THE INFLUENCE OF CULTURE AND LANGUAGE IN COGNITIVE ASSESSMENT: IMPLICATIONS FOR LEARNER PLACEMENT AND SCHOOLING

PHINDILE EUNICE ZULU

Supervisor:

Dr PHINDILE L. MAYABA

A thesis submitted in partial fulfilment of requirements for the degree of Master of Social Science in Research Psychology in the Discipline of Psychology, School of Applied Human Sciences, University of KwaZulu-Natal, Pietermaritzburg

2019

DECLARATION

Thesis submitted in partial fulfilment of the requirements for the degree of Master of Social Science (Research Psychology) in the School of Applied Human Sciences, Discipline of Psychology, College of Humanities, University of KwaZulu-Natal.

I, *Phindile Eunice Zulu,* declare that:

- The research reported in this thesis, except where otherwise indicated, is my original research.
- This thesis has not been submitted for any degree or examination at any other university.
- This thesis does not contain other person's data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
- Their words have been re-written, but the general information attributed to them has been referenced.
- Where their exact words have been used, their writing has been placed in italics and inside quotation marks, and then referenced.
- This thesis does not contain text, graphics or tables copied and pasted from the internet, unless specifically acknowledged, and the source being detailed in the thesis and in the References section.

_____

Phindile Eunice Zulu

August 2019

_____

Supervisor: Dr. Phindile L. Mayaba

ACKNOWLEDGEMENTS

ABSTRACT

The implementation of inclusive education in South Africa has led to an increased number of learners that are alternatively placed in special schools. The purpose of this study was to explore the influence of culture and language in cognitive assessment of learners; and how assessment practitioners accommodate such influence when making learner placement recommendations. The results of this study should contribute to the research in the area of cognitive assessment of learners in South Africa; and assist assessment practitioners when making educational decisions about learner placement. A semi-structured individual interview was conducted with six black psychologists in Pietermaritzburg. The results of this study show that culture and language influence the test performance of learners whose mother tongue is not the language of the assessment instrument. Although assessment practitioners put effort in accommodating such influence by sing cognitive assessment results with other sources of evidence, some learners are incorrectly placed in special schools. This study reveals a need for locally created new cognitive assessments.

Keywords

Cognitive assessment; learners; culture; language; placement

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Motivation for the study

South Africa, like many other developing countries, is composed of a culturally diverse population (Statistics SA, 2013). As a developing country, South Africa is facing a shortage of resources, including academic and professional knowledge in many fields in general and psychometrics in specific (Foxcroft, 2004). As a result, the country relies on psychological assessment instruments from other countries, mainly Western countries (Tredoux, 2005; Sternberg, 2012; Wasserman, 2012). According to Foxcroft, Paterson, Roux and Herbst (2004); Paterson and Uys (2005), much has been done to adapt measures that were created from other countries; to meet South Africa's diverse population. The primary purpose of cognitive assessment is to make decisions about the eligibility, exceptionality and educational decisions about learners (Goh, 2013). The assessment results are used in the process of report writing and eligibility decisions for special educational services. There is a noticeable increase use of psychological tests in South Africa; however, there is shortage of research regarding the effects of ethnic and linguistic diversity in cognitive assessment (Foxcroft & Roodt, 2007; Dhladhla & de Kock, 2008; Jukes & Grigorenko, 2010).

1.1.1 Historical Background of psychological testing in South Africa

Psychological testing in South Africa was developed in an era where the socio-political background of the country was inclined to unfair practices informed by racial discrimination (HPCSA, 2017; Setshedi, 2009). Subsequently, psychological testing became an instrument to propagate such racial discrimination and social imbalance (HPCSA, 2017; JvR Africa Group, 2015). Amod and Seabi (2012) also agreed that the historical background of psychological testing in South Africa cannot be divorced from the racial policies of apartheid. They explained that psychological tests such South African Personality Inventory have been standardized. According to this testing background prior to the first democratic elections in South Africa in 1994, tests were used to further advance the objectives of apartheid by concluding that black people are intellectually inferior; to validate the mistreatment of black labour and to deny them

admission to quality education (Amod, 2012; Amod & Seabi, 2012; Laher & Cockcroft, 2014; and Setshedi, 2009).

The 1994 elections steered in a first democratic government in South Africa; which signified the official end of apartheid (HPCSA, 2017; and Laher & Cockcroft, 2012). It also changed the landscape of the context in which psychological assessment is used as the field of psychology witnessed a transition to a democratic South Africa (Laher & Cockcroft, 2014). Unlike in the past during apartheid, the purpose of assessment is to ensure that those learners who do not benefit from mainstream education have access to special school education. Amod (2012) and Greenop and Fry (2012) argued that there is still a need to look for more equitable assessment procedures; and that the assessment practices should be linked with intervention. In that way, the ethical use of psychological tests is attainable. Education White Paper 6 (2001) and Curriculum (2005) gave an indication that the ethical practice in psychological assessment is probable (Amod & Heafield, 2012; Laher & Cockcroft, 2014; and Setshedi, 2009). Therefore, it is critical to determine if the field of psychological assessment has managed to address these issues of bias in psychological assessment and jettisoned discriminatory practices (Subjee, 2017).

1.2 Statement of the problem

According to literature review there have been few studies conducted in South Africa to examine the influence of language and culture in cognitive assessment (Dhladhla & de Kock, 2008; Donald et al., 2014 and Setshedi, 2009). This is critical since South Africa is one of more cultural and linguistic diverse countries. Nell (2000) and Bartram (2004) called for more cross-cultural studies to be undertaken in South African context. Laher (2014), like Donald et al. (2014) suggested future development of psychological assessment in South Africa. There is a need for assessment practitioners in black languages to contribute to the field of cognitive assessment. This can be done by writing tests that accommodate the black culture and languages in South Africa. The focus on special needs education leads to early intervention and identification of learners who require special education. Cognitive assessment has an important role to play in the development of education. The cognitive assessments form part of tools used to decide on learner placement in special schools. The South African local linguistic context

was greatly influenced by the political history of the country. That led to the marginalization of all indigenous languages with an exception of English and Afrikaans (Foxcroft, 2004). The use of intelligence scores when making critical and life changing educational decisions regarding learner placement in a type of school and or educational programs should be applied cautiously. It justifies the need for practitioners to examine the possible test bias in both new and revised cognitive tests.

1.3 Objectives of the study

The aims of this study are:

- To explore psychologists' encounters regarding linguistic and cultural factors in cognitive assessment.
- To establish how the assessment practitioners' perceived role and scope of cognitive assessment shape the influence of language and culture regarding learner placement in special schools.
- To explore how assessment practitioners in Pietermaritzburg compensate the influence of language and culture in cognitive assessment.

1.4 Research questions

The research questions are:

- What are the assessment practitioners' encounters regarding linguistic and cultural factors in cognitive assessment?
- What is the role and scope of cognitive tests in learner placement in special education?
- How do assessment practitioners in Pietermaritzburg deal with the influence of language and culture in cognitive assessment?

1.5 Methodology
1.5.1 Research design

For the purposes of this study, a qualitative interpretive research design was used. The interpretive research is designed to reveal a target audience's range of behaviour and the perception that drives it with reference to the specific topic (Creswell, 2009; Maree, 2012). While quantitative research relies on numbers, qualitative research focuses on how people feel,

what they think and the reasons for such thoughts and feelings (Maree, 2012). According to Anderson (2010) qualitative research recognizes the importance of context in which behaviour occurs and that issues can be examined in detail and in-depth. It produces in-depth data since the data is based on human experience that is obtained (Anderson, 2010). The qualitative research design is appropriate for this study because this study seeks to understand the personal experiences of the study participants.

1.5.2 Sampling method

Purposive sampling was used to select psychologists who have been practicing as registered psychologists for at least five years to take advantage of the professional experience in the field of cognitive assessment. No specific categories of registration were specified. At least two White psychologists, two Black African psychologist, two Indian psychologists and two Coloured were targeted with an aim of gaining data from a multi-cultural perspective and to explore experiences as expressed by different participants from diverse cultural backgrounds.

1.5.3 Data collection

The semi-structured interview was used as a method of data collection. A semi-structured interview is an in-depth interview. The interview schedule was compiled prior to the interviews and used to collect data from the respondents.

1.5.4 Method of data analysis

Thematic analysis was used, which is the categorization of verbal or behavioural data for purposes of classification, summarization and tabulation, to make sense of data collected. Thematic analysis measures the semantic content of the message, and such communication content was categorized and classified. Data collected was transcribed from interview notes and tape recordings. The transcribed data was organized into categories, using key research questions and followed by the analysis of specific statements and themes, and a search for all possible meanings in order to understand the experiences of psychologists in KwaZulu-Natal regarding cognitive assessment.

1.6 Definition of terms

1.6.1 Language

Language is the way of social communication, either spoken or written; encompassing the use of words in an organized and expectable manner (Aloni, Kimmelman & Roelofsen, 2012; Pinker, 2007; Webster, 2017).

1.6.2 Culture

Culture is the characteristics and knowledge of a particular group of people; encompassing language, social habits, music and arts (Allan, 2011; Franklin, 2017; Li, Vasquez-Nuttal, Dynda, & Phoenix, 2007; Ortiz & Dynda, 2005); and culture is the extent to which a test demands specific knowledge or experience within the dominant culture

1.6.3 Cognitive assessment

Cognitive assessment is a psychological assessment which measures how a person understands the world and acts in it (Allan, 2011; Cormier, McGrew & Ysseldyke, 2014; Gauvein & Muroe, 2012; Li et al, 2007).

1.6.4 Intelligence

Intelligence is a level of one's adjustment to his or her environment and comprises of the level of ability to make appropriate decisions, communicate in a socially accepted manner and comprehend the general rules prevailing in his or her total environment (Bundy, 2002; and Neisser et al., 1996).

1.7 Value of the study

It is envisaged that the results of this study contribute to the body of knowledge in the field of psychology, specifically psychometrics, by giving some light on the framework of cognitive testing in South Africa, particularly in KwaZulu-Natal. The practitioners in the sample are expected to be able to scrutinize and critically respond to the process of learner placement in special schools as resource centers. The researcher anticipates that due to the findings of this study both practitioners and researchers are in a position to adopt a rather more critical perspective regarding cognitive assessment for a South African learner. There may be a need

for institutions to modify and expand their training programs to not only train test users, i.e., psychometrists and psychologists, but also test developers;

1.8 The structure of the thesis

This chapter has set the context for the study. In chapter 2, literature relevant to the study is reviewed to give insight into the influence of language and culture in cognitive assessment of children for the purpose of making a decision about alternative schooling. In chapter 3, a discussion of method used in data collection is described. In chapter 4, data collected is presented and analyzed. In chapter 5, conclusions drawn per research question; implication for theory, policy and practice; limitations of the study; and recommendations for future research are presented.

1.9 Conclusion

Chapter 1 provided motivation for the current study; the problem statement; research questions and methodology. In the following chapter critical literature review, a discussion of literature relevant to the influence of language and culture in cognitive assessment is presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter explores the literature regarding the impact of culture and language in cognitive assessment with reference to learner placement and schooling in KwaZulu-Natal. South Africa is one of the countries that use cognitive measures to evaluate the cognitive ability of learners that have been identified by educators and parents as having learning problems. The purpose of cognitive assessment is to establish the level of cognitive ability with an aim to place learners in appropriate educational programs. It is of critical importance to ascertain that the assessment results, interpretation and recommendations for placement are appropriate to avoid misdiagnosis and inappropriate placements; which may cause damage to a child's academic and career life.

2.2 Theoretical framework

Vygotsky's socio-cultural theory

Vygotsky socio-cultural theory forms basis for this study. Feldman (1994) explained that Vygotsky put more emphasis on culture as affecting cognitive development and rejected universality of development. Vygotsky's theory emphasizes the fundamental role of social interaction in the development of cognition (Brow & Ferrara, 1999 and Pellegrino et al., 1999). Vygotsky's argument is based on the notion that individual cognitive development cannot be understood without reference to the social and cultural context within which it is embedded (Holzman, 2008; Newman & Holzman, 2013). Lantolf (2000,p.79) expounded that "Socio-cultural theory holds that specifically human form of mental activity arise in the interactions we enter into with other members of our culture and with the specific experiences we have with the artifacts produced by our ancestors and by our contemporaries. Rather than dichotomizing the mental and the social, the theory insists on a seamless and dialectic relationship between these two domains. In other words, not only does our mental activity

determine the nature of our social world, but this world of human relationships and artifacts also determine to a large extent how we regulate our mental processes". Kastanakis & Voyer (2014) argued that the social, cultural and neurocognitive realms be integrated into one unit of analysis. She insisted that they are of equal importance in determining individual's thought, emotions and actions.

McLeod (2014) and Driscoll (2000) argued that Vygotsky assumes that cognitive development varies across cultures, and therefore the environment in which children grow up will influence how they think and what they think about. McLeod (2014) further explained that for Vygotsky, the role of language is fundamental for cognitive development, and adults use language to transmit their culture's tools of intellectual adaptation that children internalize. The tools of intellectual adaptation vary from culture to culture, as a result, the cognitive development differs from culture to culture (McLeod, 2014).

For Vygotsky, language is a powerful tool of intellectual adaptation (McLeod, 2014). It is, therefore, fundamentally important to adopt a critical approach in cognitive assessment. Kastanakis & Voyer (2014) urged that the social, cultural and neurocognitive realms be integrated into one unit of analysis. She insisted that they are of equal importance in determining individual's thought, emotions and actions. In her argument, Taruk (2008) explained that knowledge comes about through transmission of factual information that consensually validated physical characteristics, and the subject's self-referring or subjective information such as culturally determined social roles, beliefs and values. Dyer (2007) agreed with Kastanakis & Voyer (2014) that there is a need for multi-level analysis to the interpretation of cognitive test results of the group whose native language is not English.

According to literature review there have been few studies conducted in South Africa to examine the influence of language and culture in cognitive assessment (Dhladhla & de Kock, 2008; Donald et al., 2014 and Setshedi, 2009). This is critical since South Africa is one of more cultural and linguistic diverse countries. Nell (2000) and Bartram (2004) called for more cross-cultural studies to be undertaken in South African context. Laher (2014), like Donald et al. (2014) suggested future development of psychological assessment in South Africa. There is

also a need for assessment practitioners in black languages to contribute to the field of cognitive assessment by writing tests that accommodate the black culture and languages in South Africa.

2.3 Background on cognitive assessment

Cognition refers to how a person understands the world and acts in it (Gauvein & Muroe, 2012; Michelon, 2006; Ortiz & Dynda, 2005; Berry, Poortinga et al., 2011; Li, Vasquez-Natal et al., 2016). The cognitive skills are brain-based skills that humans need to perform tasks from the simply to the most difficult (Benson, 2003; Dyer, 2007; Michelon, 2006; Neisser et al., 1996). The construction of reality is influenced by what a person knows. Therefore, these brain-based skills are developed within a particular cultural context (Kastanakis & Voyer, 2014; Jukes & Grigorenko, 2010; Mushquash & Bova, 2007; Nisbett et al., 2001; Van de Vijver and Rothmans, 2004). They have more to do with the mechanisms of how persons learn, remember and solve problems (Driscoll, 2000; Dyer, 2007; Michelon, 2006; Schwartz, 2016; Swart and Drennan, 2000); rather than with any actual knowledge. The cognitive abilities are influenced by a unique cultural context (Cormier et al., 2014; Gauvein & Muroe, 2012; Goncu & Gauvein, 2012; Kastanakis & Voyer, 2014; Li et al., 2007; Reynolds & Suzuki, 2013; Stolk, 2009; Vasquez-Natal et al, 2016; Vrbova, 2006). Examples of cognitive abilities include perception, decision-making, motor-skill, language skills and social skills (Jukes & Grigorenko, 2010; Kastanakis & Voyer, 2014; Michelon, 2006; Owen, 1991).

Inappropriate development of cognitive skills hinder a person's academic performance (Feidman, 1994; Gauvein and Munroe, 2012); hence alternative placement is required that will accommodate a person's level of cognitive development (Michelon, 2006; Mushquash and Bova, 2007). Such alternative placements decisions rely on cognitive assessment results in addition to other sources; such as educators, caregivers and other health professionals (Allan, 2011; Dhladhla & De Cock, 2008; Laher & Cockcroft, 2014; Greenop et al., 2012; Mpofu & Ortiz, 2009; Owen, 1998; Maguvhe, 2013). To avoid harm in a person's academic life, assessment of cognitive abilities needs to be done in a way that will maximally benefit that person (Allan, 2011; Dhladhla & De Cock, 2008; Laher & Cockcroft, 2014; Mpofu & Ortiz, 2009). Assessments need to be free of bias and misjudgment (Burridge, 2009; Classen, 1997;

Donald et al., 2014; Foxcroft & Roodt, 2013; Heine & Buchtel, 2009; Malda, van de Vijver, Srinavasan, Transler, Sukumar & Rao, 2008). A full understanding of and proper consideration for culturally and linguistic influence in cognitive assessment is vital to ensure appropriate and effective intervention and placement of learners in educational programmes (Mpofu & Ortiz, 2009; Owen, 1998; Maguvhe, 2013; Stolk, 2009). To be able to predict one's cognitive ability; one needs to acknowledge and take into account one's total environment, including the cultural context (Allan, 2011; Amod & Seabi, 2002; Amod, 2012; Benson, 2003; Burridge, 2009; Classen, 1997; Donald et al, 2014; Foxcroft & Roodt, 2013; Heine & Buchtel, 2009; Malda et al, 2008; Shuttleworth-Edwards et al., 2004; Stolk, 2009; Walker, Batchelor, & Shores, 2009; Walker, Batchelor, Shores & Jones, 2010). Therefore, standardization of cognitive measures needs to consider the established aspects of that particular culture. There is a need to develop new intelligent tests which are culture sensitive (Benson, 2003; Foxcroft, 2004; Paterson and Uys, 2005; Tredoux et al., 2005).

2.4 International perspectives on culture and language

The influence of culture and language in cognitive assessment has been investigated by researchers (Goh, 2013, Jukes & Grigorenko, 2010; Mushquash and Bova, 2007 and Reynolds & Suzuki, 2003); and found that culture and language influence cognitive assessment performance. The problem of linguistic and cultural bias in cognitive tests was identified when Binet's first intelligence scale was published in early 1900 (Reynolds & Suzuki, 2003; Jukes & Grigorenko, 2010 and Goh, 2013). Investigating the issues of cross-cultural assessment and measurement, Berry et al. (1992) and Mushquash and Bova (2007) agreed that culture could have a significant impact on test performance of individuals from the cultural group that is not the same as the one within which the test was designed and standardized. Nisbett et al. (2001) and Nisbett and Novanzayan (2002) conclude, from their experiments, that culture affects cognitive processes indirectly by focusing attention in different parts of the environment, and, directly, by making some kinds of communication patterns more acceptable than others. The variations in communication are taught to children as they grow-up. Communication, decision-making and perception, as cognitive skills and part of cognitive ability, are influenced by what culture has taught individuals. They argue that adults automatically interpret children's actions and expressions within the meaning system of their culture and that a child gradually masters

an action that is qualified within cultural meaning, and Benson (2003) recommends that new intelligent tests that are cultural sensitive should be developed.

Stolk (2009) also expounded on the multi-level interpretation of cognitive test results by insisting that all psychological assessments occur in a cultural context, and that when the applicant being assessed is someone of non-English origin or background, several contextual areas, both recent and historic, require close consideration.

Cormier, McGrew and Ysseldyke (2014) found that the results of their study supported the re-classification of cognitive tests to be appropriately used to non-English students. In line with Cormier et al. (2014), Milligan (2015) found that if culturally appropriate screening tools are provided in screening of cognitive impairment in diverse population, chances of misdiagnosis and under-diagnosis are potentially decreased.

Schwartz (2016) emphasized that the way we learn and think is basically a function of the social and cultural environment in which we are reared. Schwartz (2016) argued that cognitive development is inseparable from culture and that children's intellectual processes are developed to handle tasks and problems important to the particular surrounding. Schwartz (2016) further referred to Vygotsky's dual nature of cognitive development by explaining that cognition develops both socially and psychologically.

2.5 International perspective on cognitive assessment

Carstairs et al. (2006) suggested that people who do not have an English-speaking background and who first spoke a language other than English should not be only judged according to the results of cognitive assessment. They argued that individuals who are not the native speakers of the language of tests and testing are disadvantaged in cognitive tests because of the lack of proficiency in that language (which is mostly English). In their study, Bialystok et al. (2009) concluded that whether bilinguals show an advantage or a disadvantage relative to monolinguals depends on tasks characteristics. It has been revealed that bilingual children have experienced more difficulty with retrieval during picture naming than the monolingual counterparts (De Picciotto & Friendland, 2001 and Tare & Gelman, 2010). This is evidence

that individuals have their specific language of thought. Thinking in a language which is secondary to your primary language of communication pose some restrictions to one's thinking. This thinking restriction in turn influences one's cognitive assessment score. This finding rules out the possibility of thinking that a Black African child that is bilingual (English and indigenous language) can perform better by breaking the language boundary. In other words Tare and Gelman (2010) found that bilinguals are as disadvantaged as monolinguals in undertaking assessment in foreign language. This suggests a strong relationship between culture and language in cognitive assessment.

Taruk (2008) suggested that cognitive assessment results should not be the only determinant of a person's cognitive ability. Taruk (2008) argued that the integration of sources of data, including family interview, teacher's report and any other assessment done by other practitioners should be considered when interpreting cognitive ability test results. She emphasized the importance of integration of sources of data especially with reference to those individuals that are not of European origin. The aim is to rule out the possible cultural and linguistic factors that can influence the interpretation of assessment results and mislead practitioners in decision-making about the intervention. Taruk (2008) expounded that cultural factors have a determining influence on an individual's behaviour regardless of the neuropsychological status of the brain. She asserted that cognition is culturally embedded; meaning that person's cognition cannot be isolated from the culture that nurtured it. What is normal in one culture can be associated with abnormality in other cultures. In general, Taruk (2008) suggested the increase in the knowledge base of, and to provide the appropriate tools for non-English neuropsychologists in order to enable them to carry out cultural competent and clinically relevant neuropsychological evaluations. As a conclusion, Taruk (2008) argued that when assessing cognition one cannot divorce the linguistic and cultural determinants of cognitive ability. So there is a concern of how do assessment practitioners acknowledge the linguistic and cultural determinants of cognition in cognitive assessment, both during assessment and in interpretation of results and making conclusions about a client's cognitive functioning.

2.6 The history of culture and language in South Africa

It is noteworthy that in South Africa, Black Africans constitute the majority of the population, however, in terms of language use; they are classified as the minority group (StatisticsSA, 2013). This is due to the fact that English is a dominant language with all other languages less used although they are also official languages. . Foxcroft & Roodt (2013) explained that psychological assessment in South Africa developed in an environment characterized by the unequal distribution of resources which was based on racial categories. Foxcroft and Roodt (2007) also asserted that testing in South Africa cannot be divorced from the political, economic and social history of the country. Bethlehem et al. (2003) found that norms for verbal fluency for South African bilingual Zulu-English speakers are different to those cited in other countries; for example, J-SAIS. They therefore, expressed an urgent need to get local norms for appropriate measurement of the clinical population.

As the international studies reveal, there is an increasing rate of learners that are placed in special education; and South Africa is not an exception. The recent recapitalization and addition of special schools as resource centers is evident to this (Maguvhe, 2013). The placement of learners in special, vocational or remedial school is a long-term decision that can ruin a learners' life if not based on valid assessment. Reynolds & Suzuki (2013) expressed concerns regarding the long-term consequences that may occur when mean tests results differ from one ethnic group to another. Among the critical concerns is that psychiatric clients may be misdiagnosed, learners disproportionately placed in special schools or classes, applicants unfairly denied employment or college admission because of purported bias in standardized tests. Therefore, there is an apparent need for accurate measurement to make accurate diagnosis. The psychologists and psychometrists are faced with the challenge to recognize that most of the cognitive assessment tools may not measure learners' intellectual ability appropriately due to linguistic and cultural bias (Van de Vijver & Tanzer, 1997; Van de Vijver & Leung, 2011; Goh, 2013).

The earliest psychological measures were standardized for white population only (Foxcroft & Roodt, 2013). According to Foxcroft and Roodt (2013), these tests were used by the Department of Education to place white pupils in special schools; as white pupils with special

educational needs were the only beneficiaries of special education. According to Foxcroft and Roodt (2013) measures of intellectual ability were used in research studies in order to make distinctions between races with an aim of showing the superiority of one group to another. Mushquash and Bova (2007) agreed that measurement instruments are often used with cultural groups for which proper normative or psychometric research was not conducted. Many assessment tools originated in the countries of Europe and North America (Hambleton, 1994; Van de Vijver & Phalet, 2004 and Goh, 2003). There is a challenge in South Africa because of a wider variety of languages (Van de Vijver & Rothmans, 2004; Foxcroft & Roodt, 2007 and Goh, 2013).

On considering the ethnic group to which testees belong, previous research studies suggest that assessment batteries could focus on cognitive tests which are less sensitive to levels of education and residence (Walker et al., 2009; Walker, Bachelor et al., 2010; Goh, 2013; Jukes & Grigorenko, 2010; and Reynolds & Suzuki, 2003). This would assist in reducing misdiagnosis due to unconsidered cultural and linguistic factors. Reynolds and Suzuki (2003) pointed out to vigorous examination of possible test bias and accuracy as mean to compensate cultural barriers to cognitive testing. In overall, researchers agree that the first step towards the application of fair and appropriate assessment is to recognize the impact of culture and language prior to administering cognitive assessment (Goh, 2013).

2.7 Culture, language and cognitive assessment in South Africa: Context of assessment in South Africa

In South Africa, although the majority of the population is Black, the dominant culture in terms of education including psychological tests and testing is English. It is, therefore clear, that cognitive measures contain the elements of western culture. Flanagan and Ortiz (2001) concluded that although the cultural influence is witnessed and acknowledged by practitioners, the challenge is to establish what variables practitioners consider when making decisions about cultural influence that may affect the selection and interpretation of tests from cognitive batteries. There is a need to make an agreement based on research findings about the specific variables that need to be considered when selecting, interpreting and making decisions about the tests and the results. There should be a common knowledge and understanding of such

variables for the practitioners to apply the same procedures to avoid inconsistency in cognitive assessment.

Culture is influential in creating meanings and interpreting symbols used in cognitive assessment. The item that requires specific knowledge and exposure to a certain culture will affect the judgment about the client who is not oriented to that culture. In such a case, the client will not be able to perform in a manner that truly depicts his or her actual level of cognitive ability. In that way, the client may be incorrectly diagnosed as having cognitive disability and inappropriately placed in a particular educational program where he or she does not belong to, according to his or her actual cognitive ability. The mainstream education and special school education are two separate destinations that never meet. Therefore, removing a child who is somehow capable of attaining mainstream education and incorrectly place the child to a special school based on biased cognitive assessment will result into an irreversible damage to a child's education and consequent future.

Culturally diverse populations have a challenge of extending resources to accommodate differences, especially in language (Burridge et al., 2009; Strauss, Sherman & Spreen, 2006). The diversity of the country's population has impact on socio-educational aspects of a population; and the economic position of the country make it even more difficult due to the lack of resources to accommodate the socio-educational differences. According to the Statistics SA (2013) South Africa, like many other developing countries, is comprised of a culturally and linguistically diverse population.

The persistent use of cognitive scores when making educational decisions regarding learner placement in educational programs justifies the need for practitioners to consider both cultural and linguistic diversity of South African population (Edwards & Oakland, 2006; Flanagan, Ortiz & Alfonso, 2007; Foxcroft & Roodt, 2007; Foxcroft et al., 2001; Van de Vijver & Tanzer, 2004). Inappropriate placement of learners will lead to further problems in learners' academic performance and future career direction. The damage emanating from inappropriate placement is unlikely to be reversible as the age is a determining factor in almost all academic

placements; and cases of inappropriate placement are identified later the in child's academic life (Edwards & Oakland, 2006).

According to Flanagan and Ortiz (2001); Flanagan & Harris (2012), culture is the extent to which a test demands specific knowledge or experience within the dominant culture (mainstream culture). Each culture presents a unique total environment for those who live and interact in it (Brow & Ferrara, 1999; Pellegrino et al., 1999; Stolk, 2009). One's total environment is full of symbols, norms, beliefs, and set of meanings, experiences or encounters (Lantolf, 2000; McLeod, 2014). This means that different cultures have different symbols, norms, and beliefs; set of meanings, experiences or encounters. There is no single culture that can be used to determine the intelligence of universal population (Feldman, 1994). It is the cultural context which forms one's total environment that shapes one's intelligence (Holzman, 2008; Newman & Holzman, 2013).
.

Language is more than just the code; it also involves social practices of interpreting and making meanings (Aloni et al., 2012; Pinker, 2007; Webster, 2017). There is fundamental relationship between language and culture. It is language in its cultural context that creates meaning. Creating and interpreting meaning is done within a cultural framework.

The international position regarding the role of language and culture in psychological assessment in general and cognitive assessment in particular; is that psychological measures are written and administered in English and that clients from other languages are not fairly assessed due to their unique cultural and socio-linguistic background. This international position also raises the concerns about the issue of psychological assessment in South Africa. The use of psychological tests in South Africa has largely followed international trends in a sense that measurement instruments are administered in English. The majority of the population in South Africa speaks indigenous African languages (Classen, 1997; Dhladhla & de Kock, 2008). This indicates a gap in cognitive assessment. It shows a shortage of assessment measures that are written and normed in African languages.

Vrbova (2006) asserts that language is a guide to social reality. Zlatev (2008b) also defined language as a predominantly conventional semiotic system for communication and thought,

meaning languages are an essentially shared symbolic system. He argued that language basically influence thought and, like Vrbova (2006) acknowledged the role of language in the construction of reality.

There is a need to understand the definition of cognition and intelligence to be able to understand how culture and language influence the cognitive ability of a person. The culture needs to be unpacked; and a link between the culture and language has to be established (Allan, 2011; Cormier et al., 2014; Gauvein, 2012; Li et al., 2007; Serpell, 2000). An understanding of cultural determinants and how one use language to acquire practice and share a specific culture will give light on how culture shapes or interprets symbols and meaning in particular way (Dhladhla & de Kock, 2008; Mushquash & Bova, 2007).

The cultural context presents a particular set of meanings to those who practice that culture. This means that a person's cognitive ability is judged accordingly within the context and boundaries of that person's culture, where adjustment has occurred (Mushquash & Bova, 2007; Stolk, 2009). Hence, it is a challenge for a person to perform at a particular level of intelligence in a cultural environment which is foreign to him or her (Reynolds & Suzuki, 2003; Stolk, 2009; Jukes & Grigorenko, 2010; Goh, 2013). As a child develops, he or she executes the developmental tasks within a particular cultural environment where a particular language is used as a cultural tool to create meanings and construct reality (Mushquash & Bova, 2007; Holzman, 2008; Newman & Holzman, 2013).

2.8 **Culture and language affect cognitive assessment**

The use of cognitive assessment alone is not sufficient in determining the appropriate level of cognitive ability (Neisser et al, 1996; Nisbett et al., 2001; Nisbett & Novanzayan, 2002; Sternberg et al., 2002; Mushquash & Bova, 2007). There is a need to rule out cultural and linguistic influence before making decisions on an individual's level of cognitive functioning and alternative academic placement. According to Neisser et al. (1996); Sternberg et al., (2002)

and Mushquash & Bova (2007), standardized tests are not enough in determining a person's cognitive ability for they fail to sample all forms of intelligence.

Taruk (2008) argued that intelligence means different things to different cultural groups. This means that cultural aspects symbols, meanings and interpretations influence the way in which intelligence can be interpreted (Berry et al., 2011; Franklin, 2017; Li, 2016; Ortiz & Dynda, 2005).

A person whose intelligence is higher within his or her cultural context may yield a lower intelligence score when measured within the context of another culture. The existing conventional measures of intelligence are narrow that they do not sample behaviour outside the decontextualized environment or neutral office; as a result they fail to do justice to the extent that the construct needs to encompass in order to be relevant multi-culturally (Mushquash & Bova, 2007; Neisser et al., 1996; Sternberg et al., 2002). Benson (2003) differentiated between scholastic intelligence and social intelligence. He argued that a child's development can be validly compared to the progress described by Western theories of development, provided the testing material used is based on the specific culture and language of the child.

The relationship between culture and cognitive ability is that culture, as a practice or information, plays a central role in the way meanings are interpreted. The interpretation of meanings is influenced by everyday interactions within a particular culture. Cultures are characterized by variability and diversity. According to Sternberg et al. (2002), language is a cultural tool that is used by people sharing the similar culture to convey information, principles, views and connotations to generations. Each language is therefore associated with a particular culture, which is in one way or another, unique from other cultures. Therefore, the language of the assessment instrument contains words that have different meanings in different cultures. Culture is fundamentally related to language (Sternberg et al, 2002). Culture and language, therefore, have influence in one's understanding and interpretation of symbols and meanings. Allan (2011) argued that values and beliefs of a culture are interdependent variables on cognition. This means that the cultural content is what shapes and guide a person's interpretation of the world. According to Allan (2011) one's culture has influence in one's cognitive abilities. This does not mean that some cultures produce individuals that are

cognitively inferior while other cultures produce individuals that are cognitively superior. The argument is that one's actual cognitive ability can be appropriately determined by measuring it within the context of one's own culture in which one developed cognitive abilities (Allan, 2011).

Allan (2011) defined intelligence as the ability to solve problems or create products that are valued within one or more cultures. Therefore, culture, as the material and immaterial possessions of a group of people sharing the same culture, exposes a unique background to those sharing it. The same person who is capable of producing material of value to his or her culture may be incompetent in producing material that is specific to another culture. For example, a child who has never been exposed to a puzzle will face challenges in completing it. However, the same child will find it easy to accomplish task that is equivalent to a puzzle completion; if that task is part of his or her everyday social environment.   The multidimensional set of abilities can be improved depending on the social and cultural context in which it has been cultured and fine-tuned (Allan, 2011). In that way child's culture shapes cognitive development by determining what and how the child will learn about the world; and in a particular language. According to Grigorenko & Sternberg (1998) and Sternberg et al. (2002), children's knowledge should be assessed in terms of what a child can learn from social interaction rather than their unaided level of performance. It is vital, therefore, to scrutinize the conditions under which cognitive assessments are conducted and how results are contextually interpreted to make decisions; as Mpofu and Ortiz (2009) asserted that almost all tests involve some form of language and communication. Thorough understanding of the language of assessment instrument is therefore implicated.

2.9 Conclusion

This chapter explored what literature says about the impact of culture and language in cognitive assessment, with reference to learner placement and schooling. According to the previous studies there is an impact of culture and language in cognitive assessment. The next chapter presents research methodology for this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology of this study. In research methodology, a detailed explanation of how the problem was investigated is provided, including appropriate research design, sample and sampling strategy, instrumentation, interview protocol, procedure for data collection, data processing and analysis, ethical considerations as well as internal and external validity.

3.2 Research Paradigm

As the objective of this study was to understand the assessment practitioners' subjective experiences regarding cognitive testing in KwaZulu-Natal, Pietermaritzburg qualitative approach provides depth of information (such as telling the feelings, attitudes and values and perceptions) (Aluko, 2006). The researcher focuses on meanings rather than the numerical value (Saunders et al., 2000). It has the ability to use multiple methods to establish pattern in different subjective views. The data provided is rich and subjective, as well as high validity. Semi-structured interviews were conducted to collect data from the participants.

For the purpose of this study, the qualitative interpretive research design was used, which follows a qualitative research approach. Interpretive research is appropriate to reveal a target population's range of behaviour and the perception that drives it with reference to specific topic or action (Creswell, 2009 and Maree, 2012). While quantitative research relies on numbers and data, qualitative research focuses on how people feel, what they think and the reasons for such thoughts and feelings (Maree, 2012). According to Anderson, (2010) interpretive research recognizes the importance of context in which behaviour occurs and that issues can be examined in detail and in-depth. It produces in-depth data since the data is based on human experience (Anderson, 2010). The qualitative research design was appropriate for

this study because the study seeks to understand the personal experiences of psychologists regarding influence of language and culture in conducting cognitive assessment.

3.3 Research design

The purpose of this study was to understand assessment practitioners' subjective experiences regarding language and culture cognitive testing in KwaZulu-Natal, Pietermaritzburg. The interpretivist qualitative research design was fundamental to understanding subjective experiences based on motives, reasons and meanings of behaviour (Carson et al., 2001). The interpretivist design is mostly used in the collection of qualitative data; and data collection methods used includes unstructured interviews, semi-structured interviews and participant observation (Livesey, 2006). Proponents of interpretivism argued that individuals are complex and therefore "different people experience and understand the same objective reality in very different ways and have their own reasons for acting in the world" (Cool, 2015, p.1).

The desired information in interpretivist approach is what some people think and do, what kind of difficulties they are challenged with, and how they deal with them (Pizam & Mansfield, 2009). This correlates with the research question of this study; as the researcher's aim was to understand the encounters of assessment practitioners when conducting cognitive assessment with children whose culture and language are different from that of the assessment tools.

3.4 Sampling

Purposive sampling was used to select the participants, in Pietermaritzburg area, KwaZulu-Natal; who have been practicing as registered psychologists for at least five years to take advantage of the professional experience in the field of cognitive assessment. No specific category of psychologist registration was specified. The study targeted a combination of Black, Coloured, Indian and White psychologists. The aim was to get at least two White psychologists, two Black African psychologist, two Indian psychologists and two Coloured to participate in the study. The invitation to participate was e-mailed to a list of Pietermaritzburg psychologists registered on medpages. A follow up was made telephonically. The interview appointments were made telephonically with available psychologists. During the study, only Black psychologists became available. A total of six Black psychologists availed themselves

for the interviews which took place between May and September 2017. They all work within KwaZulu-Natal, in Pietermaritzburg.

3.5 Data collection and instrumentation

The semi-structured interview was used as a method of data collection. A semi-structured interview is an in-depth interview which is sometimes called a conversation with a purpose (Barriball & White, 1994). Semi-structured interview allows informants to provide rich description of their attitudes and experiences (Barriball & White, 1994). According to Witmer et al. (2011), a semi-structured interview is suitable for the exploration of perceptions, experiences and opinions about the complex and sensitive issues. Semi-structured interview provide the reason for the answers due to high level of probing and iterative questioning. This study required the in-depth knowledge about the influence of culture and language.in cognitive assessment: implications for learner placement and schooling.

For the purpose of this study the research instrument was the interview schedule containing interview questions that were based on the primary research questions. The interview schedule was developed by the researcher based on the categories of research questions. A list of five questions investigated the experiences of the psychologists regarding encounters concerning linguistic and cultural factors in cognitive assessment. The psychologists' perceived role and scope of cognitive assessment in learner placement in special education was explored. The questions also explored how the psychologists in Pietermaritzburg deal with the influence of language and culture in cognitive assessment was explored. An interview protocol is attached as Appendix A. An interview protocol had been developed, to ensure a consistent process of data collection across all interviews. To develop a picture of the participants, a demographic survey was developed and administered, attached as Appendix B.

3.6 Description of procedures
The researcher requested permission to conduct the study from the UKZN Ethics Committee (HSSREC). A permission to conduct the study was granted by UKZN Ethics Committee in August 2016. A letter of permission to conduct study is attached as Appendix C. A letter of

invitation to participate, which is attached as Appendix D, was sent to prospective participants using e-mail. Available participants were interviewed on different dates, individually. The interviews were conducted in psychologists' offices, where it was private and participants felt comfortable. In the interview session the researcher explained the purpose of the study to participants using the information sheet consent form, which is attached as Appendix E. The permission of the participants was obtained before using electronic recording devices, attached as Appendix F. The researcher maintained confidentiality. The researcher informed all participants about their right to decline or withdraws from the study. The informed consent was read and explained to the participants to ensure that they understood the purpose of research and knew their rights as study participants.

This study was deemed to be of the minimal risks to participants. The probability of harm or discomfort anticipated and its magnitude was not greater than any encountered in daily life situations.

3.7 Data analysis

Thematic analysis was used; which is the categorization of verbal or behavioral data for purposes of classification, summarization and tabulation, to make sense of data collected, as will be seen in chapter four. Thematic analysis measures the semantic content of the message, and such message content is categorized into themes (Shenton, 2004). The object of qualitative thematic analysis is recorded communication including transcripts of interviews, video tapes and other documents (Marying, 2000). Data collected was transcribed from interview notes and android recordings. The interview transcripts of six participants are attached as Appendix G.

The data collected using semi-structured interview was transcribed; to put it in a written format for the purpose of analysis. The collected data was then analysed using thematic analysis. Major themes were identified and subsequent sub-themes; they appear in chapter 4, table 4.2. According to Braun and Clarke (2006) thematic analysis is appropriate in identifying, analysing and reporting patterns within data collected. The thematic analysis organised and described data set in detail and interpreted various aspects of the research topic (Alhojailan, 2012). Braun and Clarke's guide to the six phases of conducting thematic analysis was used.

Braun and Clarke (2006) argued that thematic analysis involves becoming familiar with the data. The transcribed data was organized into categories, using key research questions and followed by the analysis of specific statements and themes, and a search for all possible meanings in order to understand the experiences of psychologists in KwaZulu-Natal regarding cognitive assessment (Creswell, 2009). There was a repetitive listening to an interview as the researcher transcribing the audio files. Listening to interviews over and over made the researcher became immersed or familiar with data. The second step was to generate initial codes. To achieve this objective data was reduced during sorting, discarding and organization of data to extract meaningful data from which final conclusion can be drawn. Data was simplified through summarising and paraphrasing and merged into larger patterns and grouped according to research questions. The researcher highlighted, with different colours according to possible themes, the sentences or words from each participant that could be used to answer the study's questions. Coding was derived from participants' statements to allow the researcher to examine the whole dataset by identifying its most noteworthy meaning in relation to research questions. It helped researcher to make connections between the participants' thoughts and ideas. It led to comprehensive data treatment. The important question at this stage was "what is the data trying to tell?"

The third stage was searching for themes. The researcher looked for main themes extracted from the responses. Main themes were identified and sub-themes were categorised according to each main theme. The fourth stage was to review theme and sub-themes to ensure smooth connectedness and flow in themes by focusing on data that answers research questions. The fifth stage focused on defining and naming themes. Main themes and sub-themes were finally defined and tabled as summary in Table 4.2. Lastly, the comprehensive report was provided in chapter five.

3.8 Ethical considerations

This study was conducted within the practice of required ethical consideration. The research participants were not subjected to harm in any ways whatsoever. The identities of the participants were protected by assigning participant number to each respondent, for example, Participant 1. In all data collection approaches, the permission of the participants was obtained

before using electronic recording devices, attached as Appendix F. The beneficence of the study is its potential to shape positively psychologists' practice, policies and training institutions. This study was not funded and did not provide incentives to participants. The study has social value as the children are the future of the country, hence the educational decisions about them should be informed by appropriate knowledge.

3.9 Permission from authorities

The permission to conduct this study was obtained from the relevant stakeholders, that is, Human and Social Sciences Research Ethics Committee, University of KwaZulu-Natal. The informed consent form which was explained to the research participants is attached as Appendix C. The full details of what the research entails was given to the participants. The full consent from the participants was obtained prior to the commencement of interviews. The participants were informed of their free participation and that they had a right to withdraw from the study at any given time without any negative implications for them.

3.10 Credibility, dependability and transferability

The credibility of data was ensured by maintaining objectivity. The data collected held the true value, applicability and neutrality. That was aided by the use of audio recorder to be able to record the responses as they were, for appropriate analysis and interpretation. Trustworthiness in qualitative research is ensured by addressing credibility, transferability and dependability (Lincoln, 1995; Morse et al, 2001; Olson & Spiers, 2002; Davis, 2010).

According to Shenton (2004, p.64) credibility refers to internal validity and answers the question of "how congruent are the findings with reality?" Among the strategies for ensuring credibility, Shenton (2004) included the adoption of research methods which are well established, data triangulation and iterative questioning. This study used the method of data analysis that has been used successfully, which is, content analysis. The opportunity to check out bits of information across informants was used as part of data triangulation. Lincoln (1995) and Morse et al (2002) mentioned that the tactics to ensure honesty in informants involves emphasis of freedom of participation, independent status of the researcher, and unconditional rights of the informants to withdraw from the study at any point. Such information is included

in an attached consent form, as Appendix E. Shenton (2004) also identified use of probes and iterative questioning to detect falsehood, and discard the suspect data.

Dependability correlates with reliability in quantitative research. Shenton (2004) and De Vos et al., (2005) defined dependability as the ability of the study to produce similar results if repeated in the same context, with the same methods and with the same participants. There was a challenge for the current study due to time and costs constraints. Only one method was used, which is individual interview.

Transferability is defined as the extent to which the findings of one study can be applied to other situations (Davis, 2010). Transferability corresponds with generalizability. According to De Vos et al. (2005) and Davis (2010), although the recognition of contextual factor renders each study to be unique, it is a fact such a case study is an example within a broader group. They therefore, asserted that the issue of transferability cannot just be rejected, instead should be persuaded with caution. To aid transferability this study put maximum effort to provide sufficient contextual information about the fieldwork site to improve transferability of the findings.

3.10 Summary

This chapter presented the methodology of the study by setting forth the description of the research design, participants, an explanation of the measurement instrument, and the procedure that was used to collect data, as well as an explanation of the method that was used to analyse data. The next chapter presents findings and data analysis.

CHAPTER 4

FINDINGS

4.1 Introduction

This chapter discusses the findings from six registered psychologists, who have practiced for more than five years as psychologists in the categories clinical, counseling and educational, respectively. Two psychologists interviewed in each category.

The specific objectives of this study were to:

- Explore psychologists' encounters regarding linguistic and cultural factors in cognitive assessment.

- Establish the psychologists' perceived role and scope of cognitive assessment in learner placement in special education as explained by psychologists in KwaZulu-Natal.

- Explore how psychologists in KwaZulu-Natal compensate the effects of language and culture in cognitive assessment.

The research questions were:

- What are the psychologists' encounters regarding linguistic and cultural factors in cognitive assessment?

- What is the role and scope of cognitive tests in learner placement in special education?

- How do psychologists in KwaZulu-Natal compensate the influence of language and culture in cognitive assessment?

The invitation to participate was e-mailed to a list of KwaZulu-Natal psychologists registered on medpages. The target participants were Black, Coloureds, Indians and White psychologists. During the study, only Black psychologists became available. A total of six Black psychologists availed themselves for the interviews which took place between May and

September 2017. They all work in KwaZulu-Natal. The semi-structured individual interviews were conducted by the researcher using android cell phone for recording. The transcripts of the interview are attached as Appendix G. The recorded interviews were then transcribed for the purpose of analysis. Thematic analysis was used to discuss the findings. The themes that surfaced from the data collected were grouped into main themes; under each main theme subthemes were identified.

4.2 Biographical data of the participants

This data was collected from the participants prior to the interview. The biographical data included participants' age group, gender, race and years of experience. Table 4.1 below depicts the biographical data of the participants in this study. Participant 1 is a black female counselling psychologist, aged between 41 and 50. Participant 2 is a black female clinical psychologist, aged between 51 and 60. Participant 3 is a black female educational psychologist, aged between 31 and 40. Participant 4 is a black male clinical psychologist, aged between 51 and 60. Participant 5 is a black male counselling psychologist, aged between 41 and 50. Participant 6 is a black female educational psychologist aged between 51 and 60.

Table 4.1: Demographic profile of the participants at the time of interview.

Biographical item		Participants =6
Age	31-40	01
	41-50	02
	51-60	03
Gender	Male	02
	Female	04
Race	Black	06
	Coloured	00
	Indian	00
	White	00
Years of experience	5-10	01
	11-15	02
	16 and more	03

Category of registration	Clinical	02
	Educational	02
	Counselling	02
Type of practice	Public	02
	Private	01
	Both	03

The participants were requested to indicate their age group in individual biographical data sheets. The biographical analysis indicates that larger number of the participants were above forty years of age, as they amounted to 5, with only one participant fell between 31-40 age group, with two participants within the range of 41-50; while three fell between 51 and 60. The demographical analysis shows that 37% of the participants were male, with 67% female psychologists. Only Black psychologists were available during the period of this study. So, all six participants were black psychologists. Only one participant had an experience of less than ten years. Two participants had more than ten years, but less than fifteen years of experience practicing as registered psychologists. The remaining three participants had more than fifteen years working as psychologists. All participants have experience in cognitive assessment.

4.3 Summary of themes discussed in this chapter.

The themes discussed in this chapter are presented, as a summary, in table 4.2 below to provide the reader with an overview of the findings prior to the presentation of detailed findings. The themes are organized according to the research questions. Main themes and sub-themes have been identified for each research question. There are five research questions for this study.

Table 4.2 Summary of themes for the study

Objective	Themes	Codes or responses that informed these themes
1. Challenges encountered by Psychologists	Norms not appropriate for South African population	Tests not standardized for South African population
		Tests not updated
	Assessing a Zulu child in model C school	Language and cultural orientation of a learner presents a challenge
2. Role and scope of cognitive tests	Themes	Codes or responses that informed these themes
	Use of multiple sources of information	Cognitive assessment is not the sole determinant of child's cognition
3.Considerations made by psychologists	Themes	Codes or responses that informed these themes

	Translation	Use of Zulu explanation
		Challenges in translation
		Use of vocabulary expansion and local standardization
	Test choice, scoring, reporting	Use of non-verbal / projective tests
		Use of non-scoring of unanswered items
		Accounting for language barrier in report conclusion and recommendation
4.Regulation of Cognitive Assessment	Themes	Codes or responses that informed these themes
	Ethics	Best interest of child
		Use of multiple evidence
	White Paper 6	Use of SIAS tools
	Bill of Rights	Children's rights
		Unfair discrimination
5. Preventing and Dealing with cases of	Themes	Codes or responses that informed these themes

misdiagnosis	The psychologists apply measures to prevent misdiagnosis	Collaboration of Psychologists to achieve integration
		The recommendation of remedial intervention
	Remedying cases of misdiagnosis	The prevalence of misdiagnosis cases
		Learner's age and curriculum put a barrier in outplacement to or re-instatement in mainstream school

4.4 Presentation of findings

Patterns and relationships are described as findings and supported by data. The findings are organized according to the research questions. Each research question consists of main theme identified from data set and then sub-themes under each main theme are identified and discussed.

4.4.1 Objective 1: Challenges encountered by Psychologists

The psychologists present challenges with cognitive assessment as influenced by culture and language of the testee versus the language of the test and the culture of the group for which the test was normed. This account rippled throughout data collected. The most significant element in this language and culture challenge is articulated by psychologists in KwaZulu-Natal as failure of cognitive tests to be culture-fair and culture-friendly. As a result, the participants indicated that cognitive tests appear to be difficult for children's level of understanding. Consider the following extract:

Extract 1. Educational Psychologist

P3:   Ok, from my experience, one: tests are not culture friendly to our communities,

            our   learners especially our school children. Eh, most of them are difficult.

Even if you are an adult, so you can see that for a child from rural community who has got challenges, these tests are not fair and not culture-friendly. They are not culture-friendly and culture-fair. Yes, actually true, there are those items that are not eh, a child from a different culture would be more familiar with, that I tell you, than would a child from another culture, and that becomes a difficult one …eh uhm but added to that, don't know whether you were going to ask me this question, as there (silence) eh what, evolution because time is more eh, time is dynamic, while these tests were constructed.

It transpired from the data collected that English, in which almost all cognitive tests are written, is still a barrier for some children who are not fluent or rather exposed to it. However, it becomes apparent from the participants' responses that, in some cases, it becomes compelling to use tests that are normed for English-speaking children in Zulu-speaking children.

4.4.1.1 Norms not appropriate for African population

The data collected reveal that although cognitive tests are widely used in Africa, with special reference to South Africa, most of these cognitive tests are actually not normed for African population. Among other factors the participants mention lack of standardization, tests not updated and also tests that are not translated.

4.4.1.1.1 Cognitive tests not standardized

The participants highlight the challenge of norms with particular reference to standardization of tests. The tests items in those particular tests contain the cultural code that is foreign to the African child. Therefore, the cognition of a child is being evaluated in conjunction with the foreign culture. The participants do acknowledge the influence of culture and language in cognitive assessment. Consider the extracts below.

Extract 2: Clinical Psychologist

P1:   And when it comes to culture, some of the things in these tests their norms are   appropriate for other cultures. Sometimes you find that the test is not standardized for an   Afrikaans   speaking child. A child does not understand the test items. Therefore, culture and   language   do   influence

cognitive tests and then the results obvious will not be the true   reflection of the child's cognitive ability.

According to the participants, English cognitive tests are normed inappropriately for South African population mother tongue and culture are not English.

4.4.1.1.2 Tests that are not updated

The second issue that emerges from the interview is that of tests that are not updated. Tests, according to participants, ignore changes in lifestyle and even ever-changing nature of culture and hence language. Therefore, what comes out is that even the appropriately normed cognitive tests loose such appropriateness due to lack of test update. The following extracts from interview make the challenge of un-updated cognitive tests apparent, with quoted example of the item testing knowledge of posting a letter using an envelope.

Extract 3: Counseling Psychologists

P5:   I have also noticed that the language that is used in this test, as isiZulu, is not the language that is used currently. Children are not familiar now with this language, even the   items. Like in Z-SAIS, there is somewhere, where they talk about how people put   envelope. These days' people are using cellphones. Therefore, children don't know about   posting letters. Therefore, things like those, like in Z-SAIS, where they talk about the tools that you use, and "building tools". They call them 'izikhali'. Yet, 'isikhali' in   isiZulu is a weapon, not a tool. Therefore, there was also a problem when they were   translating. I suspect they were using non-speakers of the language. And also, there is   a…, I just want to add to that follow-up question also, because there is a dialect, the   language that is used in a particular area. And, I have also found that the language   used in tests, like Z-SAIS test, is not accommodating that variation.

The language variation to a greater extent is identified by participants as posing a challenge when conducting cognitive assessment. The psychologists put present the challenge of language as pulled from two sources, namely, the foreign language that is not spoken by a child and the child' s mother tongue variation, or sometimes misleading translated words.

4.4.1.2 A challenge of assessing a Zulu child in Model C School.

The psychologists present their account of assessing child whose mother tongue is IsiZulu, but attending an English-medium school. According the participant, assessing a Zulu child in Model C School is still presenting a dilemma regarding the choice of cognitive test language, as the following participant brings it to light.

Extract 4: Clinical Psychologist

P4:   The challenges I have come across with is that, one is expected to test, say, a Zulu child, who is attending Model C School or a school in town, although that child is Zulu, he speaks English. Now, that on its own is going to affect the results. Therefore, I am not sure whether to use the Zulu version or English, because most of the tests are not translated.

According to the participant, administering a Zulu version of test to a child in Model C School is contaminating the results. This is because of the reality that the child learns in and speaks English. At the same time the child speaks IsiZulu at home. The child's cognition has been nurtured and developed within the environment embedded in Zulu culture with IsiZulu as a medium to learn and transfer such culture. This dilemma does not end with psychologists, as one participant explains, "The school then will not understand or they will not accept the results that I used Z-SAIS test. According to them I should have used the English one".

4.4.1.2.1 Language and cultural orientation of a learner present a challenge

Taking from the data above, it is clear that language and cultural orientation of a child gives a challenge. One participant resolves to Zulu version with an understanding that a test basically reflects life at home. The participants talk about the need to consider home exposure. When the issue of bilingualism effect is explored, the participants indicate the 'how much of exposure' as the determining factor. According to them, the early exposure to English language together with support at home can justify the administering of English version of cognitive tests. However, the notion of 'life at home' is still a question in terms of cultural orientation. The following is an account of the participant.

Extract 5: Counseling Psychologist

P5:   Okay, this is a very important question. I remember when I started practicing, in 2005. I had children or…   There are two cognitive assessment tools we use. It is either you use Z-SAIS which is normed for Black population, or S-SAIS which is normed for mainly white population. Therefore, I would administer to these kids Z-SAIS   though they were attending former model C schools. Their experiences were that experiences because the nature of test items were a reflection of life at home. Then I will administer the test, compile the report and submit it to the school. The school then will not understand or they will not   accept the results that I used Z- SAIS test. According to them I should have used the English one.

P6   You know, as the department of education, we don't rely on tests that much. Have I stated that we're using different sources of information? Also, there are good workbooks that are supplied by the department of education. If you find that the child is, may be, if grade four; you check at which level is the child operating. Then you talk to the school, asking them to design individual support plan so that this child can be assisted.

P2   Oh, ok, yah and because they start learning at 2 years you put them at after care ,they start being informed earlier about the things you know…

The dilemma of a learner speaking IsiZulu at home but going in English-medium schools lead to further categorization of learners according to 'when did the learner started learning English'. Participant 6 explores the situation where a learner, according to the education law, started learning in English in grade four. According to participant 2, such a learner does not have 'early' exposure to English language. Categorically, a learner has to be assessed in his or her own mother tongue. That, as the participants account, will not be a problem; but the challenge is the shortage of Zulu versions of cognitive tests. What is portrayed by data here is that the practitioners find themselves cornered to administer tests that are not either age- or language-appropriate to their clients.

4.4.2 Objective 2: The role and scope of cognitive assessment

4.4.2.1 1 Cognitive assessment is not the sole determinant of child's cognition

What becomes palpable regarding the role and scope of cognitive assessment in placing learners in alternative schooling is that; cognitive assessment alone is not capable of determining a child's appropriate schooling option. The data shows that a number of other sources of information are used to base decision on various results, as participant 1 explained, "*So that the evidence is based on multiple-evidence*". The psychologists present their account of cognitive assessment as one aspect in a spectrum of methods used to determine child's cognition. Consider the extracts below:

Extract 6: Clinical Psychologist

P4:   You don't just give a test so that it will give you what you looking for. You assume, and then you test to confirm your assumption. A test is simply a tool leading to something. It is not complete on its own. No. You must take many factors into consideration. You need a lot of history. Okay, one, you have to get parents, where you find out about the pre-natal, neo-natal and post-natal and medical history of a child, before you give a test. That is why I say the psychometric model is not based on hypothesis. Because these   interviews will make you formulate a hypothesis.

The narratives in this study reject the sole determinant nature of cognitive assessment. Participant 4 says' "Because a test on its own is not sufficient". According to the participants, a cognitive test is used to confirm what other sources of information and various tools display, as also another participant tells:

Extract 7: Counselling Psychologist

P1:   You will use a variety of sources that will be able to support results produced by another tool or information sources. So that the decision will be based on multiple-evidence, so a   child is not only assessed for cognitive, a child's functionality at home is also   assessed, as to how a child functions at home.

It appears from the data collected that psychologists base their decision about the appropriate child's educational placement on various sources. They consider child's functionality at both school and home environment.

4.4.3 Objective 3: Considerations made by psychologists

4.4.3.1 Theme 1: Translation

It has appeared from the data collected that psychologists do acknowledge the influence of language and culture in cognitive assessment. What comes out is that the participants apply means to compensate such effects. In case of a language demand, psychologists report that they resolve to translation to aid a child's understanding of the instructions. The talk portrays that the psychologists administer cognitive assessment with awareness of cultural and linguistic diversity to cater for all children. The phrase, "I am not really testing for language" gives account of how psychologists put the difference between language and cognition. Another similar account is provided by participant 4 who says, "…because language and culture do not form part of cognitive information, but we use language and culture to get cognitive information. Another account is given below:

Extract 8: Clinical Psychologist

P2:   Yes, I say luckily because I am Zulu speaking any when I am doing an assessment I am   not really testing for language. Therefore, I am able to translate a language eh, Zulu; also,   able to test the child, would he/she have given the right answer if he/she was tested in   his/her own language. Yah I've been wandering about that but I can, uhm after I can train   I hear   that   some practitioners already have interpreter or translator uhm.

The participants engage in translation depending on how conversant with English the child is. One of the participants mentions that, "let's say they don't know what thunder is then I will say you know when there is rain and noise, that noise it what you call thunder". Participants mention translation as another means of compensating linguistic barrier in cognitive assessment.

4.4.3.1.1 Use of Zulu version or explanation

To embrace the idea of translation, the participants opt for Zulu version of cognitive tests. The responses refer to one test, Z-SAIS, as the one with Zulu version. So it rescues participants from work of personal translation.

Extract 9: Counseling Psychologist

P5:   Yes. Yes, in those cases I would always present my test in Zulu. But some tests,
                like Z-SAIS, they make it easy for us because they are in Zulu even though there
                is English version.

It came out that some tests have been translated into IsiZulu. Participants assess the level of language proficiency and use appropriate language version of a test.

4.4.3.1.2 Challenges in translation or interpretation

The narratives highlight the use of translation by practitioners as means to overcome linguistic influence in administering cognitive assessment. However, along with the exaltation of translation, the same narratives bring into light the challenges which come with translation. One participant mentions, "…some are not comfortable when there is a third person interpreting. The assessment will not be exactly the same as when it is just two of us (practitioner and client)". The following extract explains:

Extract 10: Clinical Psychologist

P2:   So….eh or another person who can translate but eh we know that there is a lot lost in
            culture but eh even for me as a Zulu speaking person there are terms or concepts that that are
difficult to translate directly to Zulu especially for a child. Therefore I would expect it   quite difficult
for someone who is assessing. But not all Zulu speaking children but   only these who do struggle
with the English language, so for instance with me if I see that   an English word or concept may be is
very difficult and there is a simpler word for it after   I ask a child; do you   know   what   eh…let
me make an example. Let's say they don't   know what thunder is then I will say you know when
there is rain and noise, that noise it   what you call thunder, so then I will ask the question, is just an
example not one of the items, but there…uhm I think (silence) maybe a practitioner would have a
sense of this   child this term is sort of eh new, new yes, any of a higher order and there is a simpler
way   of expressing it, assessing their vocabulary you testing whether they have vocabulary.

The challenge is a question of whether the translator and the client come from totally the same language background, as the narratives indicate the influence of language variation in administering cognitive assessment; what participant 5 call "language variation or dialects".

4.4.3.1.3 Use of vocabulary expansion (dialects) and local standardization

It appears from responses that the knowledge about your client prior the assessment be obtained to tailor-make the cognitive assessment test. The participants talk about applying as many dialects as possible to ensure that the child understand what is required of him or her. Participant 5 highlights that "I think the tester or the practitioner should be familiar with these dialects; as many dialects as possible".

Extract 11: Counseling Psychologist

P5:   Yes, I always make sure that the language does not disadvantage the child. I do   this by ensuring that as I asked the question, the child understands the question. If   the   child   doesn't understand the question, I keep on asking the question to make   sure   that   the   child   understands   the question. I will keep on putting different   words, for instance, there is somewhere in Z-SAIS, where they are talking about   the 'wall'. The 'wall' in Zulu is called 'ubonda' or 'udonga'.Therefore different   versions use different words. Like watering the plant …some say 'ukunisela',   others say 'ukuchelela'. I think the tester or the practitioner should be familiar   with these dialects.

The narratives suggest the need for practitioner's knowledge of local community in which he or she serves. The participants mention the use of dialects and local standardization as other means of compensating child's linguistic challenge.

4.4.3.1.4 Test choice, scoring and reporting

4.4.3.1.4.1 Use of non-verbal / projective tests

The participants explain that they are able to use the choice, scoring and reporting to counteract the effects of language and culture in cognitive assessment. The participants identify Goodenough and Gestalt tests as applicable when using non-verbal tests. In some cases they use Z-SAIS for Zulu-speaking children.

Extract 12: Clinical Psychologist

P1:   To prevent them? In most cases I use non-verbal tests, but there are tests like Z-
                  SAIS, of cognitive assessment to avoid such problems, Z-SAIS for Zulu-speaking
                  kids and S-SAIS-R for English-speaking children. Therefore, most of the time, it

is much safer to tests that do not require the use of language, the one that will just assess a child's performance cognitively.

P4:   … I prefer to use tests that are so called 'culture fair'. Er, Goodenough or Gestalt test will be enough. They are objective tests for use, yes mostly objective; because if you use language, like I have said before, language can be a barrier itself for a child who is attending that school.

The participants talk about the use of non-verbal tests to avoid the use of language. According to their responses, the projective tests are able to display child's cognition without the influence of test language.

4.4.3.1.4.2 Use of non-scoring of unanswered items and accounting for language barrier in conclusion and recommendation.

The idea of accounting for language barrier in conclusion and recommendation is prevalent in talks. Participant 2 mentions that she uses the technique of non-scoring of items not answered due to misunderstanding caused by language barrier, as the participant says, "I don't score, I don't give him a score of one".

Extract 13: Clinical Psychologist

P2:   Uh…well uh (silence) uh, uh, I'll say what I do if the child did not answer right. I don't score; I don't give him a score of one. Therefore I am aware that possibly because they are not at school. But, in my conclusion and recommendation, I take that into account. The score has been affected by language, yes.

The above extract explains that cultural codes and symbols do affect the responses of the testee. Apart from the language and cultural orientation of the test, the practitioner's language and culture has a potential to create misunderstanding between the practitioner and the testee, thus lead to misinterpretation of testee's actions.

4.4.4 Regulation of Cognitive Assessment

4.4.4.1 Ethics

4.4.4.1.1 Best interest of a child-do no harm

The talks explicate that the practitioner should act ethically by refraining from harming a client or a child in this case. The following extracts talk about how ethics regulate and inform the participants' practice in psychology as such, including cognitive assessment. Consider the extracts below.

Extract 14: Clinical Psychologist

P2:   I suppose with ethics, we are guided mostly by ethics, firstly do no harm, so
             whatever you   are doing mostly show that you are not harming your client.

A practitioner is required to act on the best interest of a child. The participants mention the use of variety of assessment tools and information sources as the method to gain enough evidence on which their decision of learner placement will be based; to avoid cases of misdiagnosis that will results into 'harm to a child'.

4.4.4.1.2 Use of multiple-evidence

Apart from the cognitive battery, participants tell about the collection of information from sources including parents and teachers. According to the narration, this information assists in obtaining a complete picture about child's capabilities.

Extract 15: Clinical Psychologist

P1:   What I can talk about, I think I can't say much about South African Law, but, maybe I am
        going to talk about ethics in psychology. That, when a child is going to be assessed for
        cognitive assessment, we don't put a   child in a box. You (practitioner) must use a variety of
        media. Not only one tool. Not that you will use cognitive battery only. You will use a variety of
        sources that will be able to support results produced by another tool or information sources.
             So that the decision will be based on multiple-evidence, so a child is not only assessed
        for cognitive, a child's functionality at home is also assessed, as to how does a child function at
        home. You can find that all that is a combination of interview about a child's functionality

outside the cognitive assessment from parents, the teachers, the combination of batteries, help to come out with the final results of a kid.

The idea of assessing the child holistically transpires in this study. The above narrative show that participants check even basic staff such as hearing and vision to rule out medical problems before assessing child's cognition.

4.4.4.2 White Paper 6 (Inclusive Education)

4.4.4.2.1 Using SIAS (Screening, Identification, Assessment and Support) tools

The accounts of the participants tell that the Department of Education, through Education White Paper 6, regulates cognitive assessment of learners. Education White Paper 6 (2001) puts requirements when learners are assessed for alternative schooling. As a result, many factors are taken into account before the decision to place a learner to a special school is taken, as P4 explains in the following extract:

Extract 16: Educational Psychologist

P4:   Because, since the department(of education) has introduced the inclusive education, so you(practitioner's) cannot rely on cognitive tests alone many factors are considered in order to place a leaner in special school, for instance, working together with department of education, they (DOE) have according to academic requirements(using SIAS tools) and we (psychologists) assess cognition, and then together we come with intervention to assist a learner because, if we use cognitive test results alone, a child may be inappropriately placed because test results yes, will determine a child's level of functioning, but when the child's curriculum performance is not that bad, the decision could be that a child should be placed in normal school(mainstream) and be provided with support.

The Department of Education conducts its own educational assessment to determine the scholastic ability of a child. The data reveals that the educational assessment is the first stop before cognitive assessment.

4.4.4.2.2 Use of multi-disciplinary team

The implementation of SIAS requires the use of multi-disciplinary team where each practitioner will play his or her role to determine the child's level of scholastic and cognitive ability.

Extract 17: Clinical Psychologist

P4:   We work together as psychologists, as clinical psychologists, and they will say, "Okay, as educational psychologist, I have picked up this; and' "as clinical   psychologist, I have picked up that" You will say okay this child is going to have   a   pervasive   development disorder, in which case even that disorder has got other,   you know, concomitant disorders, a comorbid, multiple disorders. And again,   you need a lot of history. Okay, one, you have to get parents, where you   find out   about the pre-natal, neo-natal and post-natal and medical history of a   child, before you give a test.

The accounts of the participants show that there is a collaboration of psychologists, namely, educational psychologists from Department of Education and clinical and counseling psychologists in private practice.

4.4.4.2.3 Use of variety of assessment tools

Participants account for the implementation of SIAS stating that the appropriate implementation of SIAS requires the use of a range of assessment tools. Consider the extract below:

Extract 18: Clinical Psychologist

P4:   A test is simply a tool leading to something. It is not complete on its own. No. You must take many factors into consideration. The Department of Education will send a child after they have done all regarding remedial education and educational testing; and sometimes it will come to a point where they don't know what it is. In which case, you will have to send to the psychologist when you suspect that may be there is pathology   here.

The result of cognitive test cannot solely determine child's mental functioning and decide on the appropriate schooling channel for that child.

4.4.4.3 The Bill of Rights

4.4.4.3.1 Children's rights

The constitution of South Africa is also one of the means to regulate cognitive assessment of children. Consider the following extract:

Extract 19: Clinical Psychologist

P2:   So; their right and so on was, I suppose with ethics, we guided mostly by ethics, firstly do not harm, so whatever you are doing mostly show that you are not harming your client

The participants tell about children's rights that are outlined in 'The Bill of Rights'. The right not to be subjected to any harm is mentioned by participants; as the one that inform their assessment and child's placement decision subsequently.

4.4.4.3.2 Unfair discrimination

Participants highlight that the use of cognitive assessment tools is also regulated by the Constitution of South Africa by prohibiting unfair discrimination. The following extract is an account of P5:

Extract 20: Counseling Psychologist

P5:   Yes, I know the legislation that regulates the assessment of children. The main one is that children should not be unfairly discriminated, which means you discriminate someone in a fair manner. I cannot test you with a test that is not normed for your group. But some people do that all the time, using tests normed for Europeans. Using a test formed for specific language and culture to people of different language and culture is acting against the law.

The narratives tell that the use of cognitive tests that are not appropriately normed for that specific population is tantamount to unfair discrimination.

4.4.5 Preventing and Dealing with cases of misdiagnosis

From the interview, it appears that assessment practitioners do apply measures to prevent inappropriate placement of children. The tales of the participants are attached to practitioner's understanding and acknowledgement of the influence of language and culture when conducting cognitive assessment, the extract below explains:

Extract 21: Clinical Psychologist

P4:　　　　　If you give test in English or in Zulu, the emphasis should be on the tester's side to interpret the results, not the other way round. When you interpret the results, you bear in mind that this is not his (child) culture, is not his language.　　Yes, because language and culture does not form part of cognitive information, but we use language and culture to get cognitive information. Therefore, cognitive information is older than language and culture. First, we are born with cognition. Culture and language is born in (cognition), or I will put it this way, eh, we are born with cognition, okay, but as we grow up we acquire culture and language. Not the other way round. I say it makes sense to interpret the results of the test with the recognition of the language, and not vice versa.

The above narrative isolates cognition from language and culture. The participant's account is that cognition is independent of language and culture; however, language and cultural orientation are used to tap into cognition. According to the narratives, psychologists do as much as possible to put aside language and culture when testing cognition.

4.4.5.1 The psychologists apply measures to prevent misdiagnosis

Participants tell about the use of collaboration in cognitive assessment. According to the participants, referral is made to other professionals, such occupational therapist to achieve combination of results to support the decision.

4.4.5.1.1 Collaboration of psychologists to achieve integration and the role of multi-disciplinary team.

The participants explain that they put an effort in working with other practitioners to ensure that the task of multi-disciplinary evaluation is achieved. The extract below explains:

Extract 22: Clinical Psychologist

P1:   I will talk about my personal experience. Where a child is placed in special schools, is that when a child is being placed in that particular school, we also assess the child as psychologists. May be, we find that she is the candidate of the special school, she has learning problem, or the IQ, her cognitive… Even if sometimes her cognitive ability is not that low, but a child has learning problem, then she ended up being placed in special school. Once a child is placed in special, a team of practitioners sit down every year to a child's performance. Every year, at the end of the year, or quarterly, the whole team, multi-disciplinary team sits to discuss each learner's performance. Which means that, ideally, if a child improves, that a child is supposed to be outplaced; as the schools are divided into two: There are special schools which you can see that a child really needs support and be placed in this school.

P2:   Eh, I work closely with the OT especially eh, to, especially if I suspect lacks and neuro-motor skills and uh also work in collaboration with an OT (excuse me).

P4:   … because a test on its own is not sufficient.

The accounts of the participants reveal that results of cognitive measures alone are not sufficient in making child's educational placement decision. What the participants consider is to annually assess the progress of a learner to review the placement decision; and also involve other assessment specialist such occupational therapists.

4.4.5.1.2 The recommendation of remedial intervention

To be on a safer side when the result of a child is not clear enough, participants report that the recommendation of remedial class is done. The remedial intervention is used to give a child a chance to improve. In case no improvement is observed, then a special school education is recommended. Consider the following extract:

Extract: 23: Clinical Psychologist

P2:   I think the safe way to do is a kind of borderline, is to recommend remedial intervention, either a remedial class within the school and then from there to observe for a   child, does improve for now, a remedial school but, you maybe give the assessment after a few years to see if a child will adjust in the

mainstream school, being remedial is meant for that; to remedy and see if
there is improvement.

Where the practitioners are not clear with a child's cognitive functioning, remedial education is recommended to avoid misdirecting or improper channeling of a child; as, according to the narratives, it is not easy to reinstate a child to mainstream school once placed in special school.

4.4.5.2 Remedying cases of misdiagnoses

4.4.5.2.1 The cases of misdiagnoses

Despite the effort made by psychologists to prevent cases of misdiagnosis, such cases are common in KwaZulu-Natal, according to informants. These cases are reported by participants as ranging from misinterpretation of results by intern psychologist, incorrect diagnosis, to cases of special school placement without assessment of psychologist. Consider the following narratives

Extract 24: Counseling Psychologist

P5:   I have had cases, especially when started out in 2005, of children who were placed in special school, who had never been assessed by a psychologist. I don't know which system would have been used, but we have quite a number of them, who have been placed there. Interestingly enough, there is a person who was once placed in a special school. When   couldn't find the report, when I assessed the child, the child performed   above average at Z-SAIS test. We tried to get the child back to the mainstream school. We were told that the law, the South African Law, does not allow it. Once you are placed   in a special school, you are issued a non-return ticket.

P3:   Ok, eh, but not from my practice but, I know of a case whereby a leaner was inappropriately placed at a special school at the age of eight. She studied, she stayed there from the age of eight until sixteen, and then after sixteen   years the parents took her for re-assessment, they reviewed it, only to find that the child was functioning at a normal level. She was okay, just that she was not at the same developmental level with that of her peers, but as she grew she picked up and become part of her peers. She then performed well, because parents took the case to court, and sued   the department (of education).

According to the narratives, cases of misdiagnosis occur. Some of the children are placed in special school without the assessment of psychologists, while others are emanating from the practitioner's misdiagnosis, such as delayed cognitive development mistaken with serious cognitive impairment.

4.4.5.2.2 Learner's age and curriculum put a barrier in outplacement or re-instatement in mainstream school.

According to the participants, it is difficult to take a child back to mainstream school because of child's age and curriculum needs of mainstream school.

Extract 25: Educational Psychologist

P3:   …and if you look at the case, the child already was sixteen, so
                there was no way of taking her back to mainstream school. They had to take her
                to vocational school because of age. Because she was re-assessed at the age of
                sixteen, so it was impossible to bring her back to mainstream school because in
                special schools, they do not use the curriculum as mainstream schools.

In some cases, the act of recklessness is identified by participants; where learners' assessment reports got lost and reassessment is required. In the same cases, sometimes discrepancies between the lost result that brought a child in special school and the latter results occur. It was shocking as the child scored above average yet placed at the special school, as P5 accounts, "…when couldn't find the report, when I assessed the child, the child performed above average at Z-SAIS test. We tried to get the child back to the mainstream school. We were told that the law, the South African Law, does not allow it".

According to the participants, despite the effort applied in preventing cases of misdiagnosis, there is a measurable occurrence of such cases. Some of these cases emanate from the psychologists' failure to make correct diagnosis, while others are the results of practitioner's incompetence in assessment. However, participants, in their narratives, note that there are cases of misdiagnosis caused by failure to acknowledge culture and language barrier.

4.5 Summary of major themes discovered

According to the data collected, cognitive assessment faces a challenge in South Africa generally and in KwaZulu-Natal in specific; because most of the cognitive tests are not appropriately normed for South African population. The participants outline lack of standardized, updated and translated tests as the major challenges they encounter when conducting cognitive assessment. When seeking the role and scope of cognitive assessment, it comes out from the participants' narratives that the role of cognitive assessment is limited when decision regarding placement of learners in alternative schooling is made. Numerous sources of information; such as parents' interview, educators' information, information from other professional; are considered prior to selecting and administering cognitive assessment tools. The participants present the basis of learners' placement decision as multiple-evidence from various sources of data.

Participants narrate that they do make accommodation to overcome the challenges presented by language and culture when conducting cognitive assessment for learners. They talk about translation as the means to ensure that the child understands what is required to do. The data highlight that practitioners use Zulu explanation, vocabulary expansion and local standardization to compensate the effects of language and culture. In some instances, practitioners choose tests that are culture-fair such as projective tests. The reason being these tests such as Gestalt's and Goodenough tests, are non-verbal and culture-friendly. Even in conclusion and recommendation the participants indicate that the child was limited by language and or cultural orientation.

The regulation of cognitive assessment, according to data collected, is based on ethical requirements of cognitive assessment as prescribed by Health Professions Council of South Africa. According to ethics, practitioners are required to act on the best interest of a child, by basing their decision on multiple-evidence. Education White Paper 6 is regarded as means to regulate cognitive assessment and decisions about child's schooling. According to the participants, cognitive assessment needs to be used in conjunction with SIAS (Screening, Identification, Assessment and Support) strategy. SIAS strategy requires the intervention of multi-disciplinary team and the use of a variety of assessment tools. The Bill of Rights stipulates, as part of children's rights, that a child should not be unfairly discriminated.

The narratives of the participants reveal that the psychologists apply measures such as collaboration of psychologists to achieve integration, recommendation of remedial education to eliminate cases of misdiagnosis. However, it appears that a number of misdiagnosis cases confront psychologists though. There is no clear stand regarding how misdiagnosis cases are remedied. The issue of 'no return ticket' gives an idea that, according to inclusive education policy, a child cannot be removed from special school and reinstated in main stream school. Some of the narratives point at the age of a learner and special school curriculum as the factors that prohibit a child to be taken back to mainstream school.

4.6 Conclusion

This chapter presented the findings of the study from six Black psychologists that were available during the period of study, in KwaZulu-Natal. The next chapter discusses the findings of the study in line with literature review.

CHAPTER 5
DISCUSSION AND CONCLUSIONS

5.1 Introduction

The purpose of this chapter is to discuss the results in the context of the literature discussed in chapter two. This chapter consists of the following main sections: Major Findings of the study, Discussion of Findings, Conclusions drawn per research question, Implications for theory, policy and practice, Limitations of the study, Recommendations for Future Research, Summary of Findings and Conclusions.

The problem statement underpinning this study was based on the the growing focus of the Department of Education to special needs education that has led to an increased number of learners placed in special schools. Cognitive assessment is one of the main tools used to determine child's cognitive ability. The results of child's cognitive assessment are used when making decision about child's educational placement. Few studies have been done in South Africa about the extent of the influence of language and culture in cognitive assessment; especially in KwaZulu-Natal which is dominated by Zulu speaking population versus Cognitive tests written in English and formulated within the context of Western culture. This study was aimed at finding the current experiences of psychologists in KwaZulu-Natal regarding the influence of language and culture in cognitive assessment. The findings of this study will be used for making decisions about placement of learners in alternative schooling. The education policy for screening of learners will benefit from the findings. The results are also expected to shape positively the legal and ethical requirements of child's cognitive assessment; and mostly protect children's educational future where cases of misdiagnosis are identified.

5.1.1 Summary of research methods

The qualitative data was collected from six Black psychologists residing and practising in KwaZulu-Natal, Pietermaritzburg through semi-structured individual interviews held in 2017. All six psychologists have more than five years' experience working as psychologists

conducting cognitive assessment of learners for alternative schooling. The participants'
categories of registration included clinical, counselling and educational.

5.1.2 Major Findings of the study

The major findings of this study consists of the challenges faced by psychologists when
conducting cognitive assessment; the role and scope of cognitive assessment when making
educational placement of children in alternative schooling; various considerations made by
psychologists to compensate the effects of language and culture in cognitive assessment; the
way in which cognitive assessment is regulated in South Africa as understood by
psychologists, as well as how cases of misdiagnosis are dealt with.

5.2 Discussion of findings

The findings were organized according to the research questions. Each research question
consists of main theme identified from data set and then sub-themes under each main theme are
identified and discussed.

5.2.1 Objective 1: Challenges encountered by Psychologists

The psychologists pointed out the challenges with cognitive assessment emanate from the
influence of culture and language of the child being tested versus the language of the test,
which is most often English; and the culture of the group for which the test was normed, the
Western culture. The most significant element in this language and culture challenge was
identified by psychologists in KwaZulu-Natal as failure of cognitive tests to be culture-fair and
culture-friendly. As a result, the participants indicated that cognitive tests appear to be difficult
for child's level of understanding.

It also came out that English, in which almost all cognitive tests are written, is still a barrier for
some children who are not fluent or rather exposed to it, as language of teaching in most Black
schools is IsiZulu until the third grade. Nevertheless, it becomes apparent from the
participants' responses that, in some cases, it becomes compelling to use tests that are normed
for English-speaking children in Zulu-speaking children. Although cognitive tests are widely
used in Africa, with special reference to South Africa, most of these cognitive tests are actually

not normed for African population (Foxcroft, 2004, Paterson & Uys 2005). Among other factors, the participants mention lack of standardization, tests not updated and also tests that are not translated standardization of cognitive measures needs to consider the established aspects of that particular culture.

These results correlate with Heine & Buchtel (2009) who expressed that cognitive test items should be cultural specific. There is a need to develop new intelligent tests which are cultural sensitive (Benson, 2003). Mushquash and Bova (2007) agreed that culture could have a significant impact on test performance of individuals from the cultural group that is not the same as the one within which the test was designed and standardized. Berry et al.(1992), Nisbett et al. (2001) and Nisbett & Novanzayan (2002) concluded, from their experiments, that culture affects cognitive processes indirectly by focusing attention in different parts of the environment, and, directly, by making some kinds of communication patterns more acceptable than others. Bonder et al. (2002) suggested awareness of culture in clinical care. Reynolds (2000b) expressed concern about ignoring bias in mental testing.

5.2.1.1 Cognitive tests are not standardized

The participants revealed challenge of norms with a particular reference to standardization of tests. According to the participants, the tests items in those particular tests contain the cultural code that is foreign to the African child. As a result, the cognition of a child is being evaluated in conjunction with the foreign culture. This portrays intelligence as being conversant with the Western culture, the ability to think in a foreign culture and respond in a foreign language**.** The portrayal of cognitive inferiority of non-English children may possibly lead to a child's internalized inferiority which will evidently influence the child's career choices and inspirations; assuming that his or her abilities are limited to jobs that do not require higher level of cognition. Likewise, a South African child's creativity could be hampered. Thus, in a long run, South Africans will be denied leadership opportunities in various occupations, due to mislabeling of South African child. Suzuki and Aronson (2005) argued that the cultural flexibility of intelligence has impact on the racial order.

These results correlate with Freedle (2010) findings on ethnic test bias effects; and Graves & Mitchell (2011) on professionals' views on intelligence testing. Hagie et al. (2003) found the

similar results when investigating potential test item bias for American Indian students. Gopaul-McNicol and Amour-Thomas (2002) similarly found the relationship between assessment and culture. Helms (2006) found cultural bias in racial assessment. Wicherts et al. (2005) explained that cultural and linguistic differences were the cause of measurement discrepancy in test performance. Beiser and Gotowiec (2000) found the similar explanation for Native/Non-Native discrepancy in IQ scores. Malda et al. (2008) found that there is a need to adapt cognitive test for a different culture to ensure fair cognitive assessment. Mushquash and Bova (2007) agreed that measurement instruments are often used with cultural groups for which proper normative or psychometric research was not conducted; and that many assessment tools originated in Europe and North America (Goh, 2003). Foxcroft (2004) and Tredoux et al (2005) agreed that South Africa relies on psychological assessment instruments from other countries, mainly Western countries. On the similar view, Classen (1997) and Dhladhla & de Kock (2008) argued that use of psychological tests in South Africa has largely followed international trends in a sense that measurement instruments are administered in English while majority of the population speak other African languages. This indicates a gap in cognitive assessment. It shows a shortage of assessment measures that are normed for Africans and written in African languages. Nell (2000); Serpell (2000); Schaap (2001); Ferraro (2002); and Huysamen (2002) concluded that cognitive assessment measures contain cultural aspects that cause the minority group, which is people of non-English s origin, to score lower in such measures. The similar view was supported by Helms-Lorenz et al. (2003), Johnson & Van de Vijver (2003). Van de Vijver & Tanzer (1997); Van de Vijver (2002); Van Hemert et al. (2002); Van de Vijver and Tanzer (2004); Flanagan et al. (2007); and Van de Vijver and Leung (2011) argued that there is a need to research and establish cross-cultural equivalence in cognitive measures to ensure their validity.

5.2.1.2 Tests that are not updated

The second issue that emerges from the interview is that of tests that are not updated. Tests, according to participants, ignore changes in lifestyle and even ever-changing nature of culture and hence language. Therefore what comes out is that even the appropriately normed cognitive tests loose such appropriateness due to lack of test update. Culture is dynamic (Flanagan & Harris, 2012). It is inappropriate to assume that, generation after generation; life will still be

the same. What are regarded as cultural code and symbols change over time, and the language change due to acculturation and changing technology. If a test fails to accommodate such changes in lifestyle, such a test loses soundness and consistency or dependability. When such test is administered to a child, results will probably be inaccurate and lead to misdiagnosis. Similarly, misdiagnosis leads to inappropriate channeling of a child educationally. Consequently, even the appropriately standardized measures end-up lacking rigor as time goes by.

These results correlate with Okazaki & Sue (2000) who suggested test revision for Asian Americans. Foxcroft (2004) and Paterson and Uys (2005) explained that much has been done to standardize psychological assessment measures purchased from other countries to meet South Africa's diverse population. However, the lack of test updating discredit test and render it invalid and inconsistent, which questions the legitimacy of test results and placement decision.

Edwards and Oakland (2006) and Foxcroft and Roodt (2007) argued that the firm use of intelligence cognitive scores when making critical and life changing educational decisions regarding learner placement in a type of school and or educational programs, justifies the need for practitioners to examine the possible test bias in both new and revised cognitive tests. Foxcroft and Roodt (2007) indicated that people who standardize cognitive measures are mainly Whites. Swart and Drennan (2000) expressed the need for further standardization of cognitive measures. Cognitive test scores are attributed to environmental, social, educational and cultural factors (JvR Africa Group, 2015).

5.2.1.3 Most tests are not translated

The language variation to a greater extent is identified by participants as posing a challenge when conducting cognitive assessment. The psychologists present the challenge of language as pulled from two sources, namely, the foreign language that is not spoken by a child and the child' s mother tongue's variation, or sometimes misleading translated words. Practitioners try to translate tests as they administer them. The translation of tests by practitioner does not guarantee the accurate language translation as the practitioners have their own language

background. Even in cases where a practitioner tries to accommodate language variation, the practitioner is not a language expert or skilled translator.

A further challenge presented by the present findings is that even the translated tests are not bias free as some of the items lack translation equivalence of an item. For example, the translation of 'tools' in S-SAIS-R as 'izikhali' in Z-SAIS; does not meet backward translation. 'Izikhali' are 'weapons' in backward translation. Furthermore, Bethlehem et al. (2003) found that geographic equivalence also influence the test scores.

Ortiz & Ochoa (2005) findings correlate with this study by suggesting improvement in cognitive assessment of culturally linguistically diverse individuals. Researchers agree that test performance depends on the knowledge of the local culture and English-language-based education (Carstairs et al., 2006; Walker et al., 2009; Walker et al., 2010 and Nell, 2010). Hambleton and Zenisky, (2011) expressed the similar view on translating and adapting tests for cross-cultural assessments. Comprehension of the task is important in test performance (Nell, 2010). Swartz and Drennan (2000 p.185) argued that, "many clinicians cannot speak the languages of the patients". In such circumstance, the practitioner's language presents a further challenge in addition to the one brought by the assessment tool (Hambleton, 1994). Furthermore, the effort of the practitioner to translate the measure for the patient is fruitless since the practitioner and the patients come from different language background. Van de Vijver and Rothmans (2004) identified communication problems between respondent and tester, including interpreter problems, as one of the sources of bias in cross-cultural assessment. Jukes and Grigorenko (2010) argued that when mother-tongue is used as medium of assessment, it yields more valid measure of children's cognition.

5.2.1.4 A challenge of assessing a Zulu child in Model C School.

It is a challenge for psychologists to assess a child whose mother tongue is IsiZulu, but attending an English-medium school. According the participant, assessing a Zulu child in Model C School is still presenting a dilemma regarding the choice of cognitive test language. According to the participant, administering a Zulu version of test to a child in Model C School is contaminating the results. This is because of the reality that the child learns in and speaks

English. White educators in English-medium school want English version of tests for all English-medium school learners. However, the child speaks IsiZulu at home as mother tongue.

The child's cognition has been nurtured and developed within the environment embedded in Zulu culture with IsiZulu as a medium to learn and transfer such culture. The argument here is which culture such a child identifies with. The argument of the psychologists is that the child has acquired a language within a particular culture. Therefore a particular language is used to convey that culture. Culture and language is inseparable. The results of the study show that mother tongue is the best choice in evaluating child's cognitive ability.

The results of the study conducted by Shuttleworth-Edwards et al. (2004) correlate with the results of this study by identifying cross-cultural effects on IQ test performance with WAIS-III. According to Van de Vijver and Phalet (2004), a client must have a mastery of the testing language. Bethlehem et al. (2003) found that the later the second language is learnt, the poorer the performance in a test. In the same study, Bethlehem et al. (2003) found that norms for verbal fluency for South African bilingual Zulu-English speakers are different to those cited in other countries; for example, S-SAIS-J. They, therefore, expressed an urgent need to get local norms for appropriate measurement of the clinical population. Carstairs et al. (2006) suggested that people who do not have an English-speaking background and who first spoke a language other than English should not be only judged according to the results of cognitive assessment. They argued that individuals who are not the native speakers of the language of tests are disadvantaged in cognitive tests because of the lack of proficiency in that language (which is mostly English). Contrary, De Picciotto and Friendland (2001) found that the age of acquisition of the second language does not influence the performance in that language.

5.2.1.5 Language and cultural orientation of a learner present a challenge

The results show that language and cultural orientation of a child gives a challenge. The psychologists use Zulu version of cognitive test with an understanding that a test basically reflects life at home. The findings reveal that there is a need to consider home exposure. When the issue of bilingualism effect is explored, the participants argued that it is the 'how much of exposure' that is the determining factor. According to them, the early exposure to English language together with support at home can justify the administering of English version of

cognitive tests. However, the notion of 'life at home' is still a question in terms of cultural orientation. The basic idea is that the test is not measuring child's understanding of language. The practitioners use language to access and evaluate child's cognition. Language is the code to enter into one's cognition.

Categorically, a learner has to be assessed in his or her own mother tongue. Using a language that is foreign to that child is like using the wrong code. The appropriate code, according to practitioners, is the mother tongue, despite the language of learning at school. Therefore a need for creation of new instruments is explicit here. The challenge is the shortage of Zulu versions of cognitive tests. What is portrayed by data here is that the practitioners find themselves left with no choice but to administer tests that are not either age-, culture- or language-appropriate for their clients.

Van de Vijver and Phalet (2004) asserted that exposure to another culture and acquisition of another language does not guarantee complete adjustment to either original language and culture or second language and culture. Instead, a person who is in the process of acculturation can be at any point between no adjustment at all and complete adjustment (Van de Vijver & Phalet, 2004).

Bialystok et al. (2009) argued that whether bilinguals show an advantage or a disadvantage relative to monolinguals depends on tasks characteristics. Their study is in line with the results of this study. It revealed that bilingual children had experienced more difficulty with retrieval during picture naming than the monolingual counterparts (Tare & Gelman, 2010). It is evident that individuals have their own specific language of thought. Expecting a child to think in a language secondary to his or her primary language of communication put limits to one's thinking. This thinking restriction in turn affects one's cognitive assessment scores. These finding rules out the possibility of thinking that a Black African child that is bilingual (speaking English and indigenous language) can perform better by breaking the language boundary. In other words, Tare and Gelman (2010) found that bilinguals are as disadvantaged as monolinguals in taking assessment in a language that is foreign to them. This suggests a strong relationship between culture and language and lower scores in cognitive assessment.

Schwartz (2016) argued that the way in which we learn and think is basically a function of the social and cultural environment in which we are nurtured. He argued that cognitive development cannot be separated from culture. Children's intellectual processes are developed to handle tasks and problems that are of importance to their particular surroundings. He further mentioned Vygotsky's dual nature of cognitive development. He explained that human cognition develops both socially and psychologically. Vygotsky's argument is based on the notion that individual cognitive development cannot be understood without reference to the social and cultural context within which it is rooted (Holzman, 2008; Newman & Holzman, 2013). The true reflection of child's cognitive ability is determined by child's performance in his or her own culture using his own language.

5.2.2 Objective 2: The role and scope of cognitive assessment

5.2.2.1 Cognitive assessment is not the sole determinant of child's cognition

The role and scope of cognitive assessment in placing learners in alternative schooling has been described as limited. The cognitive assessment alone is not enough to determine a child's cognitive level of functioning and hence, appropriate schooling option. The data shows that a number of other sources of information are used. So the decision is taken based on decision on various results. The decision is based on multiple-evidence by considering various sources of information to support the decision. Cognitive assessment is administered to confirm what other sources of information reveal. The psychologists present their account of cognitive assessment as one aspect in a spectrum of methods used to determine child's cognition. Also, Taruk (2008) argued that cognitive assessment results should not be the only determinant of a person's cognitive ability. Some children come from the environment where they have relatively little exposure to drawings, working with blocks and understanding designs (Nell, 2000). Conversely, it will be difficult to recognize skills that are relevant to child's original environment.

The use of cognitive assessment alone is not sufficient in determining the appropriate level of cognitive ability, as various studies show (Neisser et al., 1996; Nisbett et al., 2001; Nisbett & Novanzayan, 2002; Sternberg et al., 2002; Mushquash & Bova, 2007). According to Neisser et al. (1996); Sternberg et al. (2002) and Mushquash and Bova (2007), even standardized tests are

not enough in determining a person's cognitive ability because they do not sample all forms of intelligence.

The psychologists collect information about child's cognitive ability from parents, teachers and other sources that have worked with the child. Taruk (2008) agreed that the integration of sources of data, including family interview, teacher's report, and interview if necessary, and any other assessment done by other practitioners; should be considered when interpreting cognitive ability test results. She argued that the integration of sources of data especially with reference to those individuals that are not of European origin is important to ensure correct decision about child's schooling. The purpose of using multiple sources of information is to rule out the possible cultural and linguistic factor that can affect the test scores and interpretation of results; which can mislead practitioners in decision-making about the intervention required. Taruk (2008) emphasized that clinicians need to predict behaviour outside the decontextualized environment or neutral office

5.2.3 Considerations made by psychologists

5.2.3.1 Translation

It is obvious from the data collected that psychologists do acknowledge and accommodate the effects of language and culture in cognitive assessment. In case of a language, psychologists report that they use translation to aid a child's understanding of the instructions. The psychologists administer cognitive assessment with awareness of cultural and linguistic diversity to cater for all children. The data revealed that psychologists understand that language and culture do not form part of cognitive information, but we use language and culture to get cognitive information. Therefore, the practitioners engage in translation depending on how conversant with English the child is. The translation used by psychologists takes various forms depending on the background and the need of the child at that time, as discussed below:

5.2.3.1.1 Use of Zulu version or explanation

The psychologists use Zulu version of cognitive tests, if available. This helps to lessen the work of translating the test by a psychologist. Therefore, it rescues participants from work of personal translation. However, the participants indicated that only very few tests have Zulu

versions. Intelligence is an adjustment or adaptation of the individual to his or her own total environment, including culture and language (Goh, 2013; Jukes & Grigorenko, 2010; Mushquash and Bova, 2007; Reynolds & Suzuki, 2003). The problem of linguistic and cultural bias is not new and practitioners have learnt ways to deal with the challenge.

According to Reynolds and Suzuki (2003); Jukes and Grigorenko (2010) and Goh (2013), the shortcoming of cognitive measures was known when Binet's first intelligence scale was published in early 1900. When they were investigating the questions of cross-cultural assessment and measurement, Mushquash and Bova (2007) agreed that culture could have a significant impact on test performance of individuals from the cultural group that is not the same as the one within which the test was designed and standardized. Therefore the effort is needed to compensate such linguistic gap by applying measures to alleviate the challenge. Taruk (2008) argued that language is a culturally determined cognitive tool. Bringing a test into child's own background is appropriate for yielding legitimate scores, as practitioners need to reflect on client's own cultural frame of reference (Taruk, 2008).

5.2.3.1.2 Challenges in translation or interpretation

The present study's findings present the use of translation by psychologists as means to overcome linguistic impact in administering cognitive assessment. However, along with the praise of translation, the same findings identify the challenges which are brought about by translation. The assessment will never be accurately the same as when it is just the practitioner and a client. The second challenge is a question of whether the translator and the client come from totally the same language background, as the findings indicated the influence of language variation in administering cognitive assessment. The same concern was shown by British Psychological Society (2008) and Miletic et al. (2006). Helm (1992), when identifying forms of cultural equivalence, asserted that for a test to be cultural equivalent, linguistic equivalence should be observed; meaning that tests should have the same linguistic meaning to different groups. These results correlate with Arnold and Matus (2000) findings. Van de Vijver and Tanzer, 1997; Van de Vijver and Tanzer, 2004; and Van de Vijver and Rothmans (2004) also found that other form of test bias is translation bias.

5.2.3.1.3 Use of vocabulary expansion (dialects) and local standardization

The findings of the present study reveal that the knowledge of your client's background be obtained before actual assessment; in order to adjust the cognitive assessment test to the background of the client. The participants talk about the use of as many dialects as possible to ensure that the child's responses are not influenced by child's linguistic and cultural background. The findings suggest that the practitioner's language should be the same as client's language when cognitive assessment is conducted. This is contrary to view presented by Reynolds & Suzuki (2013), that English-speaking testers hamper the performance of non-English-speaking testees. However, Reynolds and Suzuki (2013) acknowledge the notion that local norming may yield less influenced scores.

Swartz & Drennan (2000) and Foxcroft & Roodt (2007) argued that the standardization of psychological assessment measures encounters challenges since people who standardize and administer the measures are mainly Whites yet Black population, in many cases, is the recipient of those cognitive measures. According to them there is an explicit need for further standardization of the assessment measures developed in countries other than South Africa. This needs to be done to consider the South Africa's local linguistic and cultural context.

5.2.3.1.4 Test choice, scoring and reporting

Kastanakis & Voyer (2014) agreed with Dyer (2007) that there is a need for multi-level analysis to the interpretation of cognitive test results of the group whose native language is not English.

5.2.3.1.4.1 Use of non-verbal / projective tests

The findings suggest that practitioners use test choice, scoring and reporting to minimize the effects of language and culture in cognitive assessment. They use non-verbal tests to avoid the use of language. According to their responses, the projective tests are able to display child's cognition without the influence of language in cognitive assessment. Good-enough and Gestalt tests are commonly used as they are non-verbal tests. These tests are able to project the clients' cognition without using language.

Goh (2013) argued that assessment practitioners are confronted by a challenge to recognize that most of the cognitive assessment tools may not measure learners' intellectual ability properly due to linguistic and cultural unfairness. Reynolds and Suzuki (2003) argued that vigorous examination of possible test bias and accuracy should be executed; as means to combat cultural barriers to cognitive testing. Studies suggest that assessment instruments should be less sensitive to levels of education and residence (Goh, 2013; Jukes and Grigorenko, 2010; Reynolds & Suzuki, 2003). The purpose is to reduce inappropriate diagnosis emanating from neglected cultural and linguistic factors.

Generally, researchers agree that the administration of fair and appropriate assessment is owed to acknowledgment of the impact of culture and language prior to administering cognitive assessment (Goh, 2013). Cormier, McGrew and Ysseldyke (2014) and Milligan (2015), in their respective studies, found that if culturally appropriate screening tools are provided in screening of cognitive impairment in diverse population, chances of misdiagnosis and under-diagnosis are potentially decreased.

Despite the practitioners' reliance on non-verbal tests (Goh, 2013), the study conducted by Carstairs, Myors, Shores and Fogarty (2006) revealed that while language impacted verbal subtests, sociocultural factors impacted non-verbal subtests. These findings suggest the element of bias even in non-verbal tests. People who come from non-English speaking background are disadvantaged by both verbal and non-verbal tests (Carstairs, Myors, Shores & Fogarty, 2006). They further stated that there is a distinction between people who started by speaking English and those people who started by speaking a language other than English, even though the latter speaks English later in life. Non-verbal tests do not reduce the influence of coming from a Non-English-speaking upbringing (Carstairs, Myors, Shores & Fogarty, 2006).

Researchers such as Grigorenko and Sternberg (1998); Sternberg (1999); and Sternberg et al., (2002) suggested the use of more dynamic instruments or creation of totally new instruments that will be able to sample of forms of intelligence; rather than "analyzing and reanalyzing the conventional tests" (p.156). Reynolds and Suzuki (2013) also suggested that, "The use of tests in a new linguistic culture requires that it be redeveloped from the start" (p.105).

5.2.3.1.4.2 Use of non-scoring of unanswered items and accounting for language barrier in conclusions and recommendation.

The results of this study found that practitioners account for language barrier in report's conclusion and recommendation section. The aim is to enhance precautious decision-making to minimize chances of misdiagnosis. Moreover, the practitioners use non-scoring of items that the child left unanswered as a result of misunderstanding caused by linguistic barrier or cultural orientation. Non-scoring of an item will put a test taker in a balanced position by calculating only the valid and bias free item responses. Apart from the language and cultural orientation of the test, the practitioner's language and culture has a potential to create misunderstanding between the practitioner and the client, thus lead to misinterpretation of client's actions. As part of observation, client's behavior during a session may be misinterpreted if the practitioner's language is different from the client's language.

Reynolds and Suzuki (2003) explained that practitioners must deal with the limitation that language and culture presents in cognitive assessment. Valencia and Suzuki (2001) also identified language and culture as part of performance factors affecting cognitive assessment results. As a result, extra care need to be applied to ensure that client's cognitive level is appropriately measured; by eliminating all possible forms of bias in cognitive measures. Leong (1996) agreed that the culture and language have impact in cognitive assessment and that the clinicians cannot disregard such influence in cognitive assessment.

Leong's model of understanding the multiple dimensions of cognitive action within a session; explain the importance of exploring various aspects when assessing client's cognition. That makes it vital to examine the conditions under which cognitive assessments are conducted and how results are contextually interpreted to make decisions. Mpofu and Ortiz (2009) stated that almost all tests contain some form of language and communication. Therefore the language influence should be strongly acknowledged and dealt with at a wider perspective. Flanagan and Ortiz (2001) concluded that although the cultural influence is witnessed and acknowledged by practitioners, the challenge is to establish what variables practitioners consider when making decisions about cultural influence that may affect the selection and interpretation of tests from cognitive batteries.

Van de Vijver and Rothmans (2007) also argued that the test manual should specify test items that need to be applied with caution and how the practitioner should accommodate or compensate linguistic of cultural effect. This is important in ensuring consistency in test administration and preserving test validity and reliability. There is a need to make an explicit agreement based on research findings about the specific variables that need to be considered when selecting, interpreting and making decisions about the tests and the results. There should be a common knowledge and understanding of such variables for the practitioners to apply the same procedures to avoid inconsistency in cognitive assessment.

5.2.4 Regulation of Cognitive Assessment

5.2.4.1 Ethics

It became apparent from the results that ethics is the main regulation in South Africa that guides the practice of psychologists regarding the administration of child cognitive assessment.

Ethical guidelines form major part of the training of psychologists in South Africa. The practitioners are aware of such ethical guidelines. Their decision about a child's educational placement acknowledges the act of acting on the best interest of a child.

American Psychological Association (2002), Dana (2005) and Dehm (2006) provided guidelines for psychologists when conducting multicultural assessment. Foxcroft (2002) asserted that the provision of professional services by a person who does not understand the culturally different background of the clients is considered unethical. Likewise, the denying such clients services due to lack of competent personnel is unethical Foxcroft (2002).

5.2.4.1.1 Best interest of a child ('do no harm')

The results explicate that practitioner should act ethically by avoiding to do harm to a client; or a child in this case. The standing ethical code is to act on the best interest of a child. The following extracts talk about how ethics regulate and inform the participants' practice in psychology as such, including cognitive assessment. Therefore practitioners use a variety of assessment tools and information sources to obtain enough evidence on which their decision of learner placement will be based; to avoid cases of misdiagnosis that will results into 'harm to a child'.

Foxcroft (2002) explained that it is psychological practitioner's core responsibility to ensure that "…nothing is done during testing and assessment to harm the client" (p.2).

5.2.4.1.2 Use of multiple-evidence

The findings reveal that practitioners are aware that it is ethical requirement to use multiple sources of information to make conclusion and decision about child's cognitive functioning. Apart from the cognitive battery, participants tell about the collection of information from sources including parents and teachers. According to the findings, this information helps in gaining a complete picture about child's competences or abilities. The notion of assessing the child holistically became obvious in this study. Findings show that practitioners examine even the basic medical needs such as hearing and vision to rule out medical problems before assessing child's cognition.

Stolk (2009) also explained that the multi-level interpretation of cognitive test results by insisting that almost all psychological assessments take place in a cultural context. Stolk (2009) further explain that if the client being assessed is someone of non-English origin or background, several contextual areas, both current and historical, require close attention. Reynolds and Suzuki (2013) also suggested the use of multiple methods when assessing clients, as guiding principle to justifiable assessment.

5.2.4.2 White Paper 6 (Inclusive Education)

5.2.4.2.1 Using SIAS (Screening, Identification, Assessment and Support) tools

The findings reveal that the educational assessment is the first stop before cognitive assessment. The findings of this study show that the Department of Education, through Education White Paper 6 of 2001, regulates cognitive assessment of learners. Education White Paper 6 stipulates requirements when learners are assessed for alternative schooling (Inclusive Education, 2010; Inclusive Education, 2011 and Thutong, 2013). As a result, many factors are taken into account before the decision to place a learner to a special school is taken. The Department of Education conducts its own educational assessment to determine scholastic ability of a child (Education White Paper 6, 2001 and Inclusive Education, 2011).

5.2.4.2.2 Use of multi-disciplinary team

The findings suggest that there is a collaboration of practitioners, namely, educational psychologists from Department of Education and clinical and counseling psychologists in private practice. The National Strategy on Screening, Identification, Assessment and Support of 2008 is responsible for ensuring that each child has access to appropriate level of education that acknowledge and accommodate child's educational needs (Thutong, 2013). The implementation of SIAS requires the use of multi-disciplinary team where each practitioner will play his or her role to determine the child's level of scholastic and cognitive ability (Inclusive Education, 2010).

5.2.4.2.3 Use of variety of assessment tools

Participants account for the implementation of SIAS stating that the appropriate implementation of SIAS requires the use of a range of assessment tools. The result of cognitive test cannot solely determine child's mental functioning and decide on the appropriate schooling channel for that child (Thutong, 2013).

5.2.4.3 The Bill of Rights

5.2.4.3.1 Children's rights

The constitution of South Africa is also one of the means to regulate cognitive assessment of children. It came out from the findings that, as stipulated in the children's rights outlined in 'The Bill of Rights', the psychologists are aware of the children's rights . The right not to be subjected to any harm is claimed to be the guideline informing their assessment and child's placement decision.

5.2.4.3.2 Unfair discrimination

According to the findings, Unfair Discrimination, as defined in Employment Equity Act of 1998, is also one of the tools to aid regulation of cognitive tests. Employment of Equity Act requires that the cognitive test should be valid, fair and justifiable. This is due to the previous practices where minority groups were denied job opportunities by using cognitive assessment

instruments that were disadvantaging them in terms of language and culture (Van de Vijver & Rothmans, 2004).

5.2.5 Preventing and Dealing with cases of misdiagnosis

From the interview, it appears that assessment practitioners do apply measures to prevent inappropriate placement of children. The tales of the participants are moored on practitioner's understanding and acknowledgement of the influence of language and culture when conducting cognitive assessment.

The above narrative isolates cognition from language and culture. The participant's account is that cognition is independent of language and culture; however, language and cultural orientation are used to tap into cognition. According to the findings, psychologists do as much as possible to put aside language and culture when testing cognition.

5. 2.5.1 Psychologists apply measures to prevent misdiagnosis

5.2.5.1.1 Collaboration of psychologists and other health practitioners

It appears from the findings that psychologists work together with other health professionals to ensure correct decision is taken about the educational option of a child. The use of occupational therapists suggests that psychologists assess a child holistically by eliminating factors that could possible lead to misdiagnosis.

5.2.5.1.2 The recommendation of remedial intervention

To be on a safer side when the case of a child is not clear enough, participants report that the recommendation of remedial class is done. The remedial intervention is used to give a child a chance to improve. In case no improvement is observed, then a special school education is recommended. The reason for recommending remedial education is to avoid misdirecting or improper channeling of a child; as, according to the findings, it is not easy to reinstate a child to mainstream school once placed in special school.

5.2.5.2 Remedying cases of misdiagnoses

5.2.5.2.1 The cases of misdiagnoses

Despite the effort made by psychologists to prevent cases of misdiagnosis, such cases are common in Pietermaritzburg, according to informants. These cases are reported by participants as ranging from misinterpretation of results by intern psychologist, incorrect diagnosis, to cases of special school placement without assessment of psychologist. Consider the following findings

Despite the effort made by assessment practitioners to standardize the cognitive assessment instruments, the studies found that the influence of culture and language in assessment performance is observed (Dhladhla & de Kock, 2008 and Foxcroft & Roodt, 2007). The argument is that one's actual cognitive ability can be appropriately determined by measuring it within the context of one's own culture in which one developed cognitive abilities (Allan, 2011). The placement of learners in special, vocational or remedial school is a long-term decision that can ruin a learner's life if not based on valid assessment. Reynolds & Suzuki (2013) expressed concerns regarding the long-term consequences that may occur when mean tests results differ from one ethnic group to another. Among the critical concerns is that psychiatric clients may be misdiagnosed, learners disproportionately placed in special schools or classes, applicants unfairly denied employment or college admission because of purported bias in standardized tests.

5.2.5.2.2 Learner's age and curriculum put a barrier in outplacement or re-instatement in mainstream school.

According to the findings of this study, moving a child who had been placed at a special school back to a mainstream school is difficult. This is attributed to the fact that the curriculum in special schools is not the same as the one in mainstream schools. Secondly, the age of the child will not be appropriate for the entry grades in mainstream school. In this light, the findings suggest that misdiagnosis is irrevocable because of child's age and curriculum needs of mainstream school. Therefore, misdiagnosis tantamount to unfair discrimination. Inappropriate placement of learners will lead to further problem in learners' academic performance and future career direction. The damage emanating from inappropriate placement is unlikely to be

reversible as the age is a determining factor in almost all academic placements; and cases of inappropriate placement are identified later in child's academic years (Edwards & Oakland, 2006).

In some cases, the act of recklessness is identified by participants; where learners' assessment reports got lost and reassessment is required. Sometimes discrepancies between the assessment results that brought a child in special school and the latter results occur. The findings reveal that despite the effort put by practitioners in preventing cases of misdiagnosis, there is a quantifiable occurrence of such cases. Some of these cases originate from the psychologists' failure to make correct diagnosis, while others are the results of practitioner's incompetence in assessment. However the findings suggest that there are cases of misdiagnosis which are caused by failure to acknowledge cultural and linguistic barriers.

The mainstream education and special school education have two separate destinations that never meet. Therefore removing a child who is somehow capable of attaining mainstream education and incorrectly placed the child to a special based on biased cognitive assessment will result into an irreversible damage to a child's education and consequent future (Goh, 2013). It is, therefore, crucial to ascertain that the use of psychological assessment tools does not lead to misdiagnosis and further disadvantage the recipients of such assessments. In a situation where misdiagnosis occurred the educational goals at both the national and individual level will become unattainable (Goh, 2013).

5.3 Conclusions drawn per research question

The data collected revealed that cognitive assessment faces a challenge in South Africa generally and in KwaZulu-Natal in specific. Most of the cognitive tests are still not appropriately normed for South African population. The participants outlined the lack of standardized, updated and translated tests as the major challenges they encounter when conducting cognitive assessment. However, the role and scope of cognitive assessment is limited when decision regarding placement of learners in alternative schooling is made. A number of various sources of information; such as parents' interview, educators' information, information from other professional; are considered prior selecting and administering cognitive

assessment tools. Therefore the participants presented the basis of learners' placement decision as multiple-evidence from various sources of data.

Participants do make considerations to overcome the challenges presented by language and culture when conducting cognitive assessment for learners; as they talked about translation as the means to ensure that the child understands what is required to do. The data highlighted that practitioners use Zulu explanation, vocabulary expansion and local standardization to compensate the effects of language and culture. According to data collected; as alternative means, practitioners choose tests that are culture-fair such as projective tests, for example Gestalt's and Goodenough tests; as these tests are non-verbal and culture-friendly. Moreover, when practitioners write reports, in conclusion and recommendation, the practitioners indicate that the child was limited by language and or cultural orientation.

According to data collected, the regulation of cognitive assessment is based on ethical requirements of cognitive assessment as prescribed by Health Professions Council of South Africa. Practitioners reported that they act on the best interest of a child, by using multiple-evidence when making a decision about a child. Secondly, Education White Paper 6 is acknowledged by assessment practitioners when making decisions about child's schooling. According to the participants, cognitive assessment needs to be used in conjunction with SIAS (Screening, Identification, Assessment and Support) strategy. SIAS strategy requires the intervention of multi-disciplinary team and the use of a variety of assessment tools. Thirdly, the Bill of Rights stipulates, as part of children's rights, that a child should not be unfairly discriminated (Foxcroft, 2002; Roodt & Abrahams, 2001).

The participants revealed that the psychologists apply measures such as collaboration of psychologists to achieve integration, recommendation of remedial education to eliminate cases of misdiagnosis. However, it appears that a number of misdiagnosis cases confront psychologists though. According to Inclusive Education Policy, a child cannot be removed from special school and reinstated in main stream school, as participants reported. Some of the talks point at the age of a learner and special school curriculum as the factors that prohibit a child to be taken back to mainstream school.

5.4 Implication for theory, policy and practice

Still recognizing the importance of cognitive assessment, especial in achieving educational goals, the findings of this study suggest an extra vigilance by assessment practitioners when conducting cognitive assessment; and the responsiveness of higher education to actively develop the field of psychometrics in South Africa. The following are the four implications for practice: First, the practitioners should adhere to the 'same language, same culture' principle when conducting assessment. Second, the use of translation must be exercised with care as it can lead to inappropriately translated statements. Third, the practitioners need to acknowledge the uniqueness of bilingual children and the effects of acculturation, as the society moves towards conversion. Fourth, the institutions of higher learning (universities) should take a responsibility to encourage and develop assessment practitioners that will advance the field of psychometrics as test writers to meet the demand of new appropriately standardized cognitive assessment measures.

5.5 Limitations of the study

Time and costs limited the study to only black psychologists as they were the participants available during the data collection.

5.6 Recommendations for future research

The findings of this study are limited to the experiences of black psychologists in Pietermaritzburg. It is therefore suggested that the future research in the same topic be extended to all races, namely, Coloured, Indians and Whites, as they form part of psychological assessment practitioners in South African. An extension may be made to include educators and therapists in special schools.

5.7 Conclusion

The scores of existing conventional cognitive measures do provide a picture about the child's cognitive ability. However, they fail to present the whole of intelligence. There is an urgent need to localize the cognitive measures; and the best way is to create new cognitive measures that will meet the validity and reliability criteria regarding specific ethnic and linguistic groups. It is recommended that assessment practitioners be highly responsive to cultural and linguistic

differences for their clients and draw conclusions based on a variety of other sources of information about the client's abilities outside assessment room.

References

Abrahams, F., & Mauer, K.F. (1999). Qualitative and statistical impact of home language on responses to the items of the Sixteen Personality Questionnaire (16PF) in South Africa. *South African Journal of Psychology*, *29*(1), 76-78.

Allan, M. (2011). Thought, word and deed: The roles of cognition, language and culture in teaching and learning in IB World Schools. *International Baccalaurete Organization*. Available from: http://www.workinfo.com/free/Downloads/36.htm

Alhojailan, M. (2012). Identification of learners' attitudes regarding the implementation of read and write: A case study in higher education. 7th Disco conference reader: New media and education. In: Prague: Centre for Higher Education Studies, pp. 58–73.

Aloni, M., Kimmelman, V., & Roelofsen, F. (2012). *Language Definition*. Available from: http://books.google.co.za/books?isbn...

American Psychological Association. (2002). Guidelines on Multicultural Education, Training, Research, Practice and Organizational Change for Psychologists. Retrieved from: http://www.apa.org/pi/oemaresources/policy/multicultural-guidelines.aspx

Amod, Z. (2012). The cognitive assessment system (CAS) in a South African Context. Retrieved from http://psychological-assessment-in-south-africa.com

Amod, Z. & Heafield, D. (2012). Assessing young children in South Africa. Available from: http://psychological-assessment-in-south-africa.com

Amod, Z., & Seabi, J. (2012). Dynamic assessment in South Africa. Retrieved from http://psychological-assessment-in-south-africa.com

Arnold, B.R., & Matus, Y.E. (2000). Test translation and culture equivalence methodologies for use with diverse populations. In I. Cuellar & F. A. Paniagua (Eds.), *Handbook of multicultural mental health: Assessment and treatment of diverse populations* (pp. 121-136). San Diego: Academic Press.

Anderson, C. (2010). Presenting and evaluating pharmaceutical education research. American Journal of Pharmaceutical Education, 74(8), 141.

Anthonissen, C. (2006). On determining what counts while counting: Aspects of language testing where diversity is the standard. *PerLinguam*, *22*(1), 39–54.

Bartram, D. (2004). Assessment in organizations. *Journal of Applied Psychology*, *53*(2), 237-259.

Beiser, M., & Gotowiec, A. (2000). Accouting for Native/Non-Native differences in IQ scores. *Psychology in Schools, 37*, 237-252.

Benson, E. (2003). Intelligent intelligence testing. *Intelligence Across Cultures*, *34*(2), 56.

Berry, J., Poortinga, Y.H., Breugelman, S.M., Chasiotis, A., & Sam, D.L. (2011). *Cross-cultural Psychology* (3rd Ed.). Cambridge: Cambridge University.

Berry, J.W., Poortinga, Y.H., Segall, M.H., & Dasen, P.R. (1992). *Cross-cultural psychology: research and applications*. New York: Cambridge University Press.

Bethlehem, D., De Picciotto, J., & Watt, N. (2003). Assessment of verbal fluency in bilingual Zulu-English speakers. *South African Journal of Psychology*, *33*(4), 236-240).

Bialystok, E., Craik, F.I.M., Green, D.W., & Gollan, T.H. (2009). Bilingual Minds. *Psychological Science in the Public Interest*, *10*(30, 89–129.

Bonder, B., Martin, L., & Miracle, A. (2002). *Culture in clinical care*. Thodofare, NJ: Slack Inc.

British Psychological Society. (2008). *Working with interpreters in health settings: Guidelines for Psychologists*. Leicester, UK.: Author.

Brow, A.L., & Ferrara, R.A. (1999). *LEV Vygotsky critical assessment*. Available from: http://www.workinfo.com/free/Downloads/36.htm

Bundy, D.A. (2002). Assessing intellectual potential in rural Tanzanian school children. *Intelligence*, *30*(1), 141–162.

Burridge, N., Buchanan, J., & Chadkiewiez, A. (2009). Dealing with difference. Building Culturally Responsive Classrooms. *Cosmopolitan Civil Societies Journal, 1*(3), 68-83.

Carstairs, J.R., Myors, B., Shores, E.A., & Fogarty, G. (2006). Influence of language background on tests of Cognitive Abilities: Australian data. *Australian Psychologist*, *41*(1), 48-54).

Census. (2011). *Cencus in brief*. Pretoria: South Africa.

Classen, N.C.W. (1997). Cultural differences, Politics and Test Bias in South Africa. *European Review of Applied Psychology*, *47*(1), 297-307.

Cockcroft, K. (2012). South African Individual Scales Revised. Retrieved from http://psychological-assessment-in-south-africa.com

Cockcroft, K., & Laher, S. (2013). *Psychological Assessment in South Africa. Research and Applications*. Wits University Press: JHB.

Cormier, D.C., McGrew, K.S., & Ysseldyke, J.E. (2014). The Influence of Language and Culture on Cognitive Test scores. *Journal of Psycho-educational Assessment*. Available from: http://jpa.sagepub.com/content/early/2014/05/31 /0734282914536012,pp 1-14.

Creswell, J.W. (2009). Designing qualitative, quantitative, and mixed methods approaches (3rd ed.). Thousand Oaks, US: Sage Publications, Inc.

Dana, R.H. (2005). *Multicultural assessment: Principles, application and examples*. Mahwah, New Jersey, NJ: Erlbaum.

Dehn, M.J. (2006). Essentials of processing assessment. New York: John Wiley.

De Picciotto, J., & Friendland, D. (2001). Verbal Fluency in elderly bilingual speakers: Normative data and preliminary application to Alzheimer's disease. *Folia Phoniatrica et bogopeadica*, *53*, 145-152.

DeVries, R. (1974). Relationships among Piagetian, IQ and achievement assessments. *PubMed*, *45*(3), 746-756.

Dhladhla, T.J., & De Kock, F. (2008). Psychological Testing in South Africa: Current issues and challenges. *Testing International*, *19*(1), 8-11.

Donald, F., Thatcher, A., & Milner, K. (2014). Psychological assessment for redress in South African organizations: is it just? *South African Journal of Psychology*, *44*(3), 333-349.

Driscoll, M.P. (2000). *Psychology of learning for Instruction*. USA: Allyn and Bacon.

Dyer, C.D. (2007). Cultural differences on the Children's Memory Scale. Unpublished thesis. Available from: http://www.workinfo.com/free/Downloads/36.htm.
    educ6.pdf)

Education White Paper 6: Special Needs Education, Building an Inclusive Education and Training System. Available from: http://www.info.gov.za/whitepapers/2001/

Edwards, O.W., & Oakland, T.D. (2006). Factorial invariance of Woodcock-Johnson III scores for African-American and Caucasians Americans. *Journal of Psycho-educational Assessment*, *24*(4), 358–366).

Expansion of access to Quality Early Childhood Development, Inclusive Education & Curriculum, Assessment Policy Statement. Available from: http://www.pmg.org.za/report/20110614-expansion-access-quality-early-childhood-developmentinclusive-education.

Feldman, D.H. (1994). *Beyond universals in Cognitive Development*. (2nd ed.). US: Ablex Publishing.

Flanagan, D.P. & Harris, P.L. (Eds.). (2012). *Contemporary Intellectual Assessment: Theories, tests and issues*. New York: The Guilford Press.

Flanagan, D.P., & Ortiz, S.O., & Alfonso, V.C. (2007). *Essentials of Cross-battery Assessment* (2nd ed). San Francisco, CA: John Wiley.

Foxcroft, C. (2004). Planning a psychological test in multicultural South African context. *South African Journal of Industrial Psychology*, *30*(4), 8-15.

Foxcroft, C., & Roodt, G. (eds.) (2007). *Introduction to Psychological Assessments in the South African context*. (4th Edition). Cape Town: Oxford University Press.

Foxcroft, C., Paterson, H., Le Roux, N., & Herbst, D. (2004). Psychological assessment in South Africa: a needs analysis: the test use patterns and needs of psychological practitioners:

final report. Human Sciences Research Council Press. Retrieved from http://www.hsrc.ac.za/research/output/output.

Foxcroft, C.D., Roodt, G., & Abrahams, F. (2013). The practice of psychological assessment: Controlling the use of measures, competing values and ethical practice standards. In C.D. Foxcroft & G. Roodt (Eds.). *An introduction to psychological assessment in the South African context*. Cape Town: Oxford University Press.

Franklin, T. (2017). Best Practices in Multi-cultural Assessment of Cognition. In R.S McCallum (Eds.). *Handbook of Nonverbal Assessment* (pp. 39-46).

Freedle, R.O. (2010). On replicating ethnic test bias effects: The Santelices and Wilson study. *Harvard Educational Review, 80*(3), 394-403.

Gauvein, M., & Muroe, R.L. (2012). Cultural Change, Human Activity, and Cognitive Development. *Human Development, 55*, 205-228.

Goh, P.Y. (2013). *Cognitive assessment of culturally and linguistically diverse children*. Research report submitted to the University of Wisconsin, Graduate School.

Goncu, A., & Gauvein, M. (2012). Socio-cultural approaches to educational psychology. Theory, Research and Application. In K. Harris, S. Graham, T. Urdan, C.B. McCormick, G.M. Sinatra, & J. Sweller (Eds.). *APA Educational Psychology Handbook. Theories, Constructs and Critical Issues* (pp. 123-152). Washington: American Psychological Society.

Gopaul-McNicol, S., & Amour-Thomas, E. (2002). *Assessment and culture: Psychological tests with minority populations*. New York, NY: Academic Press.

Graves, S., & Mitchell, A. (2011). Is the moratorium over? African-American Psychology Professionals' views on intelligent testing in response to changes in federal policy. *Journal of Black Psychology, 37*(4), 407-425.

Grigoreno, E.L., & Sternberg, R.J. (1998). Dynamic testing. *Psychological Bulletin, 124*, 75-111.

Greenop, K., Fry, J. & de Sousa, D. (2012). The Kaufman assessment battery for children (K-ABC) in South Africa.

Hagie, M.U., Gallipo, P.L., & Svien, L. (2003). Traditional culture versus traditional assessment for American Indian students: An investigation of potential test item bias. *Assessment for Effective Intervention, 29*(1), 15-25.

Hambleton, R.K.(1994). Guidelines for adapting educational or psychological tests. A process report. *Bulletin of the International Test Commission*, *10*(3), 229-244.

Hambleton, R.K., & Zenisky, A.L. (2011). Translating and adapting tests for cross-cultural assessments. In D. Matsumoto & F.J.R. van de Vijver (Eds.). *Cross-cultural research methods in psychology* (pp. 46-74). New York, NY: Cambridge University Press.

Heine, S.J., & Buchtel, E.E. (2009). Personality: The universal and the Culturally Specific. *Annual Review of Psychology, 60*(1), 369-394.

Helms, J.E. (1992). Why is there no study of cultural equivalence in standardized cognitive ability testing? *American Psychology*, *47*, 1083-1101.

Helms, J.E. (2006). Fairness is not validity or cultural bias in racial/group assessment: A quantitative perspective. *American Psychologist, 61*, 845-859.

Hill, C., Nel, J. A., Van de Vijver, F. J. R., Meiring, D., Valchev, V., Adams, B. G., & de Bruin, G. P. (2013). Developing and testing items for the South African Personality Inventory. *South African Journal of Industrial Psychology, 39*, 1-13.

Holzman, L. (2008). *Vygotsky at work and play*. (1st ed.). London: Routledge.

http://jpa.sagepub.com/content/early/2014/05/31/0734282914536012,pp 1-14.

http://www.eric.ed.gov/ERICDocs/data/ericdocs2sq/contentstorage01/0000019b/80/15/cd/64.pdf.

HPCSA. (2017). The SA context and background. Available from: http://pmg-assets.s3-website-eu-west-1.amazonaws.com/130807hpcsa.ppt

Hudson, L., & Ozanne, J. (1988). Alternative ways of seeking knowledge in consumer research. *Journal of Consumer Research*, *14*(4). 508–521.

Inclusive education: status, accompanying challenges and strategic response. Available from:http://www.pmg.org.za/report/20101109-briefing-department-basiceducation-

Jukes, M.C.H., & Grigorenko, E.L.C. (2010). Assessment of cognitive abilities in multiethnic countries: The case of the Wolof and Mandika in the Gambia. *British Journal of Educational Psychology*, *80*(1), 77–97).

JvR Africa Group. (2015). History of Psychometric Testing in South Africa. Available from: http://jvrafricagroup.co.za/history-psychometric-testing-south-africa/

Kastanakis, M.N., & Voyer, B.G. (2014). The effects of culture on perception and cognition: a conceptual framework. *Journal of Business Research*, *67*(4), 425-433.

Laher, S., & Cockcroft, K. (2012). Contextualising psychological assessment in South Africa. Available from: http://psychological-assessment-in-south-africa.com

Laher, S., & Cockcroft, K. (2014). Psychological assessment in post-apartheid South Africa: the way forward. *South African Journal of Psychology*, *44*(3), 303-314.

Li, C., Vasquez-Nuttal, E. Dynda, A.M., & Phoenix, K. (2007). Cognitive Assessment of Culturally and Linguistically Diverse Students. In G.B. Esquivel, E. C. Lopez, & S. Nahari (Eds.). *Handbook of Multicultural School Psychology.* Taylor & Francis.

Maguvhe, M.O. (2013). Perspective of South African special school teachers on special schools as resource centres. *Mediterranean Journal of Social Sciences*, *4*(14), 711–717.

Malda, M., van de Vijver, F.J.R., Srinavasan, K., Transler, C., Sukumar, P., & Rao, K. (2008). Adapting a cognitive test for a different culture. An illustration of qualitative procedures. *Psychology Science Quarterly, 50*(4), 451-468.

Maller, S., & Pei, L. (2017). Best Practices in Detecting Bias in Cognitive Tests. In R.S McCallum (Eds.). *Handbook of Nonverbal Assessment* (pp. 21-37). Tive and qualitative research (2nd ed.). Upper Saddle River, New Jersey: Pearson Merill Prentice Hall.

Maree, J. G. (2012). First steps in research. Pretoria: Van Schaik.

McCallum, R.S. (2017). Context for nonverbal assessment of intelligence and related abilities. In R.S McCallum (Eds.). *Handbook of Nonverbal Assessment* (pp. 3-19).

McLeod, S.A. (2014). Lev Vygotsky. Retrieved from: http://www.workinfo.com/free/Downloads/36.htm

 Michelon, P. (2006). Neuroplasticity, brain fitness and cognitive health news. Available from: sharpbrains.com/blog/2006/12/18/what-are-cognitive-abilities/

Miletic, T., Piu, M., Minas, H., Stankovska, M., Stolk, Y., & Klimidis, S. (2006). *Guidelines for working effectively with interpreters in mental health settings.* Melbourne: Victorian Transcultural Psychiatry Unit.

Milligan, H. (2015). A Culturally Appropriate Cognitive Screening for Bhutanese refugees: Master's Theses and Capstones. Paper 12.

Mpofu, E., & Ortiz, J. (2009). Equitable assessment practices in diverse contexts. In E. Grigorenko (Ed.). *Multicultural psycho-educational assessment* (pp. 41-76). New York: Springer Publishing Company.

Mushquash, C.J., & Bova, D.L. (2007). Cross-cultural assessment and measurement issues. *Journal on Developmental Disabilities*, *13*(1), 53–65.

Neisser, U., Boodoo, G., Bouchard, T.J., Boykin, A.W., Brody, N., Ceci, S.J., Halpern, D.F., Loehlin, J.G., Perloff, R., Sternberg, R.J., & Urbina, S. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, *51*, 77-101.

Nell, V. (2000). *Cross-cultural neuropsychological assessment: Theory and Practice*. Mahwah, New Jersey: Lawrence Erlbaum.

Newman, F., & Holzman, L. (2013). *Lev Vygotsky (Classic Edition): Revolutionary scientist*. Psychology Press.

Nisbett, R.E., & Noranzayan, A. (2002). *Culture and Cognition*. In DL Medlin (ed.), *Steven's Handbook of Experimental Psychology* (pp. 561-597). Oxford, UK: John Wiley & Sons.

Nisbett, R.E., Peng, K., & Choi, I. (2001). Culture and Systems of Thought: Holistic versus Analytic Cognition. *Psychological Review*, *108*(2), 291-310.

Okazaki, S., & Sue, S. (2000). Implications for test revisions for assessment with Asian Americans. *Psychological Assessment, 12*(30), 272-280.

Ortiz, S.O. (2017). The culturally competent school psychologist. In M. Thielking & Terjesen (Eds.). Handbook of Australian School Pyschology. *Integrating International Research, Practice and Policy* (pp. 81-110). Cham, Switzerland: Springer, Springer Nature.

Ortiz, S.O., & Dynda, A.M. (2005). Use of intelligence test with culturally and linguistically diverse population. In D.P. Flanagan & P.L. Harris (Eds.). *Contemporary Intellectual Assessment: Theories, tests and issues* (pp. 545-556). New York: The Guilford Press.

Ortiz, S.O., & Ochoa, S.H. (2005). Advances in cognitive assessment of culturally linguistically diverse individuals. In D.P. Flanagan & P.L. Harrison (Eds.). *Contemporary intellectual assessment: Theories, tests and issues* (pp. 234-250). New York, NY: Guilford Press.

Owen, K. (1991). Test bias: The validity of the Junior Aptitude Test for various population groups in South Africa regarding constructs measured. *South African Journal of Psychology*, *21*(1), 112-118.

Owen, K. (1998). *The role of psychological tests in education in South Africa: Issues, controversies, and benefits*. Human Sciences Research Council (HSRC) Press. Retrieved from: http://www.simplypsychology.org/vygotsky.html/.

Paterson, H., & Uys, K. (2005). Critical issues in psychological test use in the South African workplace. *South African Journal of Industrial Psychology*, *31*(3), 12–22.

Pinker, S. (2007). The language instinct: How the mind create language. Available from: http://books.google.co.za/books?isbn...

Pizam, A., & Mansfield, J. (2009). *Consumer behaviour in travel and tourism*. New York: Howarth Hospitality Press.

Reynolds, C.R. (2000b). Why is psychometric research on bias in mental testing so often ignored? *Psychology, Public Policy, and Law, 6*, 144-150.

Reynolds, C.R., & Suzuki L.A. (2013). *Bias in psychological assessment. An empirical sreview and recommendations*. In: Graham, J.A. et al. (Eds.), Handbook of Psychology (pp 82-113). New Jersey: Wiley.

Roodt, G. (1998). Challenges in psychological assessment. *People Dynamics*. *16*(11), 30-34.

Sauders, E. (2008). Assessment in South Africa: Finding methods in the madness. Workinfo.com – human resources for today's workplace. Available from http://www.workinfo.com/free/Downloads/36.htm

Schwartz, D. (2016). The Role of Culture in Cognitive Development. Psychology 353 Lecture. Available from: http://www.workinfo.com/free/Downloads/36.htm.

Serpell, R. (2000). Intelligence and culture. In R.J. Sternberg (Ed.), *Handbook of Intelligence.* (pp.549-580). New York: Cambridge University Press.

Setshedi, M.J. (2009). Investigating the use of psychological assessment in South African schools. Unpublished.

Shuttleworth-Edwards, A.B., Kemp, R.D., Rust, A.L., Muirhead, J.G.L., Hartman, H.P., & Radlof, S.E. (2004). Cross-cultural effects on IQ test performance: A review and preliminary normative indications on WAIS-III test performance. *Journal of Clinical and Experimental Pneuropsychology, 26*(7), 903-920.

StatsSA. (2013). Mid-year population estimates. Retrieved from http://en.m.wikipedia.org/.../.

Sternberg, R.J. (1999). A Triarchic approach to the understanding and assessment of intelligence in multicultural populations. *Journal of School Psychology*, *37*(2), 145–159).

Sternberg, R.J. (2012). The triarchic theory of successful intelligence. In D.P. Flanagan & P.L. Harrison (Eds.). *Contemporary intellectual assessment: Theories, tests and issues* (pp. 156-177). New York, NY: Guilford Press.

Sternberg, R.J., & Grigorenko, E.L. (2002). *Dynamic testing*. New York: Cambridge University Press.

Sternberg, R.J., Grigorenko, E.L., Ngorosho, D., Tantufuye, E., Mbise, A., Nokes, C., Jukes, M., & Bundy, D.A. (2002). Assessing intellectual potential in rural Tanzanian school children. *Intelligence*, *30*(1), 141-162.

Stolk, Y. (2009). Approaches to the influence of culture and language on cognitive assessment instruments: The Australian context. *Australian Psychologist*, *44*(1), 1-5.

Strauss, E. Sherman, E.M.S., Spreen, O. (2006). A compendium of neuropsychological tests: Administration, norms, and commentary (3rd ed.). New York: Oxford University Press.

Subjee, S. (2012). Psychological assessment in the South African context. Available from: http:/www.academia.edu/8991702/shaakera-subjee-psychological-assessment-in-the-south-african-context.pdf

Suzuki, L.A., & Aronson, J. (2005). The cultural malleability of intelligence and its impact on the racial/ethnic hierarchy. *Psychology, Public Policy, and Law, 11*(2), 320-327.

Swartz, L., & Drennan, G. (2000). Beyond words: Notes on the 'irrelevance' of language to mental health services in South Africa. *Transcultural Psychiatry*, *37*(2), 185–201).

Tare, M., & Gelman, S.A. (2010). Can you say it another way? Cognitive factors in bilingual children's pragmatic language skills. *Journal of Cognitive and Development*, *11*(2), 137–158.

Taruk, M.C. (2008). The Relevance and Implications of Vygotsky's socio-cultural theory in the second language classroom. *ARECLS*, 5, 244-262.

Thutong: South African Education Portal. Available from: http://www.thutong.doe.gov.za/inclusive education).

Tredoux, C.G. (2005). *Psychology and law*. Cape Town: Juta.

Valencia, R.A., & Suzuki, L.A. (2001). *Intelligence testing with minority students: Foundations, performance factors and assessment issues*. Thousand Oaks, CA: Sage.

Van de Vijver, F, J. R., & Rothmann, S. (2004). Assessment in multicultural groups: The South African case. *South African Journal of Industrial Psychology*, *30*(4), 1-7.

Van de Vijver, F.J.R., & Leung, K. (2011). *Equivalence and bias: A review of concepts, models and data analytic procedures*. In D. Matsumoto and F.J.R. van de Vijver (Eds.). Cross-cultural research methods in psychology (*pp*.17-45). New York: Cambridge University Press.

Van de Vijver, F.J.R., & Phalet, K. (2004). Assessment in multicultural groups: The role of acculturation. *Applied Psychology : An International Review*, *53*(2), 215–236.

Van de Vijver, F.J.R., & Tanzer, N.K. (1997). Bias and equivalence in cross-cultural assessment: An overview. *European Review of Applied Psychology*, *47*, 263-280.

Vrbova, L. (2006). *Developing Cultural Awareness in ELT*. Unpublished Thesis.

Walker, A.J., Batchelor, J., & Shores, A. (2009). Effects of education and cultural background on WAIS-III, WMS-III, WAIS-R and WMS-R measures: Systematic review. *Australian Psychologist*, *44*(4), 216-223.

Walker, A.J., Batchelor, J., Shores, A., & Jones, M. (2010). Effects of cultural background on WAIS-III and WMS-III, performance after moderate-severe traumatic brain injury. Australian Psychologist, *45*,112-122.

Wasserman, J.D. (2012). A history of intelligence assessment: The unfinished tapestry. In D.P. Flanagan & P.L. Harrison (Eds.). *Contemporary intellectual assessment: Theories, tests and issues* (pp. 3-55). New York, NY: Guilford Press.

Webster, M. (2017). Definition of Language. Available from: http://www.merriam-webster.com>lang...

Wicherts, J.M., Dolan, C.V., & Hessen, D.J. (2005). Stereotype threat and group differences in test performance: A question of measurement invariance. *Journal of Personality and Social Psychology, 89*(5), 696-719.

Zlatev, J. (2008b). From photo-mimesis to language: evidence from primatology and social neuroscience. *Journal of Psychology*, *10*(2), 137-152.

Zlatev, J., & Blomberg, J. (2015). Language may indeed influence thought. Frontiers in Psychology. Available from: http://dx.doi.org/10.3389/fpsyg.2015.01631.

Appendix A: Interview Protocol

Interview schedule of issues to be discussed:

1. Please tell me about your experience or encounter with cognitive assessment.

2. From your own experience, what are the challenges regarding culture and / or language when conducting cognitive assessment with school children?

3. In case you encounter a challenge of language and / or culture when conducting cognitive assessment, how do you deal with it?

4. Do you think language and culture of the testee affect the test results? If yes, how?

5. According to your understanding, what does the South African Law say about the use of cognitive tests with special reference to placement in special schools?

6. Do you know of any cases where a child was inappropriately placed in special school? If the issue became a court case, what was the ruling of the court?

Appendix B: Demographic Profile of participants at the time of interview

Biographical item		Participants =6
Age	31-40	01
	41-50	02
	51-60	03
Gender	Male	02
	Female	04
Race	Black	06
	Coloured	00
	Indian	00
	White	00
Years of experience	5-10	01
	11-15	02
	16 and more	03
Category of registration	Clinical	02
	Educational	02
	Counselling	02
Type of practice	Public	02
	Private	01
	Both	03

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL
For research with human participants

Information Sheet

Date: March 2016

To Whom It May Concern

My name is Phindile Eunice Zulu from department of Psychology at the University of KwaZulu-Natal, I am doing Masters in Social Sciences (Research Psychology), and my contacts are pez@webmail.co.za or 0798436528.

You are being invited to consider participating in a study that involves research about "The influence of language and culture in cognitive assessment: Implications for learner placement and schooling in KwaZulu-Natal".

The aim and purpose of this research is to explore the subjective experience of psychologists regarding cognitive assessment and cultural and lingual influence. The study will select psychologists who have been practicing as registered psychologists for at least five years. No specific category of registration will be specified. If possible, at least two White psychologists, two Black African psychologist and two Indian psychologists will be selected, for a sample to be a representative of multicultural South Africa and for gain experience as expressed by different participants from diverse cultural backgrounds. It will involve interviews with no wrong and right answers. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 20 to 25 minutes. The study has no funding.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_____).

In the event of any problems or concerns/questions you may contact the researcher at pez@webmail.co.za or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details are as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you do decide to take part in this study, you will be asked to sign a consent form. You have a right to refuse to take part in this study. However, I would appreciate it very much if you would share your thoughts with me. If you choose to participate, you have a right to withdraw at any time, there will be no penalties and you will not be judged in any way.

There will be no consequences to participant; however, the researcher may choose to terminate the participant from the study if there is no cooperation.

The study has no funding and participants will not be reimbursed financially for taking part in the study.

I will not record your name and the information provided will remain confidential. I will make use of symbol or numbers to represent names of participants. The information will be kept for future research purposes. It will be stored in a secure location for a period of five years, after which it will be destroyed.

Thank you.

Appendix E: Informed consent form

I have been informed about the study entitled "The impact of cultural loading and linguistic demand in cognitive assessment: Implications for learner placement and schooling in KwaZulu-Natal" by Phindile Eunice Zulu.

I understand the purpose and procedures of the study (add these again if appropriate).

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at pez@webmail.co.za.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Appendix F: Consent to audio-recording

I hereby provide consent to:

Audio-record my interview   YES / NO

_____   _____

Signature of Participant   **Date**

_____   _____

Signature of Witness   **Date**

(Where applicable)

_____   _____

Signature of Translator   **Date**

(Where applicable)