, more damning than to be considered unintelligent, and it is hard to imagine any procedure which can assign such value-laden characterisations in a neutral, scientific way (Schapelo and Terreblanche, 1996).

1.3.1. The Apil B

The Apil B was developed by Dr T.R. Taylor to measure a person's underlying ability to learn cognitively challenging new skills. It can thus be used to assess learning potential. The Apil B consists of eight dimensions and is classified as a B test (Taylor, 1995). This research makes particular reference to the Apil B since it has been declared as a culture fair assessment tool for the purpose of recruitment and selection. It is therefore necessary to consider the attitudes, opinions, and feelings of psychometric test administrators with regard to the validity, reliability, fairness, cultural fairness, and bias of the Apil B.

1.4. STATEMENT OF RESEARCH

This research comprises an investigation into the Apil B as a culture fair assessment tool for the purpose of recruitment and selection. The Employment Equity Act stipulates that "psychological testing and other similar assessments are prohibited unless the test or assessment being used :-a) has been scientifically shown to be **valid and reliable** b) can be **fairly applied** to all employees and c) is **not biased** against any employee" (Employment Equity Act, 1998).
The primary focus therefore is an evaluation of the Apil B with regard to these technical factors, that is, validity, reliability, fairness, cultural fairness, and bias. This will be accomplished by a thorough analysis of the attitudes, opinions, and feelings of psychometric test administrators of the Apil B. Such a consideration will assist in determining whether the Apil B meets Employment Equity standards. A qualitative approach will be used. A questionnaire will be used to assess the attitudes, opinions, and feelings of test administrators in the Kwa-Zulu Natal region toward the Apil B and toward psychometric testing in general following Employment Equity legislation. Although the research is essentially Qualitative, the research questionnaire contains quantitative questions as well (such as ratings).

A main research objective and secondary objectives are presented to serve as guidelines during the research process.

1.4.1. Primary Objective

To investigate the attitudes, opinions, and feelings of test administrators with regard to the validity, reliability, fairness, cultural fairness, and applicability of the Apil B as a culture fair assessment tool for the purpose of recruitment and selection.

1.4.2. Secondary Objectives

To assess, in the test administrators opinion;

- Whether the Apil B is valid, fair and reliable (or does the Apil B meet Employment Equity standards)?
- Is the Apil B a culture fair assessment?
- Is the Apil B a reliable tool for recruitment and selection?
- The value and utility of psychometric tests for the purpose of recruitment and selection in South African organisations, following Employment Equity legislation.

The Apil B has been presented as a culture fair assessment tool. The purpose of this research is to uncover the attitudes, opinions, and feelings of psychometric test administrators concerning the validity, reliability, fairness and cultural fairness of the Apil B, a test that claims to meet the requirements of the Employment Equity Act. Furthermore, as part of the secondary objectives of this research, the aim is also to provide an understanding of test administrators attitudes, opinions, and feelings toward the value and use of psychometric testing in general, following Employment Equity legislation. Such attitudes, opinions, and feelings may have invaluable implications for the future of psychometric testing in South Africa. This research is not aimed however at reconstructing psychometric tests but rather attempts to offer information regarding the attitudes, opinions, and feelings of psychometric test administrators toward psychometric testing, with particular reference to the Apil B.

1.5. VALUE OF THE RESEARCH

This research will provide valuable information with regard to the attitudes, opinions, and feelings of test administrators concerning the use of the Apil B for the purpose of recruitment, selection and placement. The test itself claims to meet Employment Equity standards and is therefore currently being used in some organisations. This research proves to be highly valuable in that it provides expert attitudes, opinions, and feelings concerning the validity, reliability, fairness, cultural fairness and applicability of the Apil B based on extensive experience with the test.

The field of testing has often been plagued by the lack of research and has consequently been faced with resistance from many, most often, testees. This research could make a contribution in terms of providing an understanding of the utility of the Apil B in organisations.

Psychometric testing, although still widely used in South Africa is viewed with much skepticism from many, most notably the South African workforce. This places a heavy burden on psychologists to redeem the notion of testing in the eyes of those whose lives it affects the most. It is hoped that this research makes a contribution in this regard.

1.6. SUMMARY

This chapter has provided insight into the topic and underlying problem of this research. A background to the study serves to illuminate its importance. The aims as well as the value of this research has been clearly outlined.

CHAPTER 2

LITERATURE REVIEW

2.1. INTRODUCTION

The notion that psychometric tests can promote unfair discrimination and lead to controversy in the workplace has lead to widespread debate and research in the field of testing over the past years. The popular criticisms that these instruments, which are based largely on middle-class white values and knowledge, are culturally biased and less valid for other population groups, has lead to the contentious issue of bias in testing (Van Zyl and Visser, 1998:25).

South Africa is beginning a new lease on life with the end of apartheid and the beginning of a new, equal, free, and fair society. The Employment Equity Act (1998) is a legislation that attempts to promote equal opportunity and fair treatment in employment through the elimination of unfair discrimination. Consequently psychometric testing and other similar assessments of an employee are prohibited unless the test or assessment being used has been scientifically shown to be valid and reliable. Psychometric testing has therefore been the site of much scrutiny, controversy, and debate after the stipulations in the Act The discussion that follows therefore attempts to highlight aspects of psychometric testing that needs to be re-evaluated and transformed in order to be "culturally fair" and "anti-fixating".

2.2. WHAT DO PSYCHOMETRIC TESTS MEASURE?

A psychological test may be defined as a standardised procedure for quantifying a persons responses to a sample of tasks (Huysamen, 1983:10). According to this definition, a test is a standardised procedure for assigning numbers to persons to reflect differences among them in some attribute. Another corresponding definition is "A psychological test is essentially an objective and standardised measure of a sample of behaviour" (Anastasi and Urbina, 1997:4). Thus, psychological tests are like the tests in any other science, insofar as observations are made on a small but carefully chosen sample of an individuals behaviour (Anastasi and Urbina, 1997).

The first key term in these definitions is that of a standardised procedure. Standardisation in this context refers to the uniformity of the test material, administration, and scoring procedure of the instrument. A measurement procedure is adequately standardised if a person is subjected to precisely the same procedure irrespective of where, when, and by whom it is administered (Huysamen, 1983:10).

The above definitions also emphasises that the intention is not to measure the individuals themselves but some attribute, for example intelligence and anxiety. Psychological attributes such as intelligence and anxiety can only be measured indirectly. Inferences about these attributes are made based on observations of the person's responses to a standard collection of tasks or questions, that is, a test (Huysamen, 1983:10).

Measuring instruments can be classified in terms of the nature of the attribute which they are supposed to measure. In tests of **maximal performance** the objective is to determine the individuals best possible performance. Consequently, there is agreement on the correctness or incorrectness of the answers to items on these tests. One person may fare better on them than another. Aptitude and intelligence tests are examples of maximal performance tests. No attempt will be made to provide a comprehensive survey of available tests within this area. Such a survey will be outside the scope of this research. In the case of **typical performance** tests, the objective is to determine an individuals typical behaviour. In such measurement procedures, there are no correct or incorrect responses as no assumption is made about the correctness or incorrectness of a person's typical behaviour. Measures of personality, interest, and attitude represent typical performance measurement (Huysamen, 1983). Once again a comprehensive review of all the tests available within this area will not be possible.

The last three decades of the twentieth century witnessed a conspicuous growth in research and writing on cultural psychology. The use of tests on individuals from diverse cultural backgrounds has been examined from various angles. Anastasi and Urbina (1997) highlight some basic theoretical issues about the role of culture in behaviour, with special reference to the use and interpretation of intelligence test scores. Beginning with the analysis of basic psychological processes, such as learning, remembering, problem-solving and emotion, cognitive psychologists soon discovered that

such processes are manifested in behaviour that is domain-specific For example, memory or problem-solving may vary widely when one is playing chess, working on a mathematical problem or writing an essay. Essentially, the field of cultural psychology represents a recognition of the cultural specificity of all human behaviour, whereby basic psychological processes may result in highly diverse performance, attitudes, self-concepts, and world views in members of different cultural populations (Anastasi and Urbina, 1997).

This discussion represents an account of what psychometric tests measure. Following this, it is necessary to consider traditional methods of psychometric testing in a more detailed manner.

2.3 TRADITIONAL METHODS OF PSYCHOMETRIC TESTING

According to Maloney and Ward (1980) psychological tests are designed to assist in the collection of data. It enables behaviour to be described in a quantitative way. Psychometric tests are based on empirical endeavours which embrace the following constructs: norms, standardisation, defining variables, reliability, and validity. An investigation into these technical aspects of psychometric tests reveals the inherent biases of traditional methods of psychometric assessments.

2.3.1. Standardisation :

A psychological test is described as a standardised measure. Standardisation implies "uniformity of procedure in administering and scoring the test" (Anastasi and Urbina, 1997). If the scores obtained by different persons are to be comparable, testing conditions has to be the same for all.

In order to secure uniformity of testing conditions, the test constructor provides detailed directions for administering each newly developed test. This formation of direction is a fundamental aspect of the standardisation of new tests. Such standardisation extends to the exact materials employed, time limits, oral instructions, preliminary demonstrations, ways of handling queries from the test takers, and every other detail of the testing situation. Many other more subtle factors may influence the performance on a test.

Therefore when test instructions or problems are presented orally, consideration must be given to the rate of speaking, tone of voice, pauses, inflection and facial expression (Huysamen, 1983).

2.3.2. Norms :

Another important aspect in the standardisation of a test is the establishment of norms Psychological tests have no predetermined standards of passing or failing (Anastasi and Urbina, 1997). Norms indicate the average performance of a certain group and individuals by comparing them with other members in the total population (Saunders, 1993). In the process of standardising a test, it is administered to a large, representative sample of the type of persons for whom it is designed. This group, called the standardisation sample, serves to establish the norms (Anastasi and Urbina, 1997). Traditional standardisation of assessment tools as well as establishing validity and reliability are at crossroads, globally and, in particular, in South Africa. In a culturally heterogenous society like South Africa, test constructors have established different norms for different populations. A situation developed where norms for one population were regarded as inferior (Black population) in comparison with norms for another group (White population). Many assessment tools thus discriminated against people in South Africa on the basis of race and sometimes even gender, favouring individuals from certain groups only in staff appointments. Accelerated change and growing diversity in organisational cultures today have rendered such static measures (norms) almost obsolete (Erasmus and Mamabolo, 1996).

2.3.3. Defining variables :

In using a particular psychometric test, there must be an understanding of the construct or variable that it is designed to measure. The trait being measured must be appropriate in terms of the purpose of the test (Maloney and Ward, 1980). In terms of the defining variable, one prescription following the Employment Equity Act is that there should be no inconsistency in the questions that appear in a test. A test that does not link questions to specific competencies for instance may be considered invalid (Human, Bluen and Davies, 1999).

2.3.4. Reliability :

The term reliability basically means consistency. "Test reliability is the consistency of test scores obtained by the same person when retested with the identical test or when retested with an equivalent form of that test" (Anastasi and Urbina, 1997:7). A test is reliable if it measures in a consistent and accurate manner over time. This is a necessary but not sufficient condition for psychometric tests, they must also be valid. Before a psychological test is released for general use, a thorough, objective test of its reliability must be carried out. Reliability may be checked by comparing the scores obtained by the same test takers at different times, with different sets of items, with a different examiner, with different scores, as well as under any other type of relevant testing condition. The number and nature of the persons on whom the reliability was checked must also be recorded. The provision of such information enables test users to predict whether such tests will be equally reliable for the group that they intend to use it on, or whether it is likely to be more or less reliable (Anastasi and Urbina, 1997).

2.3.5. Validity :

Validity may be defined as the "degree to which a test measures what it purports to measure" (Anastasi and Urbina, 1997:8). A test is valid if it measures what it sets out to measure (Maloney and Ward, 1980). This statement can be traced back to the idea that questions need to be related to the competency or trait being assessed.

The validity of tests that are used within organisations and institutions should be investigated by the test users, and tests bias studies should be conducted to shed light on issues that pertain to bias and testing. Gregory (cited inVan Zyl and Visser, 1998) stated that validation of tests is a developmental process that begins with test construction and continues indefinitely. A biased test from this perspective is one that contains questions that in some sense are 'unfair' to some members of the population. Fairness on the other hand, refers to the way in which test scores (whether biased or unbiased) are used in any selection situation to endorse selection fairness. The criteria of bias are generally classified under three main headings which are content validity, construct validity, and predictive validity. Since the validity of the test sets out to answer the question : does the test fulfil its primary function? herein lies the source of bias. A test that is systematically biased to a subgroup

because of a source of variation in the test that functions differently for one subgroup than for another, implies that the test is not measuring what it is supposed to measure, and will therefore not facilitate appropriate inferences and decisions about each subgroups performance based on the results of this test. It will be invalid for a certain subgroup or subgroups (Van Zyl and Visser, 1998).

2.3.5.1. Bias in the construct validity of a test exists when a test is shown to measure different hypothetical traits (psychological constructs) in one group than in another, or when it measures the same trait, but with differing degrees of accuracy. For a test to be biased in construct, all the items comprising the test must measure the same trait or ability for all the subgroups (Van Zyl and Visser, 1998)

2.3.5.2. Predictive validity refers to the correlation between the test scores and criteria variable external to the test. An unbiased test should show correlation with other variables in two or more populations, that is, it will predict performance equally well for people from various subgroups.

2.3.5.3. Bias exists in the content of a test when an item(s) "can be demonstrated to be relatively more difficult for members of one group than for another when the general ability level of the groups being compared is held constant and no reasonable theoretical rationale exists to explain group differences on the item in question" (Van Zyl and Visser, 1998).

An investigation of the above mentioned technical factors brings the traditional methods of psychometric testing under much scrutiny. This research is aimed precisely at an investigation into these factors, with specific reference to the Apil B.

2.4. THE MEASUREMENT OF OCCUPATIONAL SUCCESS

The statement that a test is a valid and useful device for selecting workers means that those employees that the test indicates to have greatest potential will perform better on the job than those who it indicates have the least potential. An index of occupational success used in connection with the validation of tests is termed the *criterion*.

A test that is more valid means that the relationship between the scores on the test and scores on the criterion will be higher and the more accurately will the score an individual earns on a test predict the degree of success he or she achieves on the job (Ghiselli, 1966).

The implication of this is that for each job there is one criterion, a single way of measuring the performance of workers which precisely and meaningfully describes and characterises their relative success or failure in the performance of the job. However the notion that there is a criterion for every job is open to question. With most, if not all jobs, success is a multifacet matter and can be measured in several different ways. For any given job, success is likey to be reflected in many different aspects of performance. When several criteria are available for evaluating employees' performance, sometimes the one deemed most appropriate may be used alone. In most cases however, no single criterion may be used to give a complete description of job success because each of them measures some prominent phase of performance. Unfortunately, in reports about the validity of tests, information pertaining to the reliability of the criterion is seldomly reported. As a consequence, when a low validity is reported for a test it is impossible to know to what extent the low value is due to the unreliability of the criterion, and to what extent does it not measure abilities that are necessary for performance of the job (Ghiselli, 1966).

2.5. TEST FAIRNESS

A test is fair if the correlation between test scores and a criterion of job success is essentially the same in one group as in another. A selection test is said to be fair if it predicts job success as well for one group as it does for another, regardless of any difference in the average test scores of the two groups. Test fairness is not a fixed concept. But whatever the definition of fairness is used, the relative seriousness of the errors of incorrectly rejecting and incorrectly accepting applicants must be taken into account in selection (Aiken, 1991).

2.6. DEFINING THE TERM CULTURALLY FAIR

"Psychologists recognise that hereditary and environmental factors operate jointly at all stages in the organisms development and that their effects are inextricably intertwined in the resulting behaviour"

(Anastasi and Urbina, 1997:342). It is therefore acknowledged that it is futile to try and devise a test that is free from cultural influences. Consequently, the objective is to construct tests that "presupposed only experiences that are common to different cultures" (Anastasi and Urbina, 1997:342). For this reason terms such as "culture-common" or "culturally fair" replaced the earlier "culture-free" label (Anastasi and Urbina, 1997).

2.7. THE EMPLOYMENT EQUITY ACT AND PSYCHOMETRIC TESTING

The Employment Equity Act (1998) indicates that employment equity involves the establishment of specific measures to accelerate the advancement of Blacks, women and the disabled (Human, 1999).

The purpose of the Act is to achieve equality in the workplace by:

- "promoting equal and fair treatment in employment through the elimination of unfair discrimination; and

- implementing affirmative action measures to redress the disadvantages in employment experienced by designated groups, in order to ensure their equitable representation in all occupational categories and levels in the workforce" (Employment Equity Act, 1998:12).

"The elimination of unfair discrimination in any employment policy or practice includes the prohibition of direct or indirect unfair discrimination on the grounds of one or more of the following: race, gender, sex, pregnancy, marital status, family responsibility, ethnic or social origin, colour, sexual orientation, age, disability, religion, HIV status, conscience, belief, political opinion, culture, language, and birth" (Employment Equity Act, 1998).

Both the Labour Relations Act (LRA) (1995) and the Employment Equity Act (1998) prohibit "unfair discrimination, either directly or indirectly, against an employee on any arbitrary ground, including, but not limited to race, gender, and disability" (LRA, 1995:253). Both documents indicate that the term 'employee' refers to job applicants as well.

The Employment Equity Act states that the organisations employment equity plan must include steps to eliminate identified employment barriers (Human, 1999). Consequently it has been legislated that "psychological testing and other similar assessments are prohibited unless the test or assessment being used :-a) has been scientifically shown to be **valid and reliable** b) can be **fairly** applied to all employees and c) is not biased against any employee or group" (Employment Equity Act, 1998). Thus it is legislated that procedurally and substantively fair and equitable recruitment and selection processes must be adopted (Human, 1999).

Following from the Act, several considerations have to be made by the recruiting manager to ensure that fair recruitment and selection occurs.

2.7.1. The Recruitment Process

2.7.1.1. Ensure that the vacant position has been properly evaluated, thereby objectively establishing the value of the position, its internal equity and external compatibility.

2.7.1.2 Link the appropriate recruitment specifications to the vacant position. These job-related characteristics should provide an objective, fair assessment of candidates. Recruitment specifications include biographical, physical and educational requirements, job-related knowledge and skills, personal attributes and any specialised experience needed to perform the job effectively (Human, 1999).

2.7.2. The Selection Process

An important point to consider here is that the Employment Equity Act (1998) does not prohibit the use of psychometric tests completely. Although test results yield an important source of selection information, they should never be used as the sole criterion for selection decisions. The tests used must have clear and demonstrable relationships with the work behaviour they are intended to measure or predict (predicative validity) and must apply equally to all races (culture fairness) (Human, 1999).

As psychological assessments represents a "vexed " aspect within the equity context, the use of psychometric tests in selection decisions needs to be explored further.

2.7.3. Psychometric Testing for the Purpose of Selection

According to Human (1999), the Employment Equity Act (1998) stipulates that employers have to validate their psychometric assessment approach and ensure that the tests used are not biased against members of designated groups. The onus is placed on the test user to demonstrate the validity and culture fairness of the assessment tools used (Human, 1999).

In response to these legislative requirements, the Society for Industrial Psychology (1998) (cited in Human , 1999) has published a set of guidelines to validate and use psychometric tests at work.

Major focus areas include:

- The assessment procedure used must be related to the jobs in question.
- The test used must demonstrate sound reliability and validity. This includes criterion-related, predictive, content, and construct validity.
- Tests used should not display any intrinsic or predictive bias towards any designated groups.
- Proof of the above psychometric properties of the tests used needs to be well documented.

The issue of defining relevant job related criteria becomes important for all aspects of selection, most notably in the case of the disabled. Traditionally, irrelevant criteria have been adopted, hence denying disabled people equal employment opportunities (Human, 1999) The section that follows comprises of a detailed critique of the traditional methods of psychometric testing.

2.8. A CRITIQUE OF TRADITIONAL METHODS OF PSYCHOMETRIC TESTING

In simple statistical terms, bias in testing means systematic errors of measurement. It can be described as a slant in the way a test measures what it intended to measure, or predict what it intended to predict. Psychometric tests are generally used in organisations to assist in making decisions about the prediction of future work success of individuals. If, however, it can be demonstrated that these psychometric tests place a particular individual or group at an unfair disadvantage, this could constitute an unfair labour practice in terms of the new Employment Equity Act in South Africa. The fact that bias or systematic error can lead to disadvantaged test performance for members of a certain group, has led to the general perception that test bias results in unfair discrimination (Van Zyl and Visser, 1998). The basic concern with fairness in tests used in South Africa is that when psychometric tests deliver invalid results, previously disadvantaged groups get relatively fewer chances of sharing the social benefits of employment opportunities and occupational advancement, leading to adverse impact in the workplace (Van Zyl and Visser, 1998). Differences in test performance between different groups based on race, sex, age, and socio-economic background has been a constant problem in the field of psychometrics. In South Africa in particular, group score differences among various racial groups have been a prominent problem that was historically handled by designing and standardising separate tests for separate groups. However, the new concern for fair discrimination and equal opportunities creates the need to be able to make valid comparisons between people from various race groups based on results from tests that can prove they respect diversity. Although research on the topics of test and item bias is not an entirely new field in South Africa, the process of gathering data pertaining to our own unique situation has only recently gathered momentum (Van Zyl and Visser, 1998).

A central critique of the psychometric approach to assessment is its preoccupation with factor analysis. Measuring an underlying structure (such as intelligence as 'real' things, that is, factors) is problematic. Factor analysis is a psychometric approach to simply measure differences. This method does not meet the demands in the area of assessing cognitive and intellectual abilities and processes. Guildford (cited in Saunders, 1993) argues that the psychometric approach reveals differences but cannot explain the nature of these differences.

Maloney and Ward (1980) assert that psychometric tests never take seriously the nature of the processes that underlie the manifest and observable responses. They argue that the approach in psychometrics has always been on 'what' and 'how much' as opposed to how a response is produced.

Learning theorists who focus on processes argue that the emphasis should be on the assessment of the cognitive processes as opposed to cognitive abilities (intelligence) as a static measure (Saunders, 1993). This area of the psychometric approach is lacking since no methods of assessment have been devised that can competently measure cognitive processes. Conventional tests provide static measures and hence "fixes" individuals onto specific positions on the corporate ladder. They do not in any way assess the dynamics of learning. The current concern in South Africa is personal development and empowerment. Conventional test scores reflect the crystallisation of skill and knowledge built from the individuals history of exposure to learning opportunities.

Given the socio-historical nature of South Africa, it is evident then that if we are to re-address the unfairness of the past then there is a major question over the methods that measure factors such as intelligence, skills or competencies which are inherently linked to an individuals opportunity for employment.

From a transactional point of view, Boerlijst and Meiboom (cited in Saunders, 1993) argue that the ability of the psychometric approach to generalise problem solving strategies across different work tasks must be queried. They purport that individuals react to their own environment in a subjective and idiosyncratic manner and their unique interpretations of the problem in their own environment defines behaviour in each unique context or situation. Differences in job performance cannot be measured only in terms of differences in cognitive ability but must also be related to differences in problem solving strategies which incorporates a dynamic element into the assessments (Saunders, 1993). This account reinforces the fact that tests which reveal static pictures of cognitive ability will not be relevant for identifying and selecting individuals who are suitable for jobs that have dynamic and complex elements to it.

Ideally, assessment techniques should define what makes cultural groups different and reveal cognitive processes in order to construct training and education interventions. Diagnostic techniques are essential in applying remediation interventions for disadvantaged South Africans Taylor (1997) argues that although psychometric tests are utilised for job selection purposes, a major concern should be a developmental as opposed to a pure selection context. This in essence would break down the vicious circle of selecting people with current skills.

The first move from the new South African government to redress the labour imbalances of our society created by many years of discrimination and segregation is formulated in chapter two, 'Fundamental Rights' of the Interim Constitution of 1993. Section 27 explicitly provides that "every person shall have the right to fair labour practices" (Van Zyl and Visser, 1998:25). Section eight furthermore provides that "no person shall be unfairly discriminated against, directly or indirectly" and then mentions specific grounds of unfair discrimination such as "race, gender, sex, ethnic or social origin , culture or language"(Van Zyl and Visser, 1998:26) .
There is a similar trend in the Green Paper on Employment and Occupational Equity. Specifically pertaining to recruitment and selection, the Green Paper advises that employers should avoid "psychometric tests unless they can demonstrate that they respect diversity" (Van Zyl and Visser, 1998:27) . It is against the background of imminent changes in the political-legal sphere of employment policy in South Africa that psychometric tests as selection instruments are under the scrutiny of many.

2.9. THE CULTURAL BIAS DEBATE

The whole cultural debate has pervaded the field of psychometric testing for many years now. The main issues relate to the extent to which cultural issues such as language, educational history, and dynamic variables such as environment conditions are important moderators of test performance, especially with members of the Black population in South Africa.

Psychometric tests have been heavily criticised due to the marked effect that formal education has on test performance in a South African context. The implication of studies conducted in this area is that access to education at an early age is the single most powerful factor facilitating the development and

unfolding of the cognitive potential of the mind. Familiarity with material and testing procedures are typically associated with the classroom. These include facility in using a pencil, familiarity with booklets, letters, numbers and elementary symbols, speed and accuracy of work, sitting still, paying attention to and obeying instructions, and the examination situation in general. Subjects who attend school are in a position to transfer these skills to the testing situation which would place them at an immediate advantage over their illiterate companions who are given the same tests (Irvine and Berry, 1988). Should it be found that the industrial trainability of illiterate Black workers, relative to that of workers who have received some schooling is underestimated by psychological tests of abilities, then a strong case for test bias can be made.

Grant (cited in Irvine and Berry, 1988) and Kendal (cited in Irvine and Berry, 1988), advocate that there are clear trends in the level of psychometric test performance that have emerged as a result of increased acculturation. A continuum from rural illiterates through to urban illiterate and rural literate through to urban literate was discerned, with the least acculturated group achieving the lowest mean level of test performance and the most acculturated group the highest. It was concluded that the education factor appeared to have greater importance in moderating test performance than urbanisation, while urbanisation appeared to be somewhat more important than age (Irvine and Berry, 1988).

Along with many other western researchers, psychologists in South Africa seemed to have forgotten that their tests sample a very narrow range of cognitive operations. When it is considered that investigators throughout the world have concentrated only on measuring those abilities that western technologies deem important, it is dangerous to conclude that they constitute universally valid yardsticks of intelligence *per se*. Bakare (in Irvine and Berry, 1988:169) and other Black psychologists pointed out that it is "improper to use such tests to measure the intelligence of people in South Africa. Such tests could measure their spatial ability, their perceptual speed, their visual-motor coordination and the like but certainly not their intelligence". Had psychologists in South Africa constructed a truly varied array of tests, capable of surfacing visual, auditory and

proprioceptive abilities and focussing in addition on those unsearched crystallised abilities which are of functional value in adapting to the demands of traditional societies then only could it have claimed that the exploration of the structure of intellect of South African people was underway.
African psychologists could list a range of additional behaviours which westerners may find difficult to appreciate and to conceptualise in familiar "maximum performance" test term (Irvine and Berry, 1988).

The kinds of abilities that are of functional value in the technology based societies of Europe and North America and that are highly valued by members of those societies are precisely those abilities for which western psychologists have been constructing measuring instruments. Rarely have psychologists begun to attempt the measurement of the human skills and abilities by members of traditional African societies. The disdain for exploring and measuring the kinds of abilities which traditional African cultures could well have fostered is summed up by Fontaine (cited in Irvine and Berry, 1988:326) "one is not selecting Blacks to make bows or build canoes! Given then that the tests that have been used on the African continent since the inception of objective scientific enquiry more than seventy years ago, are essentially western in flavour, it is hardly surprising that Blacks do not achieve the same level of test performance as westerners".

In South Africa, the system of apartheid, which until recently had retarded the process of urbanisation of Blacks, has restricted contacts with members of other ethnic groups. It has resulted in an inferior educational system for Blacks and may have placed further environmental constraints on the development of abilities necessary for survival in the modern world (Irvine and Berry, 1988).

Campbell (1995) conducted research on factors that lead to poor test scores among Zulu speakers with reference to the Higher Level Mental Alertness Test utilized in South Africa. The findings reveal that the interpretation of psychometric tests by third year Zulu speaking university students was an influential factor in the low test scores they achieved.

The two key areas he addressed was :

1) The interpretations subjects have of the English based test questions and,

2) Are tests created to serve as tests for all racial groups in South Africa or a single cultural group?

The research indicated that the low test scores among Zulu speakers were directly influenced by cultural background, socio-economic class, and place of residence. For example a factor that can lead to misinterpretation is the use of the English subjunctive, (words such as "would", "could", "should") rarely have a readily available term in other languages which does not facilitate the interpretation of test questions for non-english speakers (Campbell, 1995:42-64).

From the above account it can be seen that these psychometric tests were directed at reinforcing the capitalist ideal, comparing everyone against each other to select the most suitable candidate from whom maximum use (as far as the extrapolation of labour is concerned) can be made. This is precisely where the crisis arises. The results of the individual that takes the test that has not been standardised for him or her indicates that they are not adequate and they are placed at the bottom of the rank. Most tests have been created for the use of placing and selecting the White population. When such tests are administered to the African population, they do not fare as well as Whites. Tests in South Africa compared individuals and ranked them from good to bad performance. This then allowed for some individuals, if not, the masses in South Africa to become cheap sources of labour. Thus, the inequalities in the current labour market of South Africa has been perpetuated by the use of traditional psychometric tests on candidates on employment. Such inadequacies of traditional methods of psychometric testing might have been the rationale behind the decision taken in the Employment Equity Act to prohibit psychometric tests unless they have been scientifically shown to be valid and reliable and fair to all employees. The question that remains is "what is it that needs to be reconsidered in an effort to construct tests that are fair and equitable"?

Myburgh (1983) researched the difference in test achievement between tests based on own and **culturally** foreign material for memory of names and faces. The study examines memory in general as conceptualised in the western culture and by the traditional African. In his experiment, two test groups were used, that is, an African and an European group.

The results indicated that a group remembered names and faces better if they were presented in a form similar to the culture to which the group belonged. It is concluded that all psychometric tests should be administered within a cultural framework similar to the ethnic group to which a testee belongs (Myburgh, 1983).

Similarly, Van der Merwe (1998) conducted a study on the applicability of the block design technique (BDT) for the measurement of intelligence among black pupils. Due to the growth in the admittance rate to South African schools, a greater need for objective psychological tests has developed. The various individual intelligence Scales for black pupils have been developed as a result of this need. The investigation indicates that there is a strong positive correlation between the standard intelligence scores of the BDT and the global intelligence scores of the shortened versions of the Individual Scales for Southern Sotho and Zulu-speaking pupils. The BDT can therefore be used to obtain an estimation of the general intellectual ability of black pupils.

Miller (1997) conducted a sample survey of human resource managers' position regarding the use of psychometric tests for personnel selection with specific reference to bias and fairness. Other studies conducted by Trytsman (1992) and Taylor (1986) consider item bias in South African psychometric tests and possible counter strategies as well as interpretations of fair psychological testing practices in selection

This study aims to investigate the Apil B as a culture fair test in South Africa via a consideration of the attitudes, opinions, and feelings of psychometric test administrators with regard to issues of validity, reliability, fairness, cultural fairness, and bias. More than that, this research will be conducted within the framework of Employment Equity legislation. This research also endeavours not only to focus on the Apil B *per se* but also to consider the attitudes, opinions, and feelings of test administrators toward the use of psychometric tests following Employment Equity legislation as well as their ideas about the construction of fair tests .

The following section includes a discussion of some issues that warrant re-consideration in the methods of traditional psychometric testing.

2.10. ISSUES THAT NEED TO BE RECONSIDERED IN THE TRADITIONAL METHODS OF PSYCHOMETRIC TESTING:

Taylor (1987) argues for a more dynamic model of cognitive competence in opposition to the static nature of psychometric testing. He suggests that culture influences the nature of cognitive processing. Some suggested changes are as follows:

2.10.1. A Cognitive Processing Approach

Assessment methods should intervene at underlying cognitive levels to identify deficits in cognitive processing. This is in tandem with the proposed developmental, as opposed to selection purposes of current methods of psychometric testing in South Africa.

Psychometric tests should have a strong developmental focus given the skewed economic, social, educational, and cultural nature of the countries population(Taylor, 1987).

2.10.2. The Experimental Approach

The focus is again on paying attention to cognitive tasks and cognitive processes. Psychometric tests are criticised for limiting the flexibility of human performance (Taylor, 1987). As mentioned earlier, traditional psychometric tests "fixes" individuals on specific levels of a matrix which counteracts personal development and growth. Taylor (1987) argues for a link between the experimental approach and the differential approach. This will hopefully present a more comprehensive assessment, than one single method.

2.10.3. Measurement of Learning Potential as an Alternative to Conventional Assessment

One of the chief critiques of psychometric tests is that they undervalue potential. Taylor (1997) argues that learning potential tests address the shortcomings of traditional psychometric tests and serve as useful tools in the process of reconstruction and development. Tests of learning potential are designed to determine whether a person, when given learning opportunities, is likely to use these well, to master new competencies. These tests supposedly drain the stimulus material of specific cultural contents. For example, the Tram-1 test provides instructions in the vernacular. The Apil B and Tram-2 test instructions are written to be easily understood by second language individuals. The

activities that the person does in the test are unrelated to any job or activity the testee might previously have done. Such tests may also be used to serve the purposes of affirmative action or employment equity if the scores are used to design developmental programmes, rather than, simply being used for selection. The main justification for learning potential tests is found in the dynamic nature of the material. The challenge to the testee is to become, over a period of exposure, more and more competent at processing and handling the (initially) novel material. It is this growth in competence which is assessed rather than a historical accumulation of skill. These tests are designed to determine whether a person, when given learning opportunities are likely to master new competencies, and is therefore suited to the current needs in South Africa.

The method and aim are therefore compatible and future-oriented rather than past or historically-oriented. Learning potential tests have a strong developmental context, it is different to the traditional approach where people are selected for suitability for a given type of work. These tests are used to determine those who are likely to be able to master more demanding work given developmental opportunities (Taylor, 1997).

2.10.3.1. Theoretical conceptions of Learning Potential

The theories of both Vygotsky and Feurestein (cited in Boeyens, 1989) form an important foundation for tests of learning potential. Both theorists regard environmental and, more importantly, socio-cultural experience as the most important influence affecting cognitive development.

Vygotsky's and Feuerestein's theoretical stances are radically opposed to the assumptions of fixed intelligence. Feuerestein (cited in Boeyens, 1989) asserts that cognitive ability is largely determined by the social experiences of the individual. Vygotsky (cited in Boeyens, 1989) goes further and asserts that the learning derived from the child's social experience is a prerequisite for mental development. Feuerestein (cited in Boeyens, 1989) identify two types of learning: The first is learning through direct exposure to the environment. The second is learning that is facilitated by a mediator who stands between the child and the environment. Similarly, Vygotsky (cited in Boeyens, 1989) claims that whilst the child accomplishes complex problem solving tasks, his or her attention and thinking is guided by adults or more capable peers.

Closely linked to the question of mediation is the issue of cultural deprivation. This concept is defined by Feuerestein (cited in Boeyens, 1989:15) as a "state of reduced cognitive modifiability of the individual, in response to direct exposure to sources of stimulation". Feuerestein (cited in Boeyens, 1989), however warns that the idea of cultural deprivation should not be confused with cultural differences or with the supposed inferiority of one culture to another. He refers to the fact that some members of severely disadvantaged groups still manage to achieve distinction with the dominant culture, as evidence that there is no single culture that is superior to any other culture.

Vygotsky (cited in Boeyens 1989) and Feurestein (cited in Boeyens, 1989) therefore view humans as open systems that are able to change and learn. Both theorists' methods of assessment therefore differ radically from those who practice traditional psychometric intelligence testing and selection. Feuerstein (cited in Boeyens, 1989) places emphasis on the importance of assessing modifiability (learning potential) whereas traditional methods of psychometric testing are concerned with assessing what is conceived to be relatively unchanging abilities.

2.10.3.2. A Critique of Learning Potential Tests

Although the rationale behind the changes made in learning potential tests to re-address the inadequacies of conventional tests are clear and understandable, the actual theory and method of assessment utilized in such tests appears problematic. The tests that have been constructed by Taylor are based on a theory that there are two fundamental forms of learning: automatization and transfer (Taylor, 1997).

The problem with using automatisation as a underlying theory is that it implies that the testee practices repeatedly with material that does not change or get more difficult and in the process he/she becomes more efficient and quicker at working with the material. Taylor (1997) asserts that many tasks or challenges in life are of this sort, for example learning a new computer package. The package remains constant in its difficulty of use but the user becomes more adept with time. If it is claimed that tests can be used with all kinds of jobs that are cognitively demanding then such assumptions about the static nature of jobs cannot be made especially in the context of the

information age where technology is changing so rapidly and work processes are being re-engineered. Assessing how efficient the testee becomes at handling the task after a period of time does not reveal a significant assessment of cognitive processes. In order to fulfill its claim that the justification of learning potential tests may be found in the dynamic nature of the material, there certainly needs to be some kind of revision in terms of how cognitive processes are assessed.

Another problem with learning potential tests is that they lack inter-assessor reliability. This problem of assessor subjectivity may imply bias in terms of how the results of the test is interpreted.
This account reveals that even the new methods of assessments do not fully alleviate the burdens associated with traditional psychometric tests.
The following account describes the Apil B as a culturally fair test of learning potential.

2.11. The Apil B (T R Taylor)

This research makes specific reference to the Apil B as a newly developed culture fair test. The following is a detailed discussion of the Apil B

The Apil B was designed by Dr Terry Taylor as part of the AproLab's learning potential tests. Taylor found it necessary to create three test instruments to span the entire educational domain, from illiteracy to post-matric education. The three test batteries are known as Tram-1, Tram-2 and Apil B, listed here in ascending order of the educational level for which it is intended. The problem material in all three batteries is predominantly non-verbal, incorporating simple geometric shapes or depictions of highly familiar objects (eg., shoes, cars, candles). The English of the instructions is simple and designed to be comprehensible to speakers whose first language is not English (Taylor, 1995).

- **Target Population for the Apil B**

Persons with at least 12 years of education. The Apil B's most important applications are: selection of individuals for university or technikon education (e.g., bursar selection); evaluation of job

applicants who will be required to master a number of new skills in a relatively short amount of time; evaluation of staff members as part of an organizational re-structuring exercise Taylor, 1995).

- **Dimensions Assessed in the Apil B**

The following dimensions could be assessed with the Apil B:

I. Conceptual Reasoning or Fluid Intelligence (test called Concept Formation Test or CFT).
II. Speed of processing of moderately demanding material.
III. Accuracy of processing of such material.
IV. Flexibility in coping with several types of processing tasks.
V. Steepness of the learning curve in learning a cognitively challenging task.
VI. Curve of Learning Difference or COLdiff.
VII. Overall work output during the learning exercise (COLtot).

Memory and understanding of logical relationships which were presented during the learning exercise. Transfer of knowledge and skill from one type of application to related ones (test called Knowledge Transfer Test or KTT) (Tayloy, 1995) .

These eight dimensions have been included because they appear to be crucial elements underlying the person's capacity to learn cognitively challenging new skills. The Apil B battery is thus intended to be used as an assessment of learning potential, where learning potential is defined as the capacity to master novel challenges and benefit from conventional learning opportunities (as in training courses, tertiary education and mentoring) (Taylor, 1995) .

The section that follows details the underlying theory that guides this research.

2.12. THE THEORETICAL FRAMEWORK

The theoretical framework underpinning this research effort is Distributive Justice Theory. Given the nature and scope of Distributive Justice Theory it is valid to this research topic for two reasons namely, the allocation of resources and the explanation of justice-related behaviour.

2.12.1. Allocation of Resources

Firstly, theories of distributive justice focus primarily on how a society or groups should allocate its scarce resources among individuals with competing needs (Roemer, 1996).
The Employment Equity Act is precisely a mechanism that has evolved in South Africa to provide for a distribution and allocation of rewards, resources, rights, duties, obligations and liabilities among all individuals in South African society in a just and "equitable" way to compensate for the irrevocable imbalances sustained during and after the apartheid era.

Job reservation and other unfair discriminatory employment practices secured a system in South Africa where some individuals in society escalated the job hierarchy including the White population at large whereas others, largely the Black masses remain fixed in lower paid unskilled or blue-collar jobs. Consequently, one aspect of unfair employment practices that the Employment Equity Act has cast a huge shadow over is the issue of psychometric testing in South Africa. This is largely due to the discriminatory nature of traditional psychometric tests utilised in the South African context which were not applicable and relevant to cultural diversity. Such tests are viewed as biased in terms of race, culture, gender, socio-historic background, and home languages. Therefore these tests are not 'fair' tools for the purposes of recruitment, selection, and appointment of individuals to jobs. This research endeavours to explore the attitudes, opinions, and feelings of test administrators toward psychometric tests utilised in South African organisations. The specific test that has been selected for investigation is the Apil B. It hoped that this research would provide greater insight into the utility of the Apil B as well as provide a clear reflection of the test administrators attitudes, opinions, and feelings concerning issues of reliability, validity, fairness, cultural fairness and applicability of the Apil B.

2.12.2. Justice-Related Behaviour

Distributive Justice Theory provides an adequate framework for the research since the ultimate goal is the explanation of justice-related behaviour at the individual and group levels. The "justness" or perceived fairness of an outcome (in this case psychometric tests) is only one dimension along which any particular outcome or set of outcomes can be evaluated. This research therefore looks at the attitudes, opinions, and feelings of test administrators concerning the cultural fairness of psychometric tests, in particular, the Apil B.

2.12.3. Summary of Distributive Justice Theory

All social systems evolve mechanisms for the distribution and allocation of rewards, resources, rights, duties, obligations and liabilities or costs. Equity theorists are concerned with identifying the principles of distributive justice that evolve under different social conditions and which specify when such principles are perceived as fair or just by members of the social system. The important point by Messick and Sentis and Martin and Murray (cited in Roemer, 1996) is the notion that the process and factors governing preferences and satisfaction are different from those governing perceptions of fairness. Fairness judgements entail primarily social comparison. All of the Equity formulations in this volume assume that some kind of social comparison is essential to the justice process but the nature of this social comparison is conceptualised in different ways, either as a direct interpersonal comparison of input/outcome ratios or as a comparison with a general social category. The primary focus of equity research is to determine how equity judgements or justice evaluations of a distribution of outcomes is derived (Roemer, 1996).

Distributive Justice Theory has two important assumptions. Firstly, humans reflect on their goods (endowments, attributes, and possessions) that rational persons are presumed to want. Secondly, they experience the sentiment of being fairly or unfairly treated by comparing their actual amount of a good to the amount or level they consider just of themselves. Distributive Justice Theory provides the principles that describes how the amount or level of goods is measured and the laws that

describe how the magnitude of the sense of justice varies jointly with the actual and just amounts or level of a good. According to the theory, the fundamental comparison in a justice process is between the actual and the just term.

For example the just term may come to mind as a result of noticing another persons holding, in ordinary language one might say that some persons consider themselves unjustly under rewarded.

They view their actual holdings as less than that of another person. The actual term and the just term capture the individuals experience of "what I have" and "what I think I ought to have".

The rationale behind the applicability of Distributive Justice Theory to this research has been discussed. The section that follows briefly outlines the implications of testing for individuals and society at large.

2.13. IMPLICATIONS OF TESTING FOR INDIVIDUAL AND SOCIETY

The psychological test influences many aspects of human life. Governments, industry, schools, counselling facilities, and clinics use tests extensively in an effort to reach decisions about people. These decisions are in many instances aimed to benefit the future behaviour or future achievements of the person taking the test. Test usage has therefore a strongly predicative character (Cronbach and Drenth, 1972).

Although test developers and professionals involved in testing agree that the societal impact of testing and the concerns of various groups involved in testing should be taken into account, it is not always easy to identify valid societal concerns. In particular, it is not always clear as to whose concerns should be given the most weight and whose should be treated as peripheral. Edwards and Newman (cited in Murphy and Davidshoffer, 1994) suggest that the first step in identifying valid societal concerns is to identify the stakeholders, or those who have some real stake in how decisions turn out. The test developer, the test user, and the test taker are most likely to be identified as stakeholders in decisions concerning test fairness (Murphy and Davidshoffer, 1994).

The test developer and the test user are likely to consider fairness from the perspective of the institution whereas the test taker is likely to consider the test's impact on the individual. Test users are in the long run concerned with the cost-effectiveness of the test. Test takers are more concerned with the short-term results of the test than with its long term success. In other words, test takers will be more concerned with how they and others like them perform on the test, and less concerned with the long-term cost-effectiveness of the test. One of the reasons that debates over test fairness are often confusing is that different stakeholders have different perspectives on what is important (for example, long-term versus short term perspectives, individual versus institutional outcomes).
All these perspectives are legitimate, and a complete examination of test fairness must consider all of them. It is in the best interest of all participants in the testing process to develop tests and ways of using tests that satisfy most of the legitimate concerns of all stakeholders (Murphy and Davidshoffer, 1994).

Tests are used to make important decisions about individuals, or to help them make decisions for themselves, thus the potential impact of testing on society is substantial. Proponents of testing believe that psychological tests are preferable to other methods of making the same decisions. This does not however relieve test developers and test users from the responsibility of considering the societal consequences of their actions (Murphy and Davidshoffer, 1994).
It is surprising that objective testing consistent with the rules of psychometrics appears to the public as deterministic, freedom-limiting, impersonal, and mechanistic. It is a challenge for psychology to retain the advantages of objective testing and simultaneously reduce the resistance of the public.

2.14. CONCLUSION

The research studies presented has indicated that language, culture, social background, and other related socio-cultural factors appear to moderate test performance of Black testees. Furthermore, apart from being culturally specific, traditional methods of psychometric assessment rely on crystallised knowledge and skill for acceptable performance on these tests. They therefore reveal static measures of cognitive competence as opposed to a more dynamic assessment processes. Such shortcomings have rendered traditional psychometric assessments invalid according to Employment Equity Act. With the new South Africa and Employment Equity, opportunity to move into

managerial and skilled positions implies people having to undergo tests based on knowledge and skills only available to a minority of the South African population if old methods of psychometric testing are not addressed. Given the nature of the 'double transition' in South Africa, that is, a transition to democracy and a transition to the global economy South Africa needs to reassess all aspects of past leadership styles and ensure that the present and future of the country will be fair to all, excluding any form of discrimination.

In light of the discussion above it becomes increasingly imperative to review the attitudes, opinions, and feelings that prevail toward contemporary methods of psychometric assessment for the purposes of recruitment, selection and appointment. It would therefore be the aim of this research to venture into the 'equity context' and provide and understanding of the way in which Employment Equity legislation has influenced the attitudes, opinions, and feelings of psychometric test administrators toward psychometric testing as well as consider suggestions that would lead to the creation of culture fair, relevant and applicable tests in South Africa

2.15. SUMMARY

This chapter has introduced the central concepts in relation to psychometric testing. A short critique of traditional methods of psychometric testing has been offered. The major requirements that companies have to meet in terms of using psychometric tests for the purpose of recruitment, selection, and employment according to the Employment Equity Act was highlighted.

The challenges facing psychometrists and the implications of testing for individuals within the South African context of diversity was also discussed. Finally, learning potential tests and the foundational theories of learning potential were critically discussed as an alternative to conventional psychometric assessments.

CHAPTER 3

RESEARCH DESIGN

3.1. INTRODUCTION

This chapter outlines the research design. The research approach adopted as well as the methodology, data collection methods, analysis procedures, and ethical considerations are discussed respectively.

3.2. RESEARCH APPROACH

This research project will utilise qualitative and quantitative methods to assess the attitudes, opinions, and feelings of test administrators with regard to psychometric tests (specifically the Apil B) utilised in a South African context following Employment Equity legislation. A Self-Administered Questionnaire (SAQ) will be used to investigate the attitudes, opinions, and feelings of each candidate toward psychometric testing. Although this research is essentially qualitative, the SAQ contains quantitative questions.

3.3. RESEARCH METHODOLOGY

The research methods used in this research are both qualitative and quantitative.

3.3.1. Qualitative Method

The term "qualitative" is an indication that this approach concentrates on the qualities of human behaviour, that is, on the qualitative aspects as against the quantitatively measurable aspects of human behaviour (Ferreira, 1988).

Hammersley (1995) asserts that in methodological terms there is the growing popularity of qualitative methods in the social sciences. These methods had for long been employed but until the second half of the twentieth century they were largely subordinated to quantitative work. From the 1960's onward they started to be seen by many as a "self-contained" alternative to quantitative methods, even as a replacement for it. " The conflict about which methodology is best for a researcher is as old as the methodologies themselves" (Sarantakos, 1993). There is no "right" methodology. Qualitative and quantitative methods are the tools of trade of social scientists' who use them according to the circumstance, that is, according to the research question, the available resources, the research conditions and most of all the type of information required (Sarantakos, 1993).

The discussion that follows specifically outlines why a qualitative approach is relevant to this research endeavour via a consideration of a) the central principles of qualitative research, and, b) an important theoretical consideration of qualitative methodology, that is, phenomenology.

3.3.1.1. The Central Principles of Qualitative Research

Lamnek (cited in Sarantakos, 1993) summarises the basic principles of this methodology:

- *Openness*. Qualitative research is not predetermined or pre-structured by hypotheses and procedures that may limit its scope, focus or operation. The aims of qualitative research are open and also geared toward general exploration. This research is highly exploratory and is therefore very much conducive to qualitative enquiry.

- *The process nature of the research.* In this process, reality is constructed, managed, explained and presented. The purpose of social research therefore is to identify the process of reality construction, and the construction of patterns of meanings and actions.

- *Explication.* Qualitative research is set to explain precisely how respondents will be approached. The steps of the research process, as well as the rules of its operations, are expected to be made known as far as possible. This chapter of the research clearly outlines every step in the research process.

- *Flexibility.* Qualitative methods are flexible in many ways. Research is not rigidly set. Guidelines rather than strict rules are more common in qualitative research.

3.3.1.2. Phenomenology - An Important Theoretical Foundation

Phenomenology suggests that people are active creators of their world and have a consciousness that communicates to them everyday experiences and knowledge (Husserl, in Sarantakos, 1993). Phenomenology does not reject the notion of an objectively experienced world; rather it argues that although there is an objective world, it is experienced only through consciousness. The objective world becomes real only through consciousness, in about the same way that consciousness becomes real through reference to an objective or experience: one is conscious of something. The most important function of Husserl's phenomenology is to penetrate and look beyond the various layers constructed by actors in the real world so that essential structure of their consciousness and its basic properties becomes clear (Sarantakos, 1993). This research aims to reveal the attitudes, opinions, and feelings of test administrators with regard to psychometric testing (Apil b) by precisely phenomenological methods, that is, by penetrating surface explanations and looking for deeper, subjective meanings.

From the above account, the relevance of the qualitative approach to this research becomes apparent for the following reasons:

- Firstly, given that one of the major aims of this research is the assess the attitudes, opinions, and feelings of test administrators toward psychometric testing, the use of a subjective approach proves to be useful.

- Second, the investigations in this research will be conducted primarily through Self-Administered Questionnaires with the intention of extracting the attitudes, opinions, and feelings of psychometric test administrators concerning a number of different variables such as reliability, validity, test bias and cultural fairness of psychometric tests (with specific reference to the Apil B). With any research endeavour, the theory should drive the method of research.

Therefore, this research will be designed to use questionnaires to extract the attitudes, opinions, and feelings of test administrators concerning the validity, reliability, cultural fairness, fairness, and applicability of psychometric tests utilized in South Africa following Employment Equity legislation (with reference to the Apil B). The hypothesis at work through using these questionnaires is that there would be contested definitions for example of what constitutes cultural fairness and test bias. These contested definitions may prove to be useful when creating tests that are culturally fair, relevant and applicable to a South African context of cultural diversity.

3.3.2. Quantitative Method

Babbie (1990) defines quantitative research as a numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that the observations reflect. According to Bailey (1987), any attribute that is measured in numbers is called a quantitative attribute or variable. The data obtained is therefore primarily numerical.

Quantitative methodologies manipulate variables and control natural phenomena. "The whole process is cold, calculating and deductive (Leedy, 1993: 113). Bryman and Cramer (1990) assert the importance of quantitative data as its analysis allows for the recognition of faulty conclusions or potentially biased manipulation of the information collected and analysed qualitatively.

Although both styles of research share basic principles of science, the two approaches differ in significant ways (see Table 3.1). Each has its strengths and limitations. King, Keohne and Verba (1994:5) state that the best research "often combines the features of each". By understanding both styles, researchers have knowledge about a broader range of research and can use both styles in complementary ways (Neuman, 1997).

Table 3.1. Quantitative Style versus Qualitative Style

Quantitative Method	Qualitative Method
Measure objective facts	Construct social reality, cultural meaning
Focus on variables	Focus on interactive process, events
Reliability is key	Authenticity is key
Value free	Values are present and explicit
Independents of context	Situationally constrained
Many cases, subjects	Few cases, subjects
Statistical analysis	Thematic analysis
Researcher is detached	Researcher is involved

Source: Neuman, W.L. (1997). Social Research Methods. Qualitative and Quantitative Approaches. New York : Allyn and Bacon, pg 23.

Ragin (1994:92) explains one way in which the styles complement each other:

> The key features common to all qualitative methods can be seen when they are contrasted quantitative methods. Most quantitative data techniques are data condensers. They condense data in order to see the big picture....Qualitative methods, by contrast, are best understood as data enhancers. When data is enhanced, it is possible to see the key aspects of cases more clearly.

The primary aim of this research is to investigate the Apil B as a culture fair test of learning potential via a consideration of the attitudes, opinions, and feelings of psychometric test administrators specifically in relation to issues of reliability, validity, fairness, cultural fairness, and bias. Although most of the questions in the questionnaire are qualitative, quantitative questions have been included for example, the respondents are asked in one question to rate the Apil B as a culture fair test. This research therefore requires numerical data as well. The quantitative questions include yes and no responses, and rating scales. All quantitative questions are analysed and represented firstly in tables and then graphically. The quantitative data serves to supplement the qualitative data and thus facilitates a more concrete data base from which conclusions and recommendations are made.

3.4. POPULATION

"A population is a set of all the cases of interest" (Shaughnessy and Zechmeister, 1994: 115). Prior to administering the questionnaire, the researcher must determine the research population. A decision must be made specifying the group of people to which the questionnaire supposedly pertains. This group of people is called the research population (Walizer and Wiener, 1978). For the purposes of this research, the research population includes all trained test administrators in the Kwa-Zulu Natal (KZN) region.

3.5. SAMPLE

The sample in this research is made up of 20 respondents who are selected based on their knowledge and experience with psychometric testing, especially with regard to the Apil B. The discussion that follows explains the respondents in detail.

The respondents of this research were selected firstly on the basis of the fact that they are qualified test administrators of the Apil B in the KZN region. The sample of test administrators consists of psychometricians and industrial psychologists, some of which are affiliated with companies such as Beacon, Durban Electricity, Profiled Appointments, Mondi, McCann and Associates, Saunders and Associates, Tetrapak, Ithala, and Mangosuthu Technikon. It was their knowledge and experience with the Apil B that were primary considerations in the selection of these candidates.

The list below is a suggested range of competencies that a test administrator should possess in order to deal with routine test administration and scoring tasks (according to the Professional Board for Psychology). Each respondent of this research was selected on the basis of the fact that they possess these qualities.

3.5.1. General Underpinning Qualifications of Proposed Test Administrators:

Competent Test Administrators should have relevant contextual knowledge and skills to facilitate the achievement of optimum test scores by test takers. More specifically, they should:

C1 Have a basic knowledge of factors likely to impact on test scores (socio-economic, culture, language, education, gender, age, health etc.).

C2 Have a basic knowledge of how above-mentioned factors could be identified in the administrative context, so that the psychologist may take them into account in the interpretation of test scores.

C3 Have a basic knowledge, appropriate attitude (helpful) and skills (interpersonal sensitivity and good cross cultural understanding and communication skills) in order to minimise potential bias in the administration of tests to the various groups likely to be tested.

C4 Have basic knowledge of the conceptual difference between test bias and fairness, and of factors impacting on test bias and fairness.

C5 Competent test administrators will have knowledge of appropriate protocols for administering tests to disabled people. Test administrators will also be aware of and sensitive to the symptoms of abnormal test room behaviour that could negatively impact on test performances.

C6 Be aware of the existence of policies pertaining to test use and the use of test results (e.g. for decision-making, placement, counselling) in the organisation/setting where the testing is being done to ensure compatibility with ethical and professional standards of test use (De Villiers, Miller, Peverrett, and Botha, 1998).

3.5.2. Instrumental Knowledge and Skills Required by Competent Test Administrators

Test administrators should be competent in the following:

3.5.2.1 Make the necessary preparations for the test session (e.g. inform test-taker of rights, obtain consent, check that the venue is suitable, ensure that test materials are complete and that there are sufficient answer sheets, make appropriate arrangements for testing people with disabilities).

3.5.2.2 Administer the tests properly (i.e. adhere to the directions and instructions in the manual; observe and record deviations from test procedures; monitor and record response times accurately; do not leave the room unattended, talk on the phone, or engage in distracting activity during the session; be alert to signs of tiredness, stress, anxiety, or distress in the test-taker).

3.5.2.3 Score test results accurately (ie. follow standardised procedures for scoring; convert raw scores using prescribed norm tables; screen results to identify impossible or unreasonable scores for discussion with the psychologist).

3.5.2.4 Record results appropriately (e.g. use guidelines provided in manual; or in the case of computerized reports, enter scores into computer and generate reports, etc).

3.5.2.5 Understand the principles of sound test administration practice and demonstrate competence in the administration and marking of specific tests or clusters of tests (De Villiers, Miller, Peverrett, and Botha, 1998).

3.5.3. Professional and Ethical Standards of Good Testing Practice.

Test administrators should adhere to the following professional and ethical standards:

P1 Know the aspects of legislation, ethical standards and the Code of Practice that pertains to the administration of tests in their field of application.

P2 Act in a professional and ethical manner by promoting and maintaining high professional and ethical standards (e.g. awareness of the potential abuse of their positions to manipulate selection outcomes).

P3 Ensure that they know the limits of their own competence and do not operate outside those limits; and keep abreast of relevant changes and advances relating to the tests they use, as well as changes in legislation which impact on tests and test use.

P4 Take responsibility for their use of tests by: only using tests for which they are qualified and trained; providing clear and adequate information to participants in the testing process about the ethics governing psychological testing; ensuring that the test-takers clearly understand the purpose of the test session, the procedures, and how and to whom the findings will be reported; endeavouring to avoid doing harm or causing distress to those involved in the testing process.

P5 Ensure that test materials are securely stored and that access to them is controlled and copyright law respected.

P6 Ensure that test results are treated confidentially by: explaining levels of confidentiality to testees and users of test results before any results are made available; obtaining the relevant consent before releasing results to others; protecting data kept on file so that only those who have a right of access can get to it; using secure password-protected systems for test data storage on computer (De Villiers, Miller, Peverrett, and Botha, 1998).

3.5.4. Competent Test Administrators Should have a Basic Knowledge of Psychometrics, Testing and Assessment:

Test administrators should have a basic knowledge of the following areas:

K1 Be able to define what a psychological test is.
K2 Know why tests are used and who uses them.
K3 Know how tests are classified and what the major categories of tests are.
K4 Understand the role that tests play in the assessment process.
K5 Know the basic principles of measurement.
K6 Know basic psychometric principles (De Villiers, Miller, Peverrett, and Botha, 1998).

3.6. SAMPLING METHODS

Sampling in qualitative research is not based on probability theory and the size of the sample is usually too small to reflect the attributes of the population concerned. Instead, the sampling procedures are related to theoretical sampling and are geared toward essential and typical units.

Selection does not stress random measures but rather theoretical sampling, that is, towards the theoretically important units (Sarantakos, 1993). This research therefore relies on the use of non-probability, purposive sampling.

3.6.1. Non-Probability Sampling

"In non-probability sampling, there is no way to estimate the probability of each element being included in the sample and no guarantee that each element has some chance of being included" (Shaughnessy and Zechmeister, 1994). A non-probability sample may be completely adequate provided that the researcher has "no desire to generalise his or her findings beyond the sample" (Bailey, 1987:81). Qualitative methods are best understood as "data enhancers" (Ragins, 1994). The purpose of this research is to enhance or explicate attitudes, opinions, and feelings around the central concepts such as validity, reliability, fairness, cultural fairness, bias, and applicability issues in psychometric testing. Non-probability sampling is therefore an adequate sampling mechanism because the results of this research are not intended to be generalised to the population of test administrators in KZN ; rather it is intended to explicate the central concepts (mentioned above).

3.6.2. Purposive Sampling

A purposive sample is one in which the researcher handpicks the elements to be included in the sample on the basis of expert judgement. The respondents selected may be either those judged to have certain special characteristics or more commonly, those who are likely to provide the most useful information for the purposes for which the study is being conducted (Shaughnessy and Zechmeister, 1994). For the purpose of this research, a list of all test administrators in the KZN region was obtained from the Assessment and Development Services (Ads) in Westville, Durban.

The twenty respondents utilised in this research were selected by virtue of the fact that they have the relevant skill and knowledge to provide information that is valid to this research.

3.7. GATHERING OF DATA

3.7.1. Self-Administered Questionnaires

Surveys are methods of data collection in which information is gathered via (oral or written) questioning. Written questioning is done through questionnaires (Sarantakos, 1993). Questionnaires enable researchers to measure "what the person knows (knowledge and information), what a person likes and dislikes (values and preferences and what a person thinks (attitudes and beliefs)" (Tuckman, 1988:213). This is precisely the reason why a questionnaire is most suited for the purposes of this research. Firstly, psychometricians and industrial psychologists would be able to provide information on issues such as the validity, reliability, bias and cultural fairness issues in relation to the Apil B since they have the relevant skill, knowledge and expertise in the field of psychometrics. Secondly the researcher is also interested in whether or not, as a tool, the Apil B is an approach for recruitment and selection. Finally, the researcher also wishes to ascertain the attitudes, opinions, and feelings of these respondents with regard to psychometric testing and the controversial issues around it (following Employment Equity legislation). Thus, the use of a well-structured questionnaire is highly suitable.

3.7.1.1. Questionnaire Construction

Shaughnessy and Zechmeister (1994) outline six basic steps in constructing a questionnaire as follows:

1. Decide what information should be sought;
2. Decide what type of questionnaire should be used;
3. Write a first draught of the questionnaire;
4. Reexamine and revise the questionnaire;
5. Pretest the questionnaire; and
6. Edit the questionnaire and specify the procedures for its use.

All of these steps were adhered to when constructing the research questionnaire concerned. The revised questionnaire was pretested on a sample of five respondents who share similar characteristics as those who participated in this research, that is, they have the relevant skill and knowledge and are trained in the field of psychometrics.

Further guidelines are provided by Bailey (1987). These are as follows:

- *Double - barrelled questions.* Do not include two or more questions in one. For example "Does your department have a special recruitment policy for racial minorities and women?"when his/her department makes a strong attempt to recruit ethnic minorities but not women may lead to indecision and hesitation on the part of the respondent.

- *Avoid leading questions.* A leading question or loaded question is one that leads a respondent to choose one response over another by its wording. For example the question "You don't smoke do you?" leads the respondent to state that they don't smoke.

- *Avoid false premises.* Do not begin a question with a premise with which the respondent may not agree and then ask about the choices regarding it. For example the question "The post office is open too many hours. Do you want it open four hours later or close four hours earlier each day" leaves those who either oppose the premise or oppose both alternatives without a meaningful choice.

These guidelines were also considered when the questionnaire was designed. A copy has been included in the Appendix. What follows is a discussion of the types of questions used and the response categories.

3.7.1.2. Types of Questions Used and Response Categories

3.7.1.2.1. Types of Questions Used

This research questionnaire consists of open and closed-ended questionnaires. A closed-ended questionnaire both asks a question and gives the respondent fixed responses from which to choose (Neuman, 1997). This research questionnaire uses closed-ended questions when specific information is required. However, each closed ended question is complemented by and open-ended one. This allows the respondents to express the reasoning behind their feelings, views, or choice expressed. "The disadvantages of a question form can be reduced by mixing open-ended and close-ended questions in a questionnaire" (Neuman, 1997:240).

3.7.1.2.2. Response Categories

In most instances the closed ended questions were allocated yes and no options. Some of the closed-ended questions also entailed the use of verbal scales. Verbal scales simply formulates the expected response to a question in words (Sarantakos,1993). The respondent in such cases is expected to tick one of the words in the space provided.

3.7.1.3. Structure of the Questionnaire

The questionnaire, irrespective of whether it is administered personally to the respondent or sent to them by mail has to comply with certain standards generally accepted by modern researchers (Sarantakos, 1993). It has to include three main elements: the cover letter, the instructions, and the main body.

- **The Cover Letter**

The main aim of the cover letter is to introduce the respondent to the topic and research body as well as to motivate them to participate in the study and assure them of confidentiality. The covering letter of this questionnaire clearly indicates the major research objectives and goals as well as re-assures candidates of confidentiality. Appreciation of each candidates participation was also expressed.

- **Instructions**

Instructions on how to fill in the questionnaire and the date by which it should be returned to the researcher is also included in the questionnaire.

- **The Main Body**

The main body of the questionnaire includes the questions to be answered. This is the part of the questionnaire that will enable the researcher to collect data required for the completion of the study. The body of the research questionnaire used in this study may be described as follows:

Section 1 - entails a general overview of the term psychometric testing and its value for recruitment and selection.

Section 2 - attempts to assess each respondents understanding of the Employment Equity Act and its implications for psychometric testing.

Section 3 - takes the different variables mentioned in the Act, that is, "validity and reliability", "fairly applied", "bias"and attempts to elicit respondents attitudes, opinions, and feelings concerning the reference of these factors to the Apil B.

Section 4 - aims to ascertain whether Employment Equity legislation has influenced or changed respondents attitudes, opinions, and feelings toward psychometric testing.

Section 5 - entails a consideration of fairness issues, in particular "cultural fairness" (in relation to the Apil B).

Section 6 - entails general questions in relation to psychometric testing and allows candidates to offers suggestions for constructing "culturally fair" tests.

3.7.1.4. The Administration of the Questionnaire

Respondents were first contacted telephonically to gain confirmation of their participation in this research study. They were briefed in terms of the aims and purpose of the questionnaire. They were also encouraged to respond honestly and freely. Given that the questionnaire is a self-administered one, they were given a week to return the questionnaires to the researcher.

The data gathering and administration stages have been discussed. The discussion that follows provides insight into the data analysis procedure.

3.8. DATA ANALYSIS

3.8.1. Analysis of Qualitative Data

"Data analysis consists of examining, categorising, tabulating or otherwise recombining evidence to address the initial propositions of a study" (Krueger, 1988:106). The research questionnaire in this study has certain quantitative aspects for example the rating of the Apil B. These will be tabulated and expressed graphically. Such quantitative data may serve to support the attitudes, opinions, and feelings of respondents as they are expressed in the open ended questions. The open-ended questions will be analysed on the basis of what Krueger (1988) refers to as the "**analysis continuum**".

RAW DATA ← → DESCRIPTIVE ← → INTERPRETATION STATEMENTS

(Adapted from Krueger, 1988, Focus Groups: A Practical Guide for Applied Research, California: Sage Publications. pp. 68)

The one side of the continuum represents the presentation of raw data, that is, the exact statement of the candidates. The researcher firstly presents the raw data. Thereafter the researcher presents a brief description that is based on the raw data. Description provides typical or illuminating quotes.

Finally, interpretation is the most complex role of the researcher. The researcher ultimately presents the **meaning** of the data as opposed to just a summary of it.

It is important at this point to isolate each question in the research questionnaire and reflect on its aims. Such a consideration is of fundamental importance as it will serve to guide the analysis process.

Question 1:

AIM : To ascertain the respondents understanding of the term psychometric testing.

Question 2:

AIM : To elicit how the respondents feel about the use of psychometric testing as a tool for recruitment and selection.

Question 3:

AIM : To ascertain whether respondents have any problems or concerns when using psychometric tests.

Question 4:

AIM : Concerning the Employment Equity Act. An indication of respondents understanding of the Act and its implications for psychometric testing.

Question 5 :

AIM : The aim of this question was to take the different variables outlined in the Act and firstly ascertain respondents understanding of it, and secondly apply each of those terms (validity, reliability, fairly applied, cultural fairness and bias) to the Apil B.

Question 6 :

AIM : To elicit the attitudes, opinions, and feelings associated with "old" and "new" psychometric tests.

Question 7 :

AIM : To ascertain whether the attitudes, opinions, and feelings of test administrators toward psychometric testing was influenced by the Employment Equity Act.

Question 8 :

AIM : This question is aimed at gaining an understanding of how fair the Apil B is as a Learning Potential Test (in the respondents opinions).

Question 9 :

AIM : To raise ideas about what could render a psychometric test as fair.

Question 10 :

AIM : This question allows respondents to express what they think is meant by the term "culture fair" assessment in South Africa.

Question 11 :

AIM : To establish, in terms of respondents views whether the Apil B is a fair test or not.

Question 12 :

AIM : To understand how respondents rate the Apil B as a culture fair test and why.

Question 13 :

AIM : The aim of the question is to give test administrators the opportunity to list any experience of problems when administering the Apil B or the testees experience with taking the test.

Question 14 :

AIM :This question requires respondents to state whether they value psychometric testing or not.

Question 15 :

AIM : To ascertain, in the respondents opinions, what the best uses for psychometric testing are.

Question 16 :

AIM : To ascertain if there are alternative ideas to psychometric testing.

Question 17 :

AIM : To reveal information that may be useful to construct tests that are culturally fair and relevant to the South African context of diversity.

3.8.2. Analysis of Quantitative data

" A researcher provides charts, graphs, and tables to present a condensed picture of the data. The chart, graphs and tables allow you to see the evidence collected by the researcher and learn for yourself what is in it. When you collect your own quantitative data, you will have to use similar techniques to help you see what is inside the data" (Neuman,1997: 294).

Quantitative analysis involves the manipulation of data to reveal things of interest about the social world. The analysis of quantitative data is a complex field of knowledge. Data collected, using this technique are in the form of numbers. The numbers represent values of variables, which measure characteristics of the respondents, subjects or cases. The numbers are in raw form, on questionnaires, note pads, recording sheets, or paper (Babbie, 1990).

Researchers do several things to the raw data in order to ascertain what can be said about the research question. The researcher can therefore:

- Reorganise the data into a form suitable for computers.
- Present it in charts or graphs to summarise its features, and
- Interpret or give theoretical meaning to the results (Neuman, 1997).

The quantitative data in this research comprises basically of yes/no responses as well as rating options. It has been mentioned earlier that this data serves to supplement the qualitative data. All quantitative data are firstly tabulated and then presented in graphs, using Microsoft Exel. Thereafter some interpretation is provided in order to give some theoretical meaning to the results. The reasoning outlined above will guide the analysis process (as mentioned earlier). The section that follows entails a discussion on research ethics. "Ethics begins and ends with the researcher who has a moral and professional obligation to be ethical" (Neuman, 1997: 462). It follows therefore that mention must be made of the ethical standard in research.

3.9. ETHICAL STANDARDS IN RESEARCH.

According to a dictionary definition (Websters, 1968), to be ethical is to conform to accepted, professional practices. It is agreed generally that it is unethical for researchers to harm anyone in the course of research. This includes deceiving a respondent about the true purpose of a study, asking a respondent questions that cause him or her extreme embarrassment or invading his or her privacy (Bailey, 1987).

Respondents of this research were fully aware that research was being conducted. They were also alerted as to the purposes, goals, intention and methods to be employed in the research process.

Respondents may also be injured by the violation of a promise of confidentiality (Bailey, 1987). The results of the research will always ensure confidentiality. Attitudes, opinions, and feelings will at no time be associated with names.

Reynolds (1979) and Bailey (1987) both agree that researchers can also act unethically when analysing data for example by only revealing parts of the facts, presenting facts out of context, falsifying or offering misleading information such as "lying" with statistics. This researcher is completely aware of the fact that "ethical research depends on the integrity of the individual researcher and his or her values". Consequently, the researcher at all phases of the research was scrupulously aware of ethics and has therefore not compromised the results in any way.

" The truthfulness of knowledge produced by social research and its use or misuse depends on individual researchers, reflecting on their actions and on how social research fits into society" (Neuman, 1997). The ethical considerations mentioned above have been maintained throughout the research process.

3.10. SUMMARY

This chapter has reflected on a number of fundamental aspects of the research process such as the research approach used, methodology, sampling, data collection, data analysis, and ethical considerations.

CHAPTER 4

DISCUSSION

4.1. INTRODUCTION

In this chapter, the data collected via the research questionnaire is analysed. For each question, a summary response is generated (that is, typical responses will be illuminated) and an interpretation of each summary answer is provided. The quantitative data is presented in terms of graphical representations.

4.2. RESULTS OF THE QUESTIONNAIRE

This section will firstly display each question. A brief summary, interpretation, or graphical representation of the responses will be provided. It must be noted that the reasons for asking the question is explained in Chapter 3 and serves as a guide for the analysis procedure.

4.2.1. Question One

The question required respondents to provide a detailed description of psychometric tests.
The responses were as follows:

- Six respondents said that they measure abilities.
- Ten respondents said that they are objective measures.
- Four respondents claimed that they allow for comparative assessment.
- Three stated that they highlight areas of strengths and weaknesses.
- All respondents said that they should be culturally sensitive.

Summary

Overall the responses appear to be in compliance with conventional definitions of psychometric tests. All definitions allude to the fact that a psychometric test is a test designed to measure an individual on a number of different levels, that is, cognitive capacity, competence, personality, traits, potential, and trainability. Most respondents placed high value on reliability and validity. There was much consensus over what a psychometric test entails. All respondents knowledge of what a psychometric test entails appears to be quite detailed. Most respondents strongly affirmed the need for tests to be culturally sensitive. This would follow from the Employment Equity Act which seeks to create greater equity in the workplace. Hence to ensure the survival of psychometric tests, it is essential to produce tests that is not influenced by any one culture.

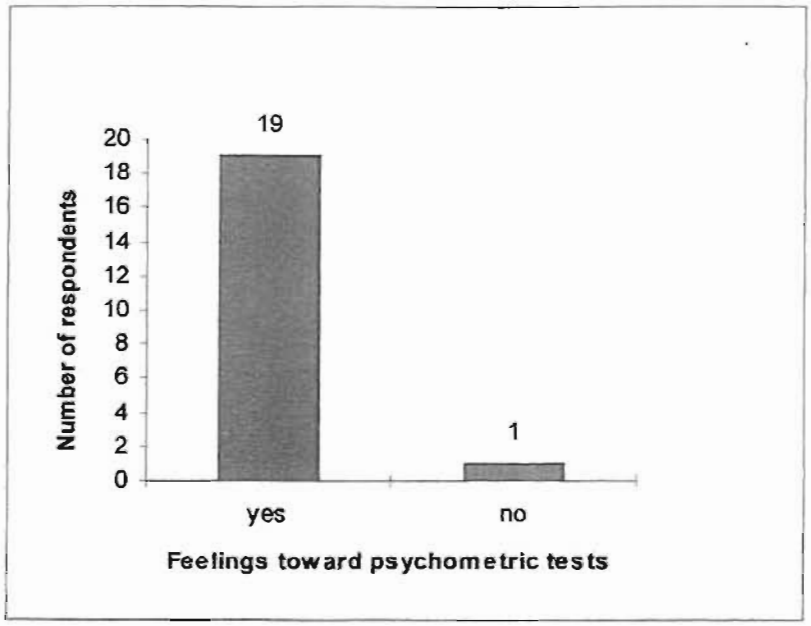
4.2.2. Question Two

The question asked respondents about their attitudes, opinions, and feelings towards psychometric testing as a tool for recruitment and selection.

Table 4.1. Depicting Whether Respondents Value Psychometric Testing as a Tool for Recruitment and Selection

Responses	Number of respondents	Frequency
Yes	19	95%
No	1	5%
Total	20	100%

Graph 4.1. Depicting Respondents Feelings Toward the Use of Psychometric Testing as a Tool for Recruitment and Selection



All those respondents agreed that psychometric tests are acceptable tools for recruitment and selection substantiated their answer as follows:

- They are useful instruments but they must be combined with other measures such as interviews which provides additional information.
- If used correctly, it provides a broader information base.
- Tests of learning potential are future oriented and are not dependent on the persons educational opportunities.
- Must have relevant South African updated norms and validation studies.
- Helps eradicate subjective opinions derived from perceptions of an individual in just an interview *per se*.
- Tests are useful if selected with sensitivity to cultural context.
- It is useful as long as it is culturally fair.

One respondent felt however that psychometric tests are not acceptable tools for recruitment and selection. The rationale behind this being that psychometric tests cannot be used in a generic sense. However, no detail regarding this reasoning was provided.

Summary

Respondents strongly affirmed the use and value of psychometric tests in recruiting and selecting employees. There was some concerns however with regard to carefully selecting tests that are culturally sensitive when dealing with previously disadvantaged groups. Strong agreement emerged amongst all respondents that psychometric tests produce useful information. However, they felt that it must not be used in isolation. It is imperative that such data be used in conjunction with other sources of information such as interviews. A point that was reinforced by respondents is that tests of learning potential are future oriented and therefore does not marginalise potential employees in any way. Learning potential tests indicate a persons capacity for future development and therefore does not in any way rely on an individuals prior accumulation of knowledge. Thus, nineteen respondents supported the use of learning potential tests. The point of difference between those who agreed that psychometric tests are useful for recruiting and selecting employees and the respondent who disagreed is that the respondent felt that psychometric tests cannot be used in a generic sense. No detail was provided with regard to this statement.

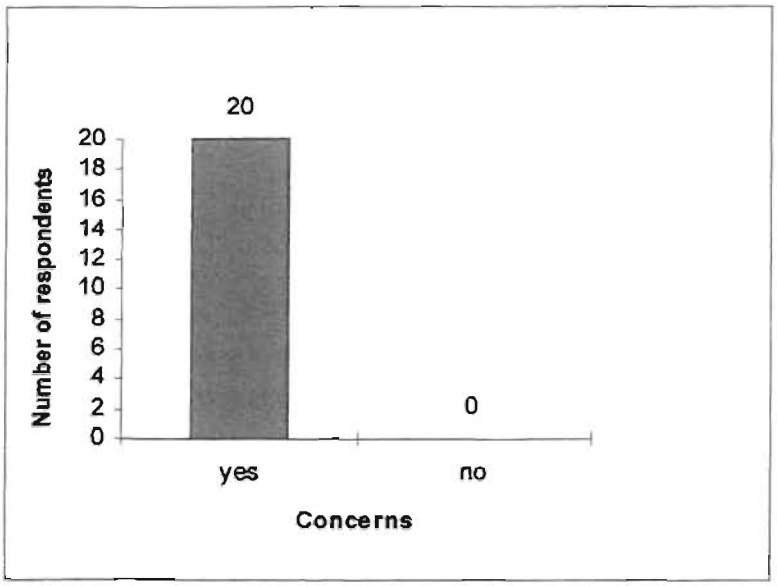
4.2.3. Question Three

The question was aimed at collecting information with regard to any concerns that the respondents might have when they utilise psychometric testing for the purpose of recruiting, selecting, and placing individuals.

Table 4.2. Depicting Whether Respondents have Any Concerns when using Psychometric Tests

Responses	Number of responses	Frequency
Yes	20	100%
No	0	0%
Total	20	100%

Graph 4.2. Reflects Concerns that Respondents may have when using Psychometric Tests



All respondents had some concerns with regard to using psychometric tests. The following concerns in terms of using psychometric tests for selection purposes were collected:

- Six of the respondents were concerned about the fairness of the process.
- Two respondents indicated that they were concerned about second language English speakers and their understanding of the instructions.
- Five respondents were concerned about matching specific tests to specific jobs.
- Three respondents were concerned about the validity, reliability, and fairness of the test.
- Five respondents were adamant about psychometric tests being used generically and not in accordance with the design of the instrument.

Summary

Although all respondents value the use of psychometric testing for recruitment and selection purposes, they all have some concerns when using psychometric tests. Generally, the concern was around validity, reliability, and fairness of the tests but more specifically there was concern around the control and abuse of psychometric tests. Some respondents were concerned about selecting the wrong test for a particular job which would seriously compromise an individuals chances of getting a job.

4.2.4. Question Four

The question required respondents to reflect on their understanding of the Equity Act and its implications for psychometric Testing. The information collected indicated that :

- Three respondents felt that the Employment Equity Act provides opportunities based on competency.
- Six respondents felt that it places greater control over the use of psychometric tests.
- Two respondents felt it means that the use of psychometric tests must now be substantiated.
- Three respondents stated that tests must be relevant, fairly applied, valid, reliable, and open to scrutiny.
- Two respondents felt that tests must be used to select individuals with learning potential opposed to people with current abilities.
- Three felt that personality tests are not always job relevant.
- Two respondents felt that the Employment Equity Act does not rule out psychometric tests but makes a provision for stringent criteria to be applied when using psychometric tests.
- All twenty respondents indicated that psychometric tests must be relevant.

Summary

It was generally agreed that the Employment Equity Act does not rule out the option of psychometric testing in the future. Respondents did acknowledge however that this legislation does provide stricter control over the use of psychometric tests. Psychometric tests must be valid, reliable, fair, and relevant to the particular job requirements. Respondents suggest is that the Employment Equity Act seeks to create equity in the workplace and prevent unfair discrimination. One of the ways in which it seeks to accomplish this is via the use of more relevant, fair, valid, and reliable psychometric tests. Most respondents were optimistic that the Employment Equity Act would lead to the construction of improved psychometric tests that would be relevant in a context of cultural diversity.

4.2.5. Question Five

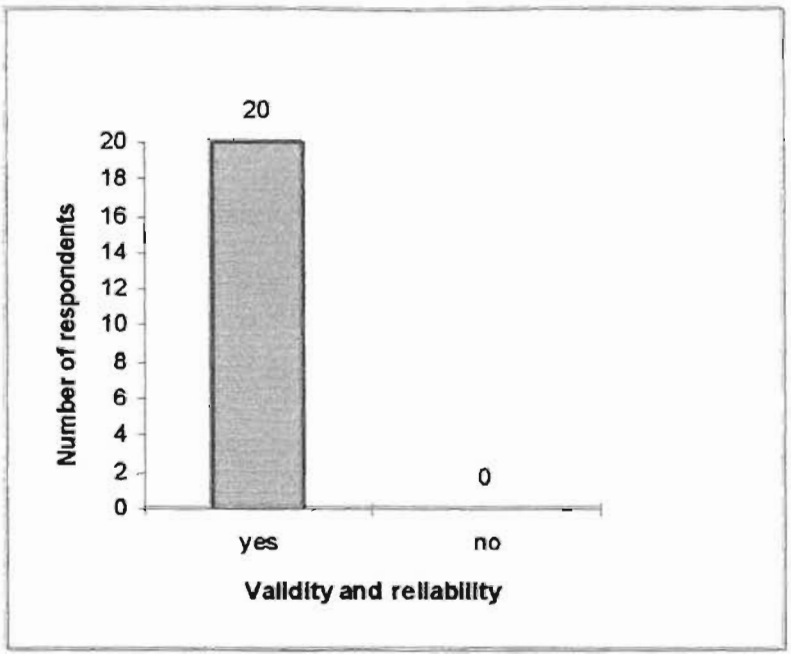
a) The question was used to collect information regarding respondents understanding of the term valid and reliable. The question required respondents to provide a definition of the terms valid and reliable. In summarising their responses, all respondents indicated that reliability implies that an instrument measures what it is supposed to measure and a reliable instrument gives consistent results across assessments using the same instrument. Most of the respondents gave a clear definition of the two concepts.

b) The question asked respondents about their opinions concerning the validity and reliability of the Apil B

Table 4.3. Depicts Respondents Opinions Concerning the Validity and Reliability of the Apil B

Responses	Number of respondents	Frequency
Yes	20	100%
No	0	0%
Total	20	100%

Graph 4.3. Reflects Respondents Opinions Concerning the Validity and Reliability of the Apil B



From Graph 4.3. it can be seen that all the respondents agreed that the Apil B is both valid and reliable. All respondents agreed that the Apil B is valid and reliable, for the following reasons:

- Four respondents felt that it is developed for South African culture .
- Six respondents said that success on the test is not dependent on verbal ability.
- Five respondents confirmed that there are actual correlations between the test scores and on the job performance.
- Three respondents said that through research and experience, the Apil B appears to predict performance well.
- Two respondents claimed that the manual provides the theoretical information on validation studies conducted, which is quite effective.

Summary

All respondents believe that the Apil B is valid and reliable. Given that these respondents meet all the criteria of the Professional Board for Psychology as test administrators and they all have the necessary experience in terms of administering the Apil B, it may be stated that their comments that the Apil B is valid and reliable is not based on theoretical knowledge only but on experiential knowledge as well. Based on their experience with the test since 1994, they can substantiate therefore that the test results bears a strong correlation with performance on the job.

c) The question was used to elicit information regarding the respondents understanding of the term fairly applied. The following responses were noted:

- Five respondents said that it refers to perceptions of process and outcomes by all stakeholders.
- Eight stated that the test should not discriminate on the basis of sex, age, gender, culture, language, ethnic or social origin.
- Four respondents said that the relevant norms must be applied.
- Two respondents stated that the test must be administered under appropriate conditions (that is, in terms of defined times and instructions for example).
- All respondents agreed that the application of results of the test must be fair.

Summary

Most respondents seemed to have categorised the term fairly applied into three main aspects:

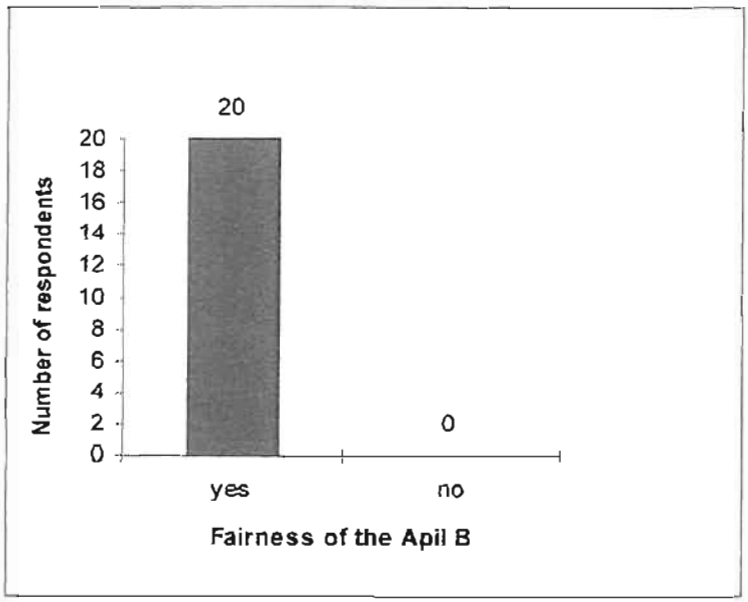
- Administration of the test, which includes medium of instruction.
- Fair application of test results, that is, test results should be used in a non-discriminatory manner.
- The nature of tests, that is, they should not discriminate in any one of the following grounds: age, race, sex, culture, language ,ethnic or social origin.

d) The question assessed respondents opinions concerning the fairness of the Apil B.

Table 4.4. Reflects Respondents Opinion Concerning the Fairness of the Apil B

Responses	Number of Responses	Frequency
Yes	20	100%
No	0	0%
Total	20	100%

Graph 4.4. Indicates Whether Respondents Feel that the Apil B is Fairly Applied



Graph 4.4. shows that all respondents feel that the Apil B is fairly applied.

- Eight respondents felt that clear and concise instructions are provided.
- Three respondents felt that the Apil is fairly applied because new norm groups have been provided.
- Four respondents concurred that since the Apil B is not a verbal test, it is therefore fairly applied.
- Six felt that very few people administer it, which means that levels of professionalism seem to be maintained and controlled.

Summary

Respondents were very satisfied that the Apil B is fairly applied . The reasons why they feel this way are listed above. Although there was agreement on this issue, many respondents asserted that a huge responsibility rests with the administrator him or herself to ensure that the test is fairly applied in every context.

e) The purpose of the question was to gain knowledge regarding the respondents understanding of test bias.

- Ten respondents considered whether the assessment favoured any group in terms of its design or medium of instruction for instance.
- Five respondents claimed that a test is biased when it favours one group of people, in terms of test scores based on criteria other than what is being measured.
- Five respondents said that an instrument is biased if it is differently valid across groups.

Summary

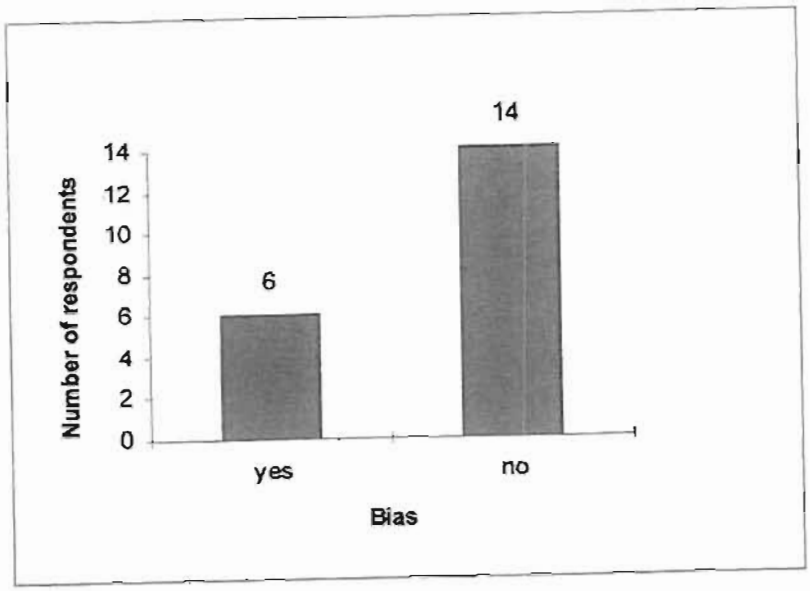
Respondents gave a standard definition of the term test bias . All respondents agreed that a test is bias if it enables one group to perform better than another based on the way in which it is designed (language or the criterion being measured).

f) The question asked respondents whether they feel that the Apil B is in any way bias.

Table 4.5. Reflects Respondents Feelings Toward Bias in the Apil B

Responses	Number of Responses	Frequency
Yes	6	30%
No	14	70%
Total	20	100%

Graph 4.5. Indicates Whether Respondents Feel that the Apil B is Bias in Any Way



From Graph 4.5. it can be seen that six respondents felt that the Apil B is biased because of the following reasons:

- The bias effect can never be completely minimised.
- Instructions are in English, special care must be taken to ensure that all test takers know what is required.

Fourteen of the respondents however felt that the Apil B is not in any way biased.

Summary

There is an interesting division of opinions with regard to this question. Not all respondents feel that the Apil B is not free of bias. They feel that bias can never be totally minimised. This is an interesting point of difference since it is the first instance in which respondents have been so divided in their opinion. It would probably be a good point of investigation.

4.2.6. Question Six

The question was asked to gain insight as to whether respondents feel differently toward the use of the new psychometric tests that have been developed, as opposed to the old tests.

- All respondents felt that the new tests have more to offer than old psychometric tests.
- Five felt that old tests have outdated norms and are verbal ability tests that do not probe into the development of potential of the individual.
- Two respondents said that the old tests are a response to an educational system and not a measurement of innate ability.

Summary

Most respondents are satisfied with new psychometric tests. There is still some concerns though about the misuse of tests however especially with regard to language based tests. There is great sensitivity amongst respondents with regard to cultural issues of fairness. They feel that the new tests have attempted to eliminate some of the bias inherent in old tests.

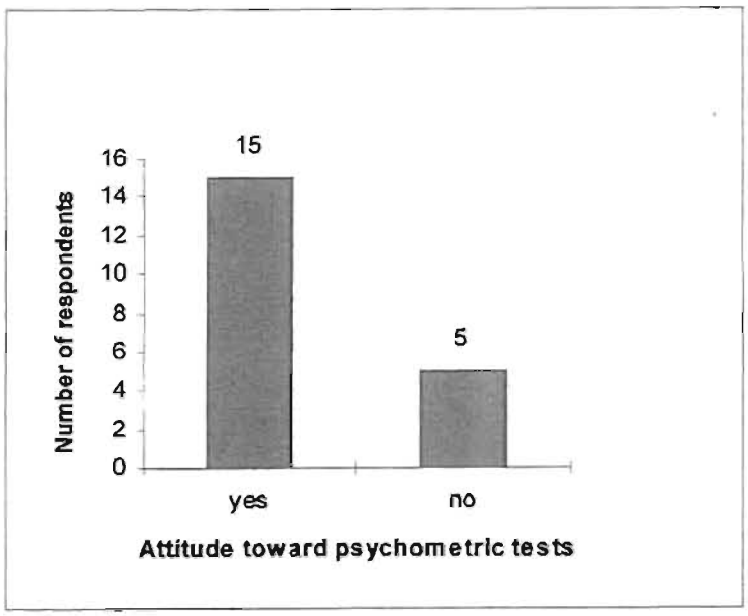
4.2.7. Question Seven

The question was asked to ascertain whether the Employment Equity legislation has influenced the attitudes, opinions, and feelings of respondents toward psychometric testing.

Table 4.6. Depicts Whether the Equity Legislation has Influenced the Attitudes, Opinions, and Feelings of Respondents toward Psychometric Testing

Responses	Number of Responses	Frequency
Yes	15	75%
No	5	25%
Total	20	100%

Graph 4.6. Illustrates Whether the Equity Legislation has Influenced Respondents Attitudes, Opinions, and Feelings Concerning the Use of Psychometric Tests



From Graph 4.6. it can be seen that 15 respondents agreed that the Equity Act has influenced their attitude, opinions, and feelings toward the use of psychometric tests.

- Twelve respondents felt that more objective tests have been introduced.
- Six felt that there is a focus on potential and race, gender, religion are not important.
- Most respondents claimed that practices have been reviewed so that they can operate in an ethical manner.
- All respondents said that, based on the Employment Equity Act, tests that are not culturally fair or inappropriate in terms of job relevance, can now be identified.
- there is added awareness of using an assessment that is valid, reliable, fair and unbiased.

Five respondents felt that their feelings toward psychometric tests were not influenced in any way by the implementation of the Employment Equity Act because tests administration had to be controlled a hundred percent anyway.

Summary

Fifteen respondents felt that the Employment Equity Act has set the parameters for the correct use of psychometric tests. They felt that the stronger developmental focus and a focus on potential, presented psychometric tests in a more favourable light. It must be noted however that five respondents were not completely convinced of this. It is clear from this that although the Employment Equity Act has influenced some of the opinions of test administrators toward psychometric testing in a positive and negative way, there is still the general feeling that it is the proper implementation of the legislation and not the legislation *per se* that will cultivate change.

4.2.8. Question Eight

The question aimed to elicit information regarding the respondents understanding of the term fairness. All respondents indicated that test fairness, in relation to the Apil B can be described as follows:

- Every person starting the test has the same chance of completing it successfully.
- It is non-verbal.
- It measures potential.
- It has a lower educational equivalent in the Tram.
- It has a range of appropriate norms.
- It measures learning ability and nothing else.
- It comprises of an excellent leveling of the cognitive play fields.
- From experience, people from cognitively deprived backgrounds excel on the test.

Summary

Fairness of the Apil B is viewed in a very positive light by the respondents. What is important to note though is that fairness depends on the stakeholders perceptions of the outcomes of specific assessment exercises.

Since biased tests can result in fair outcomes (achieving equity targets for instance), the test itself is not the most important factor but rather the way in which the test results are used by decision makers. It follows therefore that the responsibility lies with those who make decisions based on the results, to act in an ethical manner.

4.2.9. Question Nine

The question asked respondents to suggest ideas that would render a psychometric test as fair. The responses were as follows:

- Four respondents said that test takers have to perceive the test as fair .
- Eight respondents stated that fairness has do with issues surrounding the use of test results and the Apil B comes in a developmental point of view rather than a discriminatory tool which helps in getting people to accept the test as fair and appropriate.
- Five respondents said that the exact requirements and the reasons for selecting a specific test must be known, as well as how the results were applied.
- All respondents felt that clear instruction, feedback, and proper administration render a test as fair.
- Five respondents suggested the use of symbols, pictures, and figures than language and words which introduce the potential for problem of differential exposure.
- Four respondents suggested the continuous development of new norms.
- All respondents stated that tests must be related to the job.

Summary

Test Fairness has been described along many different dimensions by the respondents. It is clear that all respondents feel very strongly that clear instruction, feedback, and proper instruction are fundamental aspects of a test that is fair. Furthermore, the test must be related to the requirements of the job.

The above implies that there are ways to ensure that a psychometric test remains fair. Test fairness, is a step by step process. There is a moral responsibility that begins with the test constructor and ends with the individual that decides how the test results should be used.

4.2.10. Question Ten

The question aimed to ascertain respondents understanding concerning culture fair testing in South Africa. The responses were as follows:

- Five respondents said that no test can be culture fair, there will always be some factor preventing that, for example language or interpretation.
- All respondents stated that the test that can be applied to all cultural groups and not have its validity questioned.
- All respondents claimed that a culture fair test is a test that does not involve any possible influence of historical origin.

Summary

Five respondents tend to feel that a test cannot be culture fair in its entirety. There are others who have attempted to define what a culture fair test is. They do agree however that all tests are created in the context of some cultural setting. This is an interesting point to note since the Employment Equity Act refers only to fairness and not to cultural fairness. The question that remains open to investigation is whether a test can in fact be totally culturally fair.

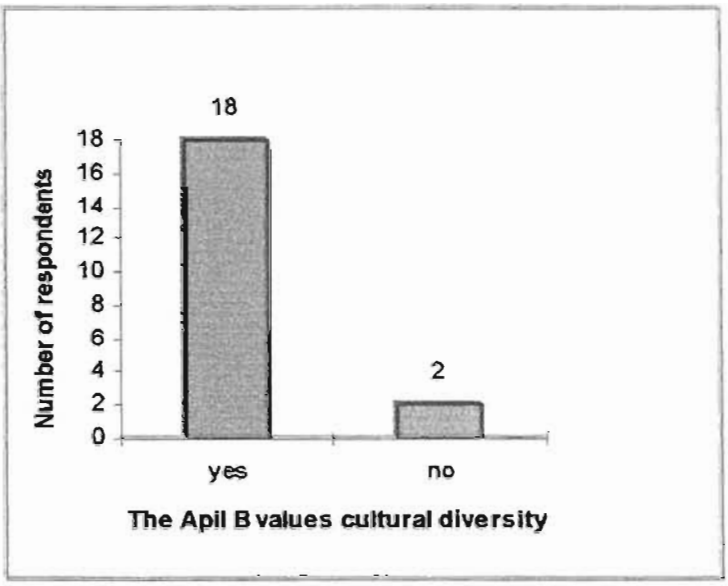
4.2.11. Question Eleven

The question was asked to ascertain whether respondents think that the Apil B values cultural diversity in South Africa.

Table 4.7. Depicts Respondents Feelings Toward the Apil B as a Test that Values Cultural Diversity.

Responses	Number of Responses	Frequency
Yes	18	90%
No	2	10%
Total	20	100%

Graph 4.7. Illustrates Whether Respondents Feel that the Apil B Values Diversity in South Africa



Graph 4.7 shows that eighteen respondents think that the Apil B values diversity in South Africa for the following reasons:

- It has attempted to remove the more traditional approaches.
- It attempts to level the educational playing fields and afford diverse groups of people an opportunity to respond to various cognitive tasks.
- As a result of our findings after assessing over three hundred people and their responses during feedback sessions, cultural background does not seem to affect scores on this test.

Two respondents feel that the Apil B does not value cultural diversity in South Africa for the following reason:

- A test cannot value cultural fairness but the decision by the psychologist to use the Apil B may value cultural fairness in as far as the job requires the potential to learn cognitively complex information.

Summary

In as far as the non-verbal items of the Apil B is concerned, most respondents viewed it as relatively fair and cross culturally accessible. The problem that features is the ethical use of the test which is ultimately up to the administrator to use the test in a non-discriminatory manner.

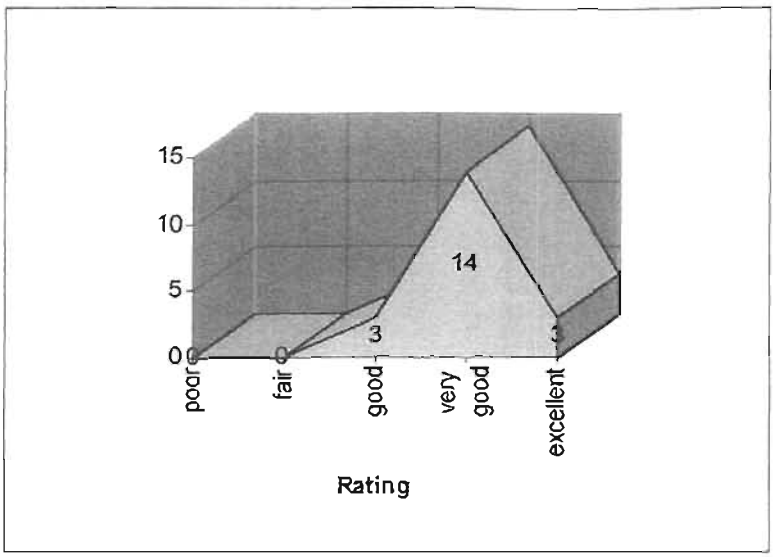
4.2.12. Question Twelve

The question required respondents to rate the Apil B as a culture fair test on a scale ranging from poor to excellent.

Table 4.8. Depicts Respondents Rating of the Apil B as a Culture Fair Test

Responses	Number of responses	Frequency
Poor	0	0%
Fair	0	0%
Good	3	15%
Very Good	14	70%
Excellent	3	15%
Total	20	100%

Graph 4.8. Rating of the Apil B as a Culture Fair Test



From Graph 4.8. it is evident that all respondents feel that the Apil B is culturally fair. No respondent rates the Apil B as poor or fair in terms of cultural fairness. They claim that the test is culture fair because it is non verbal, and new norm groups, that are suited to the South African population have been developed.

Summary

Fourteen respondents rate the Apil B as a very good culture fair test, three say that it is good and three claim that it is an excellent test in terms of cultural fairness. The Apil B is viewed with much optimism by respondents because of its credibility in terms of validity, reliability, and relevance in a South African context. Respondents were very confident that the test does not limit an individuals performance through discrimination on the basis of race, gender, culture, social or ethnic origin.

4.2.13. Question Thirteen

The question was used to collect information on any problems that the respondents or testees experience when taking the Apil B.

- Responses relating to the problems experienced by the Tester :

  - Six respondents said that they did not experience any problems.
  - One respondent stated that repeating instructions and the administration process over time may make you insensitive to the points of clarity .
  - All respondents were concerned about the issue of feedback , they said that results must be clarified up front.
  - All respondents also found that the test is too long.

- Responses relating to the problems experienced by the testee:

  - Seven respondents said that testees find the instructions difficult to follow if English is not the first language, this increases pressure on them in an already stressful situation.
  - All respondents states that older testees have problems concentrating for long periods of time.
  - Five respondents claimed that intensive tests require a great deal of concentration, those who are slower often lose the initial motivation.
  - Ten respondents said that because that test is very long, it often results in fatigue, candidate feels quite drained physically and mentally during the whole battery .

Summary

It appears that most of the problems relating to the Apil B was the issues of time and the language of instruction. Test administrators, based on their experience, find that testees experience fatigue during the testing period because of the length of the test. Older testees particularly encounter problems when taking longer tests, this may result in some kind of bias in the test. It was also a concern that second language English speakers still do not understand instructions and are too afraid to admit it.

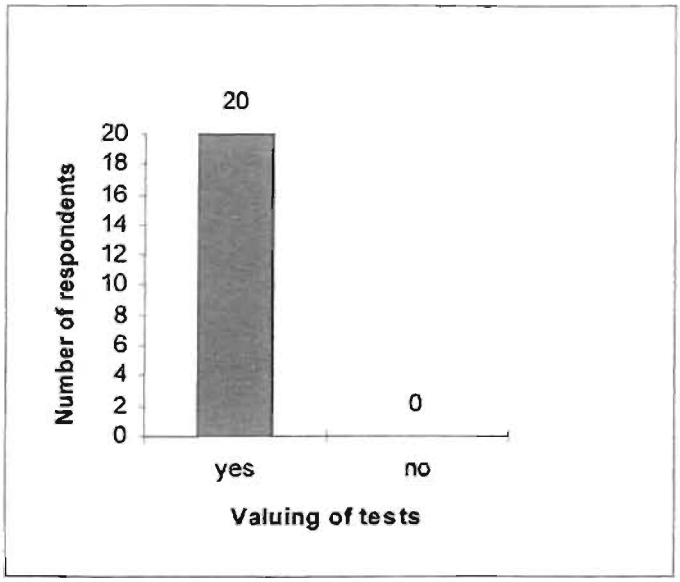
4.2.14. Question 14

The question asked respondents about their opinions concerning the value of psychometric testing for selecting and placing employees into jobs.

Table 4.9. Depicts Respondents Opinion with Regard to the Value of Psychometric Testing for Selection Purposes

Responses	Number of Responses	Frequency
Yes	20	100
No	0	0%
Total	20	100

Graph 4.9. Indicates Whether Respondents Value Psychometric Tests



All respondents indicated that:

- It has taken steps to close the gaps.
- Psychometric assessments are an objective measure that provides information that is almost impossible to get in an interview for instance.
- Most respondents referred back to answers on question two.

Summary

All respondents felt strongly that psychometric tests are useful tools for selecting and placing employees. This is interesting to note, even though psychometric tests have come under the scrutiny of many, following Employment Equity legislation, they are still viewed as valuable tools.

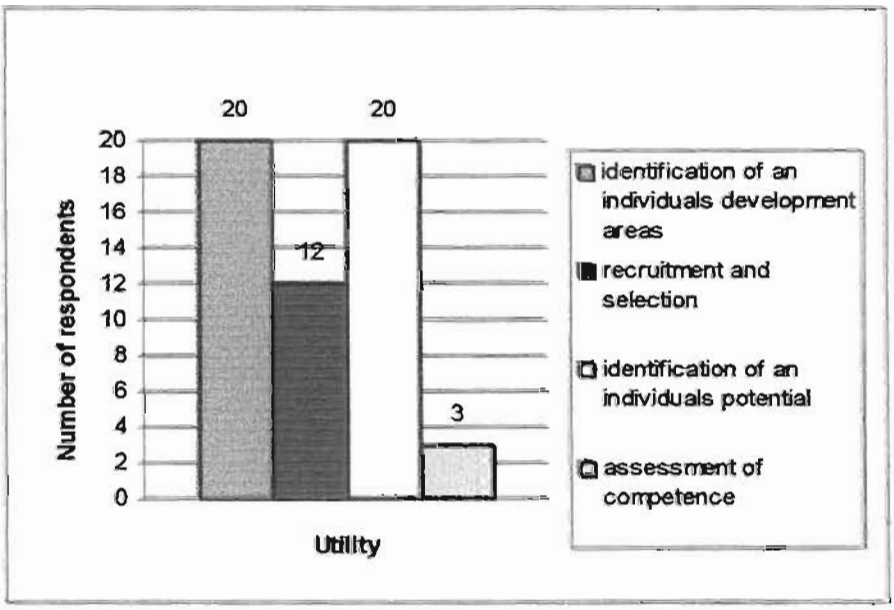
4.2.15. Question Fifteen

The question was used to collect information on the utility of psychometric tests. Respondents were questioned on their preferences with regard to the use of psychometric testing. More than one response was permitted.

Table 4.10. Reflects the Utility of Psychometric Tests

Responses	Number of Responses	Frequency
Identification of an individuals development areas	20	100%
Recruitment and selection	12	60%
Identification of an individuals potential	20	100%
Assessment of competence	3	15%

Graph 4.10. Shows Respondents Preferences in Terms of What Psychometric Tests Should Be Used to Assess



Summary

From the distribution in the graph, it is evident that all respondents felt strongly that psychometric tests are very useful to identify an individuals potential as they give a good indication of how an individual may be developed in the future and does not limit the individual in any way. They also feel strongly about using psychometric tests for the purpose of recruitment and selection.

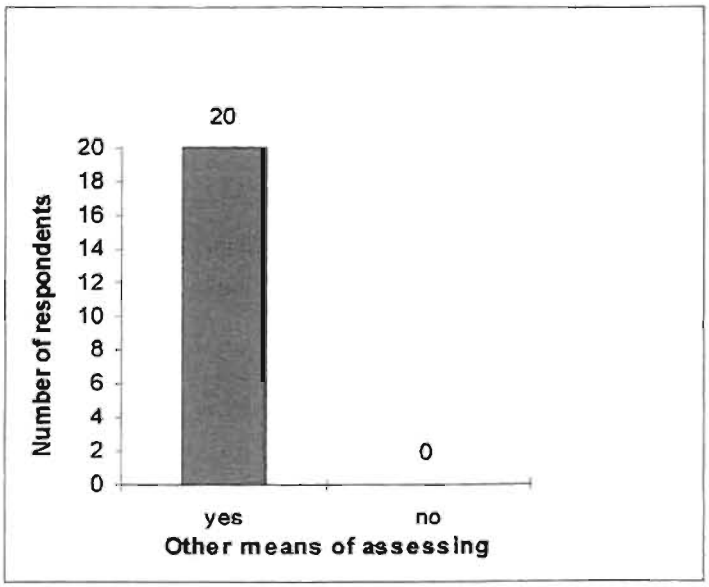
4.2.16. Question Sixteen

The question gave respondents the opportunity to indicate whether they think that there are other ways of assessing an individuals competence, potential, and developmental areas.

Table 4.11. Other Means of Assessing Competence, Potential, and Developmental Areas

Responses	Number of Responses	Frequency
Yes	20	100%
No	0	0%
Total	20	100%

Graph 4.11. Reflects Whether Respondents Feel that there are Other Means of Assessing Individuals



From Graph 4.11. It is evident that all twenty respondents feel that there are alternatives to testing. They therefore suggest the following:

- Ten respondents suggested 360 evaluations which attempt to give an all round assessment of an individual.
- Fifteen suggested assessment centers.
- Twelve respondents said that work samples provide a good alternative.
- Thirteen respondents claimed that practical evaluation within the tasks he/she will be performing is also a good form of assessment.
- Five respondents suggested provisions of learning periods prior to the job.

Summary

Despite the fact that all respondents value psychometric tests as assessment tools, they do acknowledge that there may be alternatives. These alternatives could perhaps be integrated into the testing process or used in association with it in order to make the process a much less scrutinised one. Such attempts may reduce the resistance that psychometric tests face in the eyes of the public.

4.2.17. Question Seventeen

The question was asked to collect suggestions that respondents may have with regard to the development of culture fair tests in South Africa.

- Two respondents said that test constructors should work on the face and content validity which helps with peoples' perception of the fairness of the test process.
- Three respondents suggested that language need only be included when its relation to the measured construct is relevant for the demands of the job.
- Five respondents suggested that new approaches to developing occupationally relevant personality profiles are required.
- Two respondents said that there should be no problems when using the test in a number of different industries.

- Ten respondents stated that the test constructor must always try to understand the real life' situations being 'constructed' through test development.
- Two respondents suggested that test constructors should not develop tests without real experience in the industry.
- One respondent felt that progressional options should be built into the test.
- One respondent suggested a variation of styles of assessments for example, not all dots, triangles, circles, they should come up with something exciting and different.
- All respondents suggested updated norms.

Summary

Constructive comments were provided. There is much optimism as far as the creation of new and relevant tests are concerned.

4.3. INTERPRETATION OF RESULTS

From the results above, it seems that more than fifty percent of the respondents value psychometric tests as acceptable tools for recruitment and selection. However the applicability and use of psychometric tests, according to respondents is embedded in a range of cultural phenomena that must be considered when administering psychometric tests. Although useful, psychometric tests, they assert, should never be the sole criterion for selection into a job.

The concerns around the use of psychometric tests are related to language, validity, reliability, bias, and fairness issues. They feel that the use of psychometric tests in a generic sense may be very highly disruptive in an effort to obtain the job relevant characteristics of an individual.

Generally, respondents had thorough knowledge of the Employment Equity Act and its implications for psychometric testing in the workplace. When respondents were questioned on their understanding of the implications of the Act for testing, the answers they provided was concrete and in accordance with several considerations that have to be made following the Equity Act. This suggests awareness of the Employment Equity Act and its implications for psychometric testing.

With reference to the Apil B, all respondents felt that it is valid, reliable, and fairly applied. However there was a noticeable difference in opinion with regard to test bias. Six of the respondents felt that the Apil B is bias in a sense because of the following reasons:

Firstly, bias, they assert can never be completely minimised. The instructions for the Apil B are in English and therefore special care must be taken when administering it to second language English speakers.

The results also revealed that respondents feel more positively toward the new, updated psychometric tests. They feel that the new tests have attempted to eliminate some of the bias present in old tests. Although, there is still concern about the misuse of tests, specifically language based tests.

Fifteen respondents indicated that their feelings and opinions of psychometric tests was influenced by the promulgation of the Employment Equity Act. They felt that all practices have been reviewed as far as testing is concerned. They expressed greater confidence in terms of knowing which tests are inappropriate and which tests are relevant to specific jobs. This is supported by Human (1999) who asserts that tests used must have a clear and demonstrable relationship with the work behaviour they are intended to measure or predict and must apply equally to all races.

With regard to cultural fairness (Graph 4.7.) and the Apil B, with the exception of two, all respondents felt that the Apil B values cultural diversity in South Africa. The problem that featured however was the ethical use of the test which is ultimately the responsibility of the test administrator to ensure that the test is used in a non-discriminatory way. According to the Professional Board of Psychology, it is the responsibility of the test administrator to ensure that they know the limits of their own competence and do not operate outside those limits and keep abreast of the relevant changes and advances relating to the tests that they use as well as the changes in legislation which impact on tests and test use (De Villiers, Miller, Peverrett and Botha, 1998). It is obvious therefore that the test administrators in this study are aware of the legislation and its impact on psychometric testing. It is however the responsibility of each individual though to act in an ethical manner.

A significant point to note is that all respondents rated and view the Apil B positively because of its credibility in terms of validity, reliability, and relevance in a South African context (refer to Graph 4.8.). This signifies the paradigm shift in testing from a fixed, rigid process to a more developmental approach. It follows then that respondents are certainly supportive of Taylor's (1987) argument for a more dynamic model of cognitive competence as opposed to the static nature of conventional testing.

One particular problem that test administrators experience in using the Apil B is that it is too long. This often results in fatigue during the test. This could result in the scores of the test being affected and is therefore probably an aspect for consideration with regard to the Apil B.

A very important finding to consider is that although most of the respondents felt that psychometric tests should be used for identification of an individuals development areas, recruitment and selection and identification of learning potential, only three felt that they should be used for assessment of competence. Competence, they feel, should involve practical evaluation concerning on the job tasks. Fletcher (1994) argues that testing practices (day-to-day use of tests) as opposed to technical issues of test construction and validation tends to receive inadequate research attention not only in South Africa but internationally. The results suggests that the issue of assessing competence via the use of psychometric tests may be an imperative consideration when constructing tests.

4.3.1. Summary of Interpretation

Although it has emerged from the research that test administrators value psychometric tests as tools for recruitment and selection, they do have various concerns such as :

- is the process fair
- matching specific tests with specific jobs
- using a test as the 'be all and end all'
- the generic use of tests

The information gathered from the questionnaire analysis reveals that respondents are very optimistic about psychometric testing, following Employment Equity legislation. There are however concerns

over how psychometric tests are used. They assert that a psychometric test may be valid, reliable, and unbiased but the way in which the test results are used may be open to abuse Is also emerged, from the research that based on their theoretical and experiential knowledge, test administrators find that the Apil B is valid and reliable. They do however feel that the length of the test may be slightly problematic.

4.4. SUMMARY

This chapter has discussed the qualitative and quantitative results and provided an interpretation of both. Generally, it has been found that test administrators are very aware of the implications of the Employment Equity Act and its implications for psychometric testing. They are satisfied with these tests as tools for recruitment and selection purposes. Following the Act, they use psychometric tests with greater confidence. As far as the Apil B is concerned, it is evident that respondents regard it as valid, reliable, fair and relevant to a South African context.

From the results, it seems that respondents do have some concerns when using psychometric tests though. They have made some suggestions for the improvement of tests in the hope that the constructors of psychometric tests will acknowledge these suggestions in the future.

The results in this chapter have been evaluated and recommendations are made in the following chapter.

CHAPTER FIVE

RECOMMENDATIONS AND CONCLUSIONS

5.1. INTRODUCTION

This research was undertaken in an attempt to investigate the attitudes, opinions, and feelings of test administrators toward psychometric tests following the Employment Equity legislation on South Africa, especially with regard to the Apil B. From the data collected, it can be deduced that respondents feel much more confident about the use of psychometric testing following the Equity legislation. With regard to the Apil B, the results reveal that respondents feel that the test is valid, reliable, and culturally fair. From this research data, the following recommendations are made and thereafter discussed.

5.2. RECOMMENDATIONS

5.2.1. Learning Potential Tests

According to Taylor(1987), traditional approaches to assessing individual differences view man's psychological makeup as essentially static. They depend on stability and lack of change in order to be effective. In both the cognitive domain (where "ability" is the main concept) and in the personality domain (where "trait" is the equivalent concept) it is assumed that the individual being assessed has reached a stage of relative invariance. Abilities and traits are seen as compact summaries of the individual which can be used to predict performance on a number of real life activities (Taylor, 1987).

In South Africa, with its diversity of cultural backgrounds and its widely varying quality of education, this asymptomatic assumption is unwarranted in many instances. An alternative approach is required. One of the most promising changes in testing concentrates on the change variable of learning (Taylor, 1987). The static models of psychometrics has reached a point of maturity.

This can be realised in the form of testing that the Apil B has undertaken. In the opinions of the test administrators, the test can be used quite successfully to assess learning potential.

Learning potential tests can be used for all types of work which have components that are cognitively demanding. According to Taylor (1997) despite their generic nature learning potential tests have shown good validity when predicting specific learning and job competence criteria.

Learning potential tests address the shortcomings of conventional testing procedures and serve as useful tools in the process of reconstruction and development. Tests of learning potential are designed to determine whether a person, when given learning opportunities, likely to use these well, to master new competencies (Taylor, 1997).

In relation to this research, the Apil B was investigated in detail as a test of learning potential. Based on their theoretical and experiential knowledge, the respondents felt that the Apil B is valid, reliable, and fairly applied. They feel highly confident about the use of similar tests, following the stipulations in the Employment Equity Act.

It is therefore recommended that the Apil B be used in organisations to assess individuals learning potential. Such a test would certainly not be discriminatory towards any individual. It appears that this test is able to meet all of the Equity requirements.

5.2.2 Culture-Reduced Tests

A major measurement problem arises where it is necessary to compare performance in groups differing in culture, that is, they do not share a common language, cosmology, way of life, differ in child rearing practices, in basic educational background and in exposure to the requirements of contemporary technological society. Culture-free tests do not exist, because the behavioural functions measured by the tests are all culturally determined (Biesheuvel, 1969).

In order to meet the problem of finding a medium through which adaptability can be validly measured cross-culturally, psychologists and researchers have come up with 'culture fair' tests; by which is meant tests which avoid the more obviously culture-bound features, such as emphasis on speed performance, pictures presenting objects or situations that lack universality, or even familiarity with the conventions of pictorial representation (Biesheuvel, 1969).

The problem with the term culture fair is that there is often disagreement regarding the "fairness" of specific items for members of different cultures and subcultures, and the test developer may not be the best judge of what is fair. Rather then labelling a test as culture fair or culture free it is more productive to locate the test on a continuum that ranges from heavily "culture-loaded" or highly "culture-reduced". A culture-loaded test is one that deals with objects, situation, and beliefs peculiar to one particular culture or subculture. A culture-reduced test is one that deals with objects, information, and symbols that are universal, in the sense that members of any culture or subculture being tested would have equal familiarity and experience with the content and demands of the test items (Gregory, 1996).

With regard to the Apil B, it is evident from the research, that there are no problems as far as using this test on individuals from different cultural backgrounds is concerned. It is therefore recommended that the Apil B is used in organisations, as a test that does not discriminate against any particular culture or subculture.

5.2.3. Standards in Testing

" The proliferation of tests and the technical nature of test development and evaluation are such that test users and consumers need all the guidance they can get from the experts and standard makers" (Azar, 1999:1). According to Azar (1999) new testing standards will encourage test users and developers to re-evaluate how they administer and design tests. This should increase the accountability of test developers and administrators and encourage them to adhere more closely those standards that apply to them.

The Psychological Assessment Initiative has drawn up a code of Practice for psychological assessment for the workplace in South Africa. In light of the findings of this research, it is evident that respondents still feel that there needs to be greater control over the distribution and use of psychometric tests. It is therefore recommended that organisations adopt an explicit policy on psychological assessment consistent with this Code (Taylor, 1995).

5.2.4. Issues of Bias and Fairness

Issues of bias and fairness are of particular importance in the socio-political and business environment of South Africa and therefore demand special attention from assessment practitioners. Therefore, the following recommendations are made:

- Administrators or assessment practitioners should ensure that assessment methods are not used with people with whom the method is not appropriate.
- They should be aware of the impact on assessment of cultural, linguistic, and aspects of disadvantage.
- Wherever possible, the potential impact of bias should be reduced by using a range of methods that vary in terms of constructs, format, and time pressure.
- In order to meet the requirements of the Equity Act in terms of fairness, organisations should draw on models of fairness in the Guidelines for Validation (by the Psychological Assessment Initiative) and input from stakeholders to inform their assessment policy, and in particular, specify the agreed procedure for achieving fairness in assessment.

5.2.5. Competency Models

According to Weightman (1994:2) "competencies underlie the behaviours thought necessary to achieve a desired outcome". A competency is something you can demonstrate, for example, change gears while driving a car or use a word processor to type a letter - where it is clear when the behaviour is successful. A list of competencies for a particular job can be drawn up, by analysing and describing the behaviours and associated activities necessary to do specific aspects of that job.

Once this list is drafted, an appropriate assessment procedure needs to be devised so that individuals can be assessed against the list for recruitment, selection, training, and development purposes (Weightman, 1994).

In relation to the research, test administrators were not completely satisfied with using current competency-based assessments. The building of competency models, which would in effect require further research is therefore recommended.

5.2.6. Co-measures

Psychometric testing has always been subjected to much stigmatisation and scrutiny in the public eye. In order to retain the advantages of objective testing and simultaneously reduce the resistance of the public, it may be useful to use other valid and reliable measures, in addition to psychometric tests. Some of the suggested measures are:

5.2.6.1. Provisions of Learning Periods Prior to the Job

Learning periods may be provided to individuals before actually starting the job. Reichel (1993) suggests that Programmed Instruction is a newer technique of allowing individuals a chance to learn rote or new material. The three main characteristics are:

- Participants are active in the learning process,
- the material to be learned is broken up into many discrete pieces and participants get immediate feedback on whether they have learned each piece, and
- the material is divided into an organised sequence.

The disadvantage of such a programme is that it is time consuming to develop and the stability of a structured task must be considered before developing a Programmed Instruction programme. The advantage however is that learners are active in the process of learning, they set their own learning pace and receive immediate feedback.

5.2.6.2. Work Samples

Work samples are a relatively new and exciting approach to personnel selection. It involves the creation of a "miniature criterion" for prediction of job success. The contents of are job a compressed into a manageable time period, applicants are then required to demonstrate their ability to perform the replica of the job. The limitation is that they work primarily in blue collar jobs that involve mechanical trades (Muchinsky, 1990). They do not work when the job involves working with people as opposed to objects. Robertson and Kandola (cited in Dipboye, Smith and Howell, 1994) assert that when using content validation strategies, an evaluation should be made of whether the tasks included in the work sample are representative of important or critical tasks in the job.

It is therefore recommended that proper validation studies be done, prior to the design of a work sample test. Since work samples assess what a person can do and not potential, it would be useful to use in conjunction with a test of learning potential.

5.2.6.3. Assessment Centers

Assessment centers involve appraising multiple dimensions of performance using several methods and raters. It is a group oriented, standardised series of activities that provides a basis for judgements or predictions of human behaviours believed or known to be relevant to work performed in an organisational setting (Muchinsky, 1990). It would be useful to use assessment centers in conjunction with tests as a co-measure. This would assist in providing an all round assessment of the individual.

The above mentioned recommendations are the views of the researcher and are only suggestions in this regard.

5.3. CONCLUSIONS

In view of the aforementioned, it is concluded that:

- The Apil B is both a valid and reliable measure and it meets the requirements of the Employment Equity Act in terms of its implications for psychological testing.
- The Apil B should therefore be used in culturally diverse organisations to measure learning potential.
- It is evident that the test administrators in this study feel that the Employment Equity Act has set some parameters or guidelines with regard to fair testing practices. They therefore use psychometric tests now with greater confidence.

With all the recent uncertainty around the future of psychometric testing following Employment Equity legislation, the Apil B seems to be pioneering the way forward and breeding a new 'testing culture'. This test most certainly has value in the culturally diverse context of South Africa .

It is crucial at this stage to develop more tests that meet the requirements of the Employment Equity Act. The researcher would recommend that further research be conducted to aid in the construction of new culture-fair tests.

5.4. SUMMARY

This chapter has outlined recommendations that are made by the researcher based on the results of the research data. The overall conclusions that the researcher has derived from the research has also been stated.

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APPENDIX A

UNIVERSITY OF NATAL

QUESTIONNAIRE

Research to be conducted by: Michelle Doosi (Master of Social Science)

This research relates directly to the feelings of test administrators toward psychometric tests utilised in a South African context following the stipulations in the recently promulgated Employment Equity Act.

The recently established Employment Equity Act has cast a huge shadow over the issue of psychometric testing in South Africa. In essence the Act aims directly for the construction of tests that value diversity in this country. The daunting challenge that faces test constructors in South Africa is to produce 'culturally fair' tests with a stronger developmental focus. Such 'culturally fair' tests are now available for use in South Africa. It is therefore, in principle, the aim of this research to highlight the feelings of test administrators towards these new tests that are said to be 'culturally fair' and relevant in the context of cultural diversity. Specific reference is made to the Apil B.

Your participation on this research is greatly appreciated.

Please tick the appropriate response when required to and thereafter briefly explain your choice.

1 What is your understanding of a psychometric test?

Please give a detailed description.

2. Do you feel that psychometric tests are acceptable tools for recruitment and selection purposes?

Yes ☐ No ☐

Why?

3. Are there any concerns that you have when using psychometric tests for selecting employees?

Yes ☐ No ☐

Briefly Explain.

4. What is your understanding of the Employment Equity Act and its implications for psychometric testing?

5. The Employment Equity Act states that "psychological testing and other similar assessments are prohibited unless the test or assessment being used :- a) has been scientifically shown to be **valid and reliable** b) can be **fairly** applied to all employees and c) is not biased against any employee or group".

5.1. What is your understanding of the term **valid and reliable**?

5.1.1. Do you think that the Apil B is valid and reliable?

Yes ☐ No ☐

Why?

5.2. What do you understand by the term **fairly applied**?

5.2.1. Do you think that the Apil B is fairly applied?

Yes ☐ No ☐

Why?

5.3. What is your understanding of the term **test bias?**

5.3.1. Do you think that the Apil B is biased in any way?

Yes ☐ No ☐

Why?

6. Is the feelings (above) different from feelings associated with "old" psychometric tests (ie. those tests utilised before the Employment Equity Act)?

7. Has the new Employment Equity legislation influenced your attitude towards the use of psychometric testing?

Yes □ No □

Why?

8. What is your understanding of the "fairness" of the Apil B?

9. Can you suggest ideas that would render a psychometric test as "fair"?

10. What is your understanding of a "**culture fair**" psychometric test in South Africa?

11. Do you think that the Apil B values cultural fairness/diversity in this country?

Yes □ No □

Why?

12. How would you rate the Apil B as a culture fair test?

Poor ☐
Fair ☐
Good ☐
Very Good ☐
Excellent ☐

Why? _____

_____

_____

_____

_____

_____

_____

13. Drawing on your experience with administering this test, are there any problems that you or testees experience with taking this test?

Tester: _____

_____

_____

_____

Testee: _____

_____

_____

_____

14 Do you think that psychometric tests have much value for selecting and placing employees?

Yes ☐ No ☐

Why? _____

_____

_____

_____

15. Would you prefer a psychometric test to be used for :
(more than one response is permitted)

Identification of an individuals development areas	❑
Recruitment and selection	❑
Identification of an individuals potential	❑
Assessment of competence	❑

Why?_____

_____

_____

_____

_____

_____

_____

16. Do you think that there are other means (besides psychometric testing) of assessing an individuals competence, potential, development areas?

Yes ❑ No ❑

If yes, can you suggest any?

_____

_____

_____

_____

_____

_____

_____

17. Can you suggest possible areas that test constructors should focus on when constructing relevant and "culturally fair" psychometric tests in South Africa"?

Thank you for your co-operation.