

The use of existing measures to test the cognitive functioning of children within the South African context

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Abstract

This article explores the various arguments pertaining to the debate surrounding the use of cognitive measures developed and standardised in other countries in the South African context. We argue for both sides of the debate by offering arguments in support of, as well as against the use of existing measures to assess the cognitive ability and functioning of children

in South Africa. We conclude that the cognitive testing of children in the South African context serves a useful purpose and that it would be best to make use of existing measures as opposed to developing new measures when assessing the cognitive ability of children. We do however; propose that when administering existing cognitive tests to children in South Africa, the clinical administrator should keep certain guidelines in mind. We briefly discuss some of these guidelines.

Keywords: administration guidelines; child assessment; cognitive testing; collateral information; psychological assessment; test adaptation; test standardisation

There is much debate around the issue of whether or not international cognitive assessment measures could be – or are – used appropriately and effectively to assess children in South Africa. Regarding this matter, Helm and Gronlund (1999) state the following: ‘The early years of schooling are an important period of development’ (p. 2), thus cognitive assessment can be useful for early identification and intervention of possible problems, for example learning and reading disabilities. In this article, we discuss arguments both against and in favour of employing existing cognitive assessment measures and provide examples of measures we deem appropriate for use among South African children, and the guidelines practitioners should bear in mind when using these measures.

BRIEF OVERVIEW OF PSYCHOLOGICAL ASSESSMENT

Psychological assessment can be defined as ‘... a process-orientated activity aimed at gathering a wide array of information by using assessment measures (tests) and information from many other sources (e.g., interviews, a person’s history and collateral sources)’ (Foxcroft & Roodt, 2005, p. 4). The authors further state that assessment measures are standardised measures (tests) used to gain an understanding of an individual’s functioning.

Following from this, cognitive assessment is therefore, understood as specific measures used to assess an individual’s cognitive functioning – which, according to Binet, includes more complex tasks of reasoning and thinking (Locurto, 1991). There are various definitions of intelligence – biological intelligence, psychometric intelligence, and social or emotional intelligence (Foxcroft & Roodt, 2005). Logically, these definitions are not necessarily equally supported by all individuals or cultures. As such, Helfrich (1999) as well as Hunt and Sternberg (2006) note that intelligence is a culturally-relative concept – according to them, intelligence is the degree to which a person successfully adapts to cognitive tasks that are valued by members of that culture. Shuttleworth-Jordan (1995) supports this claim. Lastly, according to Foxcroft and Roodt (2005), however, there is little agreement concerning the true

nature of cognitive functioning – and especially, how to measure an individual's cognitive functioning.

ARGUMENTS AGAINST THE USE OF EXISTING COGNITIVE ASSESSMENT MEASURES

Various factors could contribute to cognitive assessment measures not being applicable to all cultures and contexts. According to Parker, Philp, Sarai, and Rauf (2007) cultural, language, and educational differences could contribute to lower the validity of cognitive assessment. In this article, several of these factors are discussed in order to clarify why the usage of certain cognitive assessment measures should be carefully monitored. We also briefly mention political and ethical concerns with regards to cognitive assessment.

Cultural differences

Cultural differences could account for a large proportion of the discrepancies in cognitive assessment. South Africa, in particular, is a multicultural country (Foxcroft & Roodt, 2005), which emphasises the importance of considering the influence of culture on the application and interpretation of cognitive assessment measures. Due to the fact that initial attempts to adapt measures to be culturally-unbiased were unsuccessful, a culture-common or reduced approach has been employed in South Africa. The major limitation of this approach, however, could be seen when analysing the statement by Allik and McCrae (2004), who claim that it is no longer possible to deny the differences between cultures and nations in cognitive abilities.

Subsequent to this, Le Grange, a practicing educational psychologist (2009, personal communication) claims that there are two features with regard to culture that are of relevance in South Africa. Firstly, South African parents show an element of neglect in specific contexts. As a result, children from families where parents are negligent in some contexts might react anti-normatively to specific questions during cognitive assessments. These children might, for example, react with indifference to questions relating to being hurt or sad. Secondly, Le Grange claims that the culture of violence within South Africa might contribute negatively to anti-normative reactions from children during cognitive assessment. As such, some children – typically from relatively deprived contexts – might react with anger and distrust to both the testing and the specific questions concerning being hurt or sad.

Language differences

According to Shuttleworth-Jordan (1995), language could significantly contribute to the inappropriateness of the usage of certain cognitive assessment measures. Shuttleworth-Jordan (1995) identifies two aspects of language that could result in

biases in test scores; namely, an individual's primary language and the language employed by an individual at the time of assessment.

Proficiency in cognitive assessment measures often requires comprehension and literacy in specific languages (typically English) – which could present a problem in a country such as South Africa, where English might not be the primary language of the individual being assessed (Parker et al., 2007). Furthermore, translation could prove to be ineffective for three reasons – firstly, translation could be difficult in contexts of overwhelming illiteracy (Parker et al., 2007). Secondly, Le Grange (2009, personal communication) notes that there are specific concepts – used in the English language – for which there are no synonymous terms in the languages often employed in South Africa. Lastly, according to Prinsloo, a practising educational psychologist (2009, personal communication), children might not comprehend concepts in their first language – as their language of instruction might be English (Prinsloo, 2009, personal communication). In these situations, it would be inappropriate to merely translate the concepts to their first language.

Educational differences

Although specific groups of individuals might be considered, 'participants in a powerful acculturation process' (Shuttleworth-Jordan, 1995, p. 97), educational differences continue to influence the applicability of cognitive assessment measures.

Educational differences could also contribute to cognitive assessment being biased, in that children whose level of education is low might be less test-wise – and therefore, find it difficult to perform well in any testing situation (Foxcroft & Roodt, 2005). Furthermore, children from relatively deprived contexts in South Africa are often not adequately motivated to perform well in tests (Le Grange, 2009, personal communication). These children might react with indifference to the cognitive assessment – and consequently perform worse than their actual proficiency and ability (Le Grange, 2009, personal communication) resulting in misleading test scores.

Le Grange (2009, personal communication) notes that South African children from relatively poor backgrounds often start school from a younger age – typically from the age of five. These children are less likely to have attended a pre-primary school – due to the monetary costs associated with pre-primary schools as opposed to primary schools – which might suggest a lower emotional intelligence and maturity. These children might perform poorer in most testing situations than would a child sent to school at the normative age of six years.

Political and ethical consequences

Rindermann (2007) notes that political and ethical consequences of the usage of cognitive measures could contribute to the inappropriateness of these measures.

Cognitive measures were employed in order to marginalise specific racial groups during the apartheid era in South Africa – which emphasises the need for careful consideration of the situations in which cognitive assessment would be valuable (Foxcroft & Roodt, 2005). Ethical considerations have increased in complexity in post-Apartheid South Africa due to the increased diversity of religions, languages and cultures within all contexts in this country (Department of Environmental Affairs, 2004).

Existing research concerning standardisation

It should be noted that a significant proportion of the research aimed at identifying the weaknesses of cognitive assessment measures – and how to standardise these measures – is conducted in the United States of America, which again lowers its applicability to different contexts (Parker et al., 2007), and more specifically to the South African context.

ARGUMENTS IN FAVOUR OF THE USE OF EXISTING COGNITIVE ASSESSMENT MEASURES

According to Shuttleworth-Jordan (1995), fundamental similarities can now be identified between racial and cultural groups – which might emphasise the importance of employing standardised measures to assess cognitive abilities in various groups. In this section, several arguments will be put forth to justify the continued use of cognitive assessment measures that have been developed and standardised in a culturally-reduced manner.

Variety of purposes of existing cognitive assessment measures

Cognitive assessment yields relevant information used within different contexts and for a wide variety of purposes (Griffin & Christie, 2008). According to Griffin and Christie (2008) these assessments could be used in the following ways – firstly, cognitive assessments could assist with the identification of specific developmental delays in children. Secondly, the assessments could monitor the impact of disease. Thirdly, cognitive assessment could assist in reviewing possible changes in cognitive abilities due to treatment. Finally, cognitive assessment could provide important information regarding cognitive functioning of children struggling within the school setting. It is therefore essential to have cognitive assessment measures that could be employed in order to identify specific strengths and weaknesses of children early in their development.

Environmental differences as causes for differences in measurement

Rindermann (2007) claims that environmental differences – as opposed to the inappropriateness of cognitive assessment measures – might contribute to the cultural differences observed in the scores of cognitive measurements. The lower intelligence test scores obtained in Sub-Saharan Africa (Jensen, 1998), for example, could be attributed to the following environmental factors – low school attendance rates, poor quality school and university systems, and the persistence of certain traditional belief systems.

Commonalities in performance on cognitive assessment measures

Even though common perceptions stipulate that cognitive measures are inappropriate to use in a culturally diverse context – such as South Africa – evidence drawn from comparative data indicate that there are far more commonalities in the performance of various cultures on cognitive assessments (Shuttleworth-Jordan, 1995). Shuttleworth-Jordan (1995) notes that, ‘...standardised psychological tests may have more cultural relevance in the South African context than is often acknowledged’ (p. 101).

Test adaptation as opposed to test development

According to Foxcroft and Roodt (2005), there are several reasons for test adaptation: Firstly, test adaptation allows for greater fairness, as language differences could be addressed. Secondly, it is often more convenient – as it is cheaper and less time consuming. Existing cognitive measures have already gone through a process of item-analysis and validation, which makes it the preferred option (Foxcroft & Roodt, 2005). Le Grange (2009, personal communication) supports this claim. Thirdly, test adaptation facilitates comparative studies – both at a national and international level. Fourthly, newly-developed measures could be compared to existing cognitive measurements – which could lead to increased validity (Brislin, 1986).

Following from this, it might be preferable to employ existing cognitive assessment measures – and adapt these to be more applicable and valuable within the South African context.

The use of collateral information during cognitive assessment

Shuttleworth-Jordan (1995) states that cognitive assessment measures are not used in isolation in diagnostic processes. Collateral information – which includes interviews, personal histories, the mental and physical health of the individual,

socio-economic factors and environmental factors – are used in conjunction with cognitive assessment to arrive at a comprehensive understanding of the individual's functioning.

As a final note, it would be inappropriate to develop new cognitive measures to be culturally fair, as there are – especially in the South African context – individuals who are in a process of acculturation (Shuttleworth-Jordan, 1995). As such, individuals are acquiring a more Westernised perspective, whilst maintaining understanding of their traditional teachings (Shuttleworth-Jordan, 1995). Therefore, neither tests standardised to be appropriate within the Western context, nor those developed specifically for traditional cultures would be applicable – and this results in a new form of bias.

SPECIFIC COGNITIVE ASSESSMENT MEASURES

There are certain cognitive assessment measures that might be applicable and preferable to assess children within South Africa. We briefly discuss three of these measures.

Firstly, Boone and Steele (2005) claim that the Pen-and-Paper Games test is a cost-effective, culturally adaptable, and non-time-consuming cognitive measure. It could furthermore lead to the identification of strengths in specific subjects related to education and could predict overall achievement.

Secondly, the SSAIS-R – which has been standardised for use within South Africa – measures general cognitive functioning, and could be employed to diagnose reading difficulties (De Bruin, De Bruin, Dercksen & Cilliers-Hartslief, 2005). Le Grange (2009, personal communication) employs this measure specifically for these reasons – and takes cultural and environmental differences into consideration when interpreting the results. Prinsloo (2009, personal communication) notes that the JSAIS is particularly appropriate for measuring cognitive constructs for children aged between 3 and 8 years.

Thirdly, the Raven's Progressive Matrices has no time-limit, and could be used both individually and in group-settings. Pilot-studies are currently being conducted to standardise this measure in Xhosa, for primary-school children (Foxcroft & Roodt, 2001).

In addition to these measures, the following tests could also be employed in South Africa: WAIS-III; Individual Intelligence Scale for Xhosa-speaking Peoples; Bailey Scales of Infant Development; McCarthy Scales of Children's Abilities; Figure Classification Test; Aptitude Tests for School-beginners; and the Differential Aptitude Test.

GUIDELINES FOR THE USE OF EXISTING COGNITIVE ASSESSMENT MEASURES

There are several specific guidelines that should be considered when using existing cognitive assessment measures – such as the ones mentioned above. We will now discuss some of the most important guidelines for cognitive assessment of children.

Establish reasons for cognitive assessment

Griffin and Christie (2008) note that the reasons for doing the cognitive assessment should be established, in order to determine if it is indeed necessary. Furthermore, the specific questions that need to be answered during the assessment should be identified and used as a guideline throughout the process.

Consideration of language differences during cognitive assessment

According to Le Grange (2009, personal communication), it would be preferable to only test individuals in a language after they have become proficient in that given language. This guideline could be especially important for children in South Africa – as South Africa has a variety of possible first languages.

There are two further guidelines that might be applicable with regard to the child's age and language. Firstly, Le Grange (2009, personal communication) suggests that young children should preferably be measured in their first language, whilst cognitive assessments for older children could be conducted in the language of instruction – after at least two years of instruction has occurred in the given language. Secondly, Prinsloo (2009, personal communication) argues that only non-verbal cognitive assessment measures should be employed while assessing young children – so as to reduce the possibility of language contributing to lower performance. These sentiments are supported by Foxcroft and Roodt (2001) and Cronbach (1990).

As a final guideline concerning language, Le Grange (2009, personal communication) suggests that psychologists should employ translators proficient in both the languages of the assessment measure, and the child's first language (le Grange, personal communication, 2009). Concepts that are difficult to comprehend in the language of the assessment measure could be explained to the child in the child's first language.

The use of collateral information during cognitive assessment

Prinsloo (2009, personal communication) notes that considering the child's performance within his or her context is particularly essential in South Africa. Psychologists should consider collateral information, which includes – but is not

limited to – interviews with other professionals who have contact with the child such as the child’s primary teacher (Le Grange, 2009, personal communication) so as to identify possible socio-economic, environmental and socio-cultural factors that might influence the child’s performance. The psychologist should determine the normative level of the performance of children within the child’s context. A child’s performance on a cognitive assessment measure might, for example, suggest that the child has a poor reading comprehension when compared to Western norms, whereas the child’s performance might be above-average within his or her specific socio-cultural circumstances (le Grange, personal communication, 2009). Secondly, psychologists should consider the individual’s mental and physical health before commencement of the cognitive assessment (Foxcroft & Roodt, 2001). In South Africa, physical illnesses such as HIV and AIDS and TB could contribute to poorer performance on cognitive assessment measures (Department of Environmental Affairs, 2004; Foxcroft & Roodt, 2001). It should be noted, with regard to physical health, that children diagnosed with these illnesses might not attend school regularly due to the progression of their illness – in the same manner, children whose parents have been diagnosed with these illnesses might be caretakers – and therefore, constantly absent from school.

Shuttleworth-Jordan (1995) stated that individuals should not be categorised purely based on their results on cognitive assessment measures – as the contributing factors might influence these results.

Consideration of the dynamic nature of socio-cultural influences

Shuttleworth-Jordan (1995) emphasises the dynamic nature of socio-cultural influences when considering cognitive assessment. Therefore, contextual differences do not remain static – and should be considered whilst assessing and reporting on the results of cognitive assessment measures in South Africa.

Considerations during feedback on cognitive assessment

According to Griffin and Christie (2008), specific guidelines should be employed when feedback is given to individuals on the results of the cognitive assessment measure. When giving results to families, the feedback should be conducted in a manner that is fair and understandable. Psychologists should also avoid using psychological jargon when giving feedback to individuals.

According to Prinsloo (2009, personal communication), translators should be employed when giving feedback to individuals in a language other than their first language – especially in South Africa – so as to clarify and avoid misconceptions concerning the results.

Griffin and Christie (2008) furthermore note that it would be preferable to provide feedback to children concerning their performance on cognitive assessment measures. The psychologist should explain the importance of the assessment as well as their performance. This will contribute to the child's cooperation in that as well as in future assessments.

Reporting on the weaknesses of using existing cognitive assessment measures

Practitioners should – and most typically do – report the weaknesses of cognitive assessment measures and cultural considerations when writing assessment reports (Le Grange, 2009, personal communication). As such, specific cultural differences could be noted, which other professionals should bear in mind whilst interpreting the results stipulated in the report.

CONCLUSION

After careful consideration of both arguments against and in favour of using existing cognitive assessment measures within the South African context, it becomes apparent that both arguments have some merit. Although the instructions that accompany cognitive assessment measures state that one should proceed with caution when administering these measurements to groups, for which they have not been standardised, we are of the opinion that the term 'caution' should be clarified for practitioners so as to avoid any confusion concerning assessment.

Thus, although there are certain notable gaps concerning the existing cognitive assessment measures, '... such tests can be used with discretion in clinical work until South African specific procedural refinements and standardisation data are available' (Shuttleworth-Jordan, 1995, p. 102).

NOTE

- 1 In personal communications, Le Grange and Prinsloo expressed their personal views regarding this topic. We are grateful to them for their assistance.

BIOGRAPHICAL NOTES



Sulene Pretorius grew up in the Eastern Suburbs of Pretoria, Gauteng. She began her tertiary education at the University of Pretoria in 2006, studying BSocSci Psychology. After completing her degree with distinction, she was accepted for the BSocSci Psychology: Honours programme and is currently completing this degree at the University of Pretoria.



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