

Towards an Afro-centric model of cognitive assessment: Examining the current psychological assessment and placement practices of children with disabilities

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ABSTRACT

This study explored implications of incorporating African epistemologies into psychometric testing to strengthen cultural relevance and accuracy of assessment. Focus group discussions were conducted with 20 specialist teachers in Marondera, Zimbabwe to qualitatively examine perceptions of intelligence and test constructs. Additionally, 5 educational psychologists participated in interviews regarding integrating indigenous knowledges. Discussions were thematically analysed to discern constructs meriting attention. Key findings indicated that psychometric testing exhibits limitations by often disregarding communalist epistemologies and prioritising of oral tradition, holism, spirituality and creativity in African worldviews. Participants highlighted risks of misrepresentation when such tenets remain unaddressed. Constructs were elucidated warranting respect in emic-valid assessments. While initial findings suggest recognising discussed, African epistemologies holds potential to help address core validity issues. Future mixed methodology research partnerships with experts are recommended. This includes qualitatively defining constructs, then quantitatively validating inclusion into standardised, culturally-sensitive composite measures upholding scientific standards. Ongoing refinement may help psychometrics authentically evaluate diverse populations' capacities in an inclusive, accurate manner.

Keywords: Psychometrics, assessment, African epistemologies, culture, validation.

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INTRODUCTION

Psychometric assessments are tools used to evaluate cognitive skills through standardised questionnaires, tests or surveys (American Educational Research Association [AERA], American Psychological Association [APA], and National Council on Measurement in Education [NCME], 2014). However, cross-cultural considerations in this field have been insufficiently explored. This study was conducted in Marondera district, Zimbabwe, where specialist teachers participated in focus group discussions and five educational psychologists answered interview questions.

Traditional psychometric approaches have often been influenced by Western biases, resulting in a limited ability to capture the diverse capacities of individuals from non-Western cultures (Henrich, Heine and Norenzayan, 2010).

Although standardised tools have gained global popularity due to their efficiency, their cultural grounding poses a risk of overlooking unique strengths and perspectives when used cross-culturally (Sternberg and Grigorenko, 2017). This marginalisation not only hinders some individuals but also impedes the accurate profiling of their abilities. Therefore, it is crucial to improve the cultural sensitivity and relevance of psychometric assessments by incorporating indigenous knowledge to promote fairness, inclusiveness, and more accurate evaluations of cognitive skills.

To address validity gaps in psychometric assessments with regard to African contexts, this study drew upon a theoretical framework of African epistemologies proposed by Murove (2014). Murove's (2014) theory emphasises

African concepts of community, spirituality, and holism. Grounding the present research in this theoretical lens helped to understand indigenous perspectives that can strengthen psychometric tools. The insights gained from this exploration revealed the presence of relational and non-linear thought patterns, which are often overlooked by individualistic metrics prevalent in traditional testing approaches. It became evident that assessing individuals in isolation may lead to a misinterpretation of their abilities, as these abilities are often dependent on collective contexts and interconnected relationships.

In addition to the theoretical exploration, this research also conducted stakeholder interviews and focus groups to capture the lived experiences of individuals from African cultures. These discussions shed light on the nuanced expressions of knowledge and abilities that are culturally valued but remain unassessed by conventional psychometric measures. Participants emphasised that a true understanding of oneself emerges through balanced relationships with both humans and nature, underscoring the importance of a holistic perspective. The insights gleaned from these interviews and discussions also revealed assessors' lack of emic understanding, that is, their limited familiarity with the cultural nuances and values of the communities being assessed, which compromised the validity of the evaluation process. To ensure a fair and accurate evaluation, it is imperative for assessors to possess a deep understanding of the cultural context and to approach assessments with a culturally sensitive lens.

In a nutshell, this research underscores the necessity of addressing the validity gaps in psychometric assessments by integrating African epistemologies. By recognising the significance of community, spirituality, and holism, and by incorporating culturally valued expressions of knowledge and abilities, psychometric assessments can become more inclusive, accurate, and equitable. Furthermore, fostering assessors' emic understanding will contribute to a more just evaluation process, ensuring that individuals' unique strengths and cultural backgrounds are appropriately recognised and valued. By centering underrepresented perspectives, this study significantly expands our understanding of intelligence beyond narrow definitions. The findings underscore the urgent need for culturally-informed reform in the field of psychometrics. It is crucial to co-design assessments that respect and embrace varied worldviews, as this approach can foster inclusion and honour the strengths, knowledge, and wellness concepts inherent in indigenous cultures in multidimensional ways.

Looking ahead, it is imperative to continue partnering with communities to guide the ongoing evolution of psychometrics. This collaborative approach establishes reciprocity and social justice as benchmarks for transformative and decolonising practices. By pursuing diversity with humility, we can begin to address historic inequities and fulfill the potential of testing to benefit all individuals equitably. Recognising and celebrating our

shared human capacities, even though they may be expressed in different ways, is essential to promoting inclusivity, fairness, and the well-being of diverse populations.

LITERATURE REVIEW

Psychometric assessments aim to measure cognitive abilities in a standardised, objective manner (American Educational Research Association [AERA] et al., 2014). However, critics argue such tools reflect Western biases that may undermine their cross-cultural validity (Henrich et al., 2010). This literature review explores how incorporating African epistemologies could enhance psychometric testing's cultural sensitivity. African epistemologies emphasise holism, community, and spirituality rather than individualism (Murove, 2014; Sefa-Dedeh, 2013). Knowledge is understood contextually through relationships rather than abstractly (Murove, 2004). Rationality is also intertwined with morality, ethics and human experiences (Gyekye, 1987).

In contrast, psychometric testing operates from a modern Western paradigm that isolates skills from their social context (Sternberg and Grigorenko, 2017). Items focus on abstract logic over practical knowledge (Azibo, 1996). Scores rely on mechanistic numerical scales rather than qualitative judgments (Ogunniyi, 1988). There are also concerns about items being developed and standardised primarily on Western populations (Poortinga and Van de Vijver, 1987). Some efforts have tried adjusting test contexts to local cultures with mixed success (Heine, 2012). However, few studies thoroughly integrate indigenous epistemologies (Sternberg and Grigorenko, 2017). Two Ethiopian projects embedded testing in local scenarios but did not re-conceptualise underlying constructs (Abrha et al., 2017; Alemayehu, 2014).

In contrast to African epistemologies emphasising holism and community, psychometric testing tends to adopt an individualistic and reductionist worldview that compartmentalises knowledge into distinct components (Sternberg and Grigorenko, 2017). This fundamental difference in epistemological perspectives presents challenges in the application of psychometric testing, as there are areas where the current approach falls short in terms of objectivity. The divergence raises concerns about the efficacy and fairness of the assessment process. It implies that psychometric testing intentionally omits certain domains that fall outside its purview, thereby compromising the comprehensiveness and accuracy of assessment outcomes (Azibo, 1996). The emphasis on individualistic and reductionist approaches may overlook the holistic nature of knowledge and contextual factors shaping individuals' abilities and strengths (Ogunniyi, 1988).

The literature underscores the importance of adopting a more inclusive and culturally sensitive approach

(Poortinga and Van de Vijver, 1987). It emphasises the need to recognise and appreciate the value of African epistemologies in shaping the assessment process (Sefa-Dedeh, 2013). By doing so, the assessment can effectively capture holistic and communal aspects of knowledge, as well as contextual influences on performance (Murove, 2014). On the other hand, some may argue that standardised testing aims to uphold objectivity by relying on empirically validated constructs (Urbina, 2014). Wholesale incorporation of indigenous viewpoints could undermine reliability and comparability across settings (Heine, 2012). There are also concerns integrating context may increase subjective scoring (Camara and Schmidt, 1999). However, others present compelling counterarguments. Recent studies indicate emic insights need not compromise psychometrics when integrated thoughtfully (Serpell, 2011; Sternberg and Grigorenko, 2017). Validity may improve through capturing skills in locally meaningful ways (Azibo, 1996). Scores could still utilise objective rubrics while contextualising item content and interpretation (Mpofu, 2002).

A balanced approach is to combine rigorous Western methodology with organic qualitative data, as demonstrated successfully in projects contextualising assessments for Bangladeshi, South African and Native American populations (Abrha et al., 2017; Biermann et al., 2014; Demmert et al., 2006). Moreover, universalism itself reflects cultural influences that prioritise individualism, requiring critical examination (Nisbett, 2003). Overall, the literature suggests not an "either-or" debate but an opportunity for constructive blending that transcends the limitations of any single perspective (Sternberg and Grigorenko, 2017). Respecting multiple epistemologies could expand our understanding while preserving scientific integrity through mixed indigenous-scientific partnerships (Mpofu et al., 2016). This study aims to contribute to such reconciliations.

Upon further analysis of the literature, key insights emerge regarding balancing diverse epistemological perspectives in psychometric testing. Several scholars highlight the cultural biases that can arise from exclusively applying Western approaches across contexts (Okapala, 1999; Berry, 1999). In response, some studies have incorporated indigenous dimensions with promising results (Akinsola et al., 2010; Mkhize et al., 2013). However, integrating local content also faces challenges. Tests developed through participatory methods may be perceived as less objective (Mkhize et al., 2013). Maintaining scientific rigour while honouring cultural worldviews requires nuanced consideration of both emic and etic viewpoints (Serpell, 2011).

Communalism represents a recurrent theme across African epistemologies warranting exploration (Murove, 2004). Research examining communal constructs in relation to testing yields mixed findings (Gelfand et al., 2002; Chen et al., 2005; Oyserman, 2002; Yamaguchi, 2007). While group-oriented tasks may be advantageous

for collectivistic populations, independent assessment formats are also meaningful (Heine, 2012). A balanced perspective acknowledges psychometrics aims to establish standards through empirical grounding, yet universalism inherently reflects some cultural orientations demanding critical scrutiny (Nisbett, 2003). Wholesale exclusions could hinder validity, just as undirected blending may compromise reliability (Urbina, 2014; Camara and Schmidt, 1999).

Overall, the literature suggests not an "either-or" choice but opportunities for judicious combining of approaches through mixed-methods collaborations (Sternberg and Grigorenko, 2017). Resolutions necessitate respecting diversity while carefully integrating emic and etic lenses (Mpofu et al., 2016). The present study contributes to such reconciliations by exploring how incorporating Zimbabwean knowledge systems could strengthen psychometrics. Future research could further explore potential composite formats balancing individual and collective assessment components. However, any proposals must demonstrate upholding scientific integrity as a baseline requirement for acceptance and generalisability.

Regarding oral tradition, numerous studies echo its importance within African contexts (Okapala, 1999; Anglin-Jaffe et al., 2006; Kizito et al., 2013; Kambutu et al., 2013). However, current testing prioritises written modalities over oral strengths (Okapala, 1999). Holism also reflects core African values, emphasising interconnections between knowledge, people and nature (Sinha and Tripathi, 1994; Leung et al., 2008; Shah and Miyamoto, 2012; Gelfand et al., 2011). Yet psychometrics tends to isolate discrete skills from their nested contexts (Sinha and Tripathi, 1994). Spirituality too involves a vital connection between cognition and transcendent dimensions (Hill et al., 2003; Koenig et al., 2018). Overlooking these relationships when assessing could provide an incomplete portrait of capacities (Hill et al., 2003). Overall, the literature suggests inclusive assessments should honour multiple ways of knowing by incorporating ecologically-valid performance tasks reflective of diverse cultural styles (Serpell, 2011; Sternberg and Grigorenko, 2017). For instance, embedding comprehension items within familiar oral genres or evaluating problem-solving through community-oriented dilemmas. Future directives include further participatory research to authentically capture indigenous constructs (Mpofu et al., 2016), and then design composite formats seamlessly merging local and scientific rubrics through a mixed emic-etic methodology (Sternberg and Grigorenko, 2017). This necessitates respectful cross-cultural collaboration over reductionism or relativism (Nisbett, 2003).

Creativity represents a critical facet of human intelligence that must be incorporated authentically into psychometric testing to achieve comprehensive assessments. Several studies highlight how conventional approaches often fail to capture this essential dimension.

As Sternberg et al. (1991) argue persuasively, traditional IQ evaluations neglect the full spectrum of cognitive abilities important for creativity. Measures focused on innovation and originality are needed. The research underscores the context-dependent nature of creative expression. Runco et al. (2012) found individuals scoring highly on creativity indexes performed better on divergent thinking tasks like generating varied solutions, demonstrating how potential is constrained without the flexibility to apply skills organically. Similarly, Karwowski et al. (2018) observed the advantages of convergent activities requiring selecting optimal options from arrays of choices. Crucially, creativity emerges through dynamic engagement with local circumstances, resources and challenges. As Sternberg et al. (1991) note, certain talents surface best when immersed in authentic practices - one could mould inventively, solving tactile design queries. Yet psychometrics seldom permits such immersions, instead prioritising uniform procedures removed from lived realities.

In conclusion, the study aims to rectify such validity gaps by integrating emic insights on assessing Zimbabwean creativity. Indigenous knowledge traditions offer perspectives on nurturing innovation through communally supported experimentation rather than isolated evaluations. Partnerships with cultural experts will explore how reframing testing contexts and activities could better capture divergent, holistic thought patterns while maintaining scientific rigour. Qualitative data will provide nuanced descriptions of how creativity manifests within this community, informing revised testing formats. A blending of methodologies has the potential to produce fairer, more accurate and culturally relevant appraisals of this crucial competence. The field demands recognising diverse expressions of imagination and resourcefulness across global populations. This review reveals conceptual tensions between psychometrics and African thought warranting further reconciliation. Incorporating holism, communalism and spirituality could enhance cross-cultural validity, fairness and effectiveness of assessments.

METHODOLOGY

This study employed a qualitative research approach using an interpretive phenomenological design to explore perspectives from Zimbabwean educators. This approach aimed to provide nuanced understandings of psychometric testing grounded in indigenous knowledge systems from the lived experiences of these cultural experts (Mpofu et al., 2016). The setting was Marondera Urban, Zimbabwe. The target population was specialist teachers (N = 20) and educational psychologists (N = 5) working in local schools. Purposive convenience sampling was used to recruit participants.

Focus group discussions (FGDs) were conducted with the specialist teachers using a semi-structured interview

guide exploring constructions of intelligence and recommendations for assessments. Additionally, individual face-to-face interviews were held with educational psychologists regarding technical aspects and the feasibility of integrating indigenous constructs. All discussions lasted approximately 60 minutes and were audio-recorded with participants' consent. An inductive thematic analysis was employed to organise FGD and interview data into meaningful patterns using NVivo 12 software. Two researchers independently coded the transcripts and developed themes that were later discussed and agreed upon through consensus. Braun and Clarke's (2006) guidelines for thematic analysis were followed to ensure validity and reliability.

Triangulation of various data sources added depth to understanding. A thick description of methods allowed replication. Prolonged engagement in the field helped establish trust and capture authentic perspectives. An ethics protocol was approved by the University of Zimbabwe prior to commencement. Participation was voluntary and confidentiality was assured.

DISCUSSION

This study provides valuable insights into addressing the limitations of psychometric testing through integrating African epistemologies, as well as opportunities for further research. A key strength was the use of qualitative methods to provide an in-depth exploration of testing issues from the lived experiences of Zimbabwean educators (Mpofu et al., 2016). This emic understanding illuminated locally situated constructs that could enhance comprehensiveness and cultural relevance (Mpofu et al., 2016). However, limitations include the small convenience sample restricting generalisability. Future studies may employ larger probabilistic sampling and multiple research sites for more robust findings generalisable to broader populations. Additionally, initial qualitative work here informs a starting point but subsequent studies are needed to apply participatory designs to authentically develop psychometric tools incorporating emergent themes (Sternberg and Grigorenko, 2017). Rigorous validation of any such adapted tests will also be essential. While some argue subjectivity may increase through integrating indigenous viewpoints, this study highlights how respectfully blending methodologies can uphold scientific integrity through techniques like triangulation and thick description (Mpofu et al., 2016; Nisbett, 2003). Overall, the findings offer a strong argument for recognising diverse epistemologies within the psychological assessment. However, further mixed-methods research and cross-cultural collaboration are imperative to address technical and practical challenges (Mpofu et al., 2016; Sternberg and Grigorenko, 2017). This study contributes valuable early qualitative groundwork, yet the field must continue championing culturally inclusive approaches through

ongoing participatory investigation, test development, and evaluation. Only through such concerted efforts can we work towards psychometrics fulfilling their purpose of accurately understanding human capacity in all its richness.

The findings regarding communalism's significance for psychometric testing capture an important dimension warranting consideration, yet certain limitations and opportunities for improvement remain. Cited studies (Gelfand et al., 2002; Chen et al., 2005; Yamaguchi, 2007) demonstrate how individualism-focused evaluations may disadvantage collectivistic populations by overlooking dynamics like coordination and contextualisation integral to such worldviews (Oyserman, 2002). Relying solely on independent task formats risk threats to validity across cultures (Okapala, 1999). However, as Heine (2012) notes, skills like independent cognition retain relevance even cross-culturally. Additionally, concerns exist where wholly situational assessment could compromise the reliability and generalisability needed for standardised comparisons (Camara and Schmidt, 1999; Urbina, 2014). A balanced perspective is required - one acknowledging merits in both emic and etic lenses (Serpell, 2011). This opens possibilities for composite designs incorporating individual and group work elements while maintaining scientific rigour, as successfully modeled in previous cross-cultural adaptation research (Abrha et al., 2017; Biermann et al., 2014). Future studies combining quantitative and qualitative methodologies are also required to systematically develop such hybrid protocols, and then rigorously validate their psychometric properties and comparability with extant measures (Sternberg and Grigorenko, 2017). Overall, the findings here provide initial qualitative grounding highlighting communalism's importance. But continued mixed-methods research is vital to thoughtfully address technical challenges in operationalizing these cultural insights into standardized, yet ecologically-valid tools usable across diverse settings. Only through such ongoing collaborative refinement can we fulfill the promise of culturally sensitive assessment.

The findings regarding holism's significance in knowledge assessment convey important insights, though this initial work also has limitations that future research could build upon. As Leung et al. (2008), Shah and Miyamoto (2012), and Gelfand et al. (2011) illustrate, decontextualized testing may undermine validity across epistemologies that emphasise interconnectivity and real-world application. However, fully situating evaluations risks threats to reliability needed for cross-cultural comparisons (Camara and Schmidt, 1999; Urbina, 2014). A balanced perspective is warranted - as Heine (2012) notes, both emic and etic constructs offer value. Studies utilising mixed methodologies could systematically develop composite formats that authentically recognise holism without sacrificing scientific rigour (Sternberg and Grigorenko, 2017). For example, future research partnerships with Zimbabwean knowledge-holders could qualitatively define assessment items incorporating core holistic concepts,

and then quantitatively validate these constructs (Mpofu et al., 2016).

Additionally, the small, non-probabilistic sample in this initial exploratory work precludes generalising findings (Sternberg and Grigorenko, 2017). Larger, multi-site investigations would bolster confidence in results. Notwithstanding these limitations, the study offers a thoughtful starting point for the important dialogue around holism's role in psychometrics. Continued collaborative efforts refining emic-etic integration hold promise to help address the field's cultural deficiencies through cross-fertilisation of perspectives. Only by persevering in systematically yet respectfully translating insights into practice can psychometric assessment truly achieve comprehensive, globally relevant evaluations of human capacity in all its richness and diversity.

The findings regarding oral tradition's implications for psychometric testing raise important considerations. As noted previously, studies demonstrate that literacy-based assessments can disadvantage populations valuing oral modes of communication (Anglin-Jaffe et al., 2006; Okapala, 1999). This aligns with African epistemologies emphasising oral tradition's knowledge-transmission role (Sefa-dedeh and Dedeh, 2013). Strengths include highlighting opportunities to broaden inclusiveness and validity through formats recognising diverse skills such as listening comprehension and storytelling (Kambutu et al., 2013). Research also emphasises community-rooted strengths that merit respect (Mpofu et al., 2016). However, certain limitations persist. While initial studies provide useful phenomenological insights, further mixed methods work is needed to systematically develop reliable, cross-culturally comparable oral or written composite tools meeting scientific standards (Camara and Schmidt, 1999; Sternberg and Grigorenko, 2017). Qualitative findings also derive from limited, non-probability samples restricting generalisability. Larger, multi-site investigations would strengthen confidence in emic findings (Sternberg and Grigorenko, 2017).

Overall, incorporating oral tradition appears warranted but challenges remain in operationalising insights into standardised practice respecting rigour. Continued culturally informed, participatory research seems vital to help address such gaps through deepening understanding and refining integrated assessment models. Only through conscientious, long-term collaborations can the field faithfully uphold goals of comprehensiveness, fairness and accuracy in diverse evaluations of human potential. The findings regarding spirituality underscore its importance in assessments, though this work also exhibits limitations future studies could address. Studies cited demonstrate how failing to consider spirituality's influences can threaten validity across epistemologies highly valuing this domain (Hill and Pargament, 2003; Koenig et al., 2017). Initial qualitative work provides useful insights into indigenous constructs meriting integration (Sefa-dedeh and Dedeh, 2013).

However, systematic quantitative validation is still needed

to operationalise spiritual constructs into standardised tools respecting scientific rigour (Sternberg and Grigorenko, 2017). While mixed-method designs could help develop reliable, culturally sensitive composite measures addressing this gap (Mpofu et al., 2016), certain concerns persist. For instance, fully contextualising assessments risks compromising cross-cultural comparisons depending on situational specificities (Heine, 2012). Future collaborations with local experts are also required to refine and generalise exploratory findings from limited samples (Sternberg and Grigorenko, 2017). Notwithstanding these limitations, initial evidence compellingly signals spirituality's importance in comprehensively, and accurately evaluating human capacity. Ongoing cooperative investigations seem imperative to progressively transform such insights into best practices through rigorous translations upholding cultural relevance and psychometric integrity. Only by persistently refining emic-etic integrated models via participatory, mixed-methodological approaches can cause the field evolve to authentically embrace diverse worldviews.

The findings regarding creativity's importance in assessments provide valuable insights, though limitations also exist in this initial work. Studies cited underscore how traditional measures emphasising discrete skills fail to capture creativity's full multidimensional nature integral to African epistemologies (Akinsola et al., 2010; Runco and Jaeger, 2012). Incorporating diverse formats allowing creative expression holds promise for enhancing validity across populations (Karwowski and Beghetto, 2018). However, further mixed methods research is needed to systematically develop assessments and quantitatively validate identified constructs while respecting scientific standards (Sternberg and Grigorenko, 2017). For instance, future collaborations with Zimbabwean experts could help refine emic definitions and then establish rigorous scoring procedures (Mpofu et al., 2016).

Qualitative data also derive from a limited non-random sample, undermining generalisability (Sternberg and Grigorenko, 2017). Larger, multi-site investigations employing both qualitative and quantitative designs would strengthen evidence. Notwithstanding, initial work highlights an important area demanding attention. Con-tinued participatory efforts seem imperative to address technical challenges and authentically integrate creativity into standardised evaluations upholding cultural relevance and psychometric integrity. Such advancement could help assessments more comprehensively reflect the richness of human capacities. Overall, while offering useful phenomenological foundations, more research is still required to translate these understandings into best-practice tools supporting globally fair, accurate evaluation.

Conclusion

In conclusion, this study explored the implications of African epistemologies for psychometric testing through a

review and qualitative inquiries. Findings indicate current testing exhibits limitations in comprehensively evaluating those grounded in diverse indigenous knowledge systems. Key takeaways include the recognition that communalism, oral tradition, holism and spirituality comprise core yet underrepresented constructs warranting respect. Literature and participant insights signal risks of cultural bias when these tenets remain disregarded. However, limitations arise when fully contextualising assessments compromises scientific standards. A balanced mixed-methods approach is proposed - leveraging qualitative methodologies to understand emic constructs, while quantitative validation establishes reliable, cross-culturally comparable tools. Future partnerships with knowledge-holders are recommended to iteratively refine defined constructs and assessment operationalisation. Larger, multi-phased investigations would also strengthen evidence. While preliminary, this culturally-informed examination prompts reconsidering assessment to authentically encompass African epistemologies. Addressing implicit biases will help evaluations achieve goals of accuracy, fairness, and comprehensiveness across diverse populations. Ongoing cooperative translation of insights through rigorous, participatory methodologies holds promise to help psychometrics fulfill their purpose of gauging human capacity in all its richness and variability. Further research advancing this evolution merits support.

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