

Language of assessment matters: Early learning outcomes when preschool children are tested in isiXhosa mother tongue vs in English: The language of learning and teaching



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Background: Many young children in South Africa are enrolled in early learning programmes (ELPs) that use a different language of learning and teaching (LOLT) from their mother tongue. In which language should they be assessed?

Aim: To investigate the effect of the language of testing on Early Learning Outcomes Measure 4&5 (ELOM 4&5) performance.

Setting: Preschool Programmes.

Methods: The nationally standardised ELOM 4&5 was administered to isiXhosa-speaking children (39 boys and 46 girls) attending English LOLT programmes (mean age = 62.12 months; standard deviation [sd] = 4.36). The language of assessment order was counterbalanced (English first and isiXhosa second or vice versa). A mixed linear model with fixed and random effects was fitted with ELOM 4&5 Total score at assessment time 2 in language 2 (English or isiXhosa) as the dependent variable. The model included the following predictors: ELOM 4&5 Total score in the language assessed at time 1, days between assessments, sex, age in months and ratings of Task Orientation.

Results: Children performed better in isiXhosa regardless of the language of administration order. Children assessed in English first performed better when tested in isiXhosa second.

Conclusion: Early Learning Outcomes Measure 4&5 test scores of English LOLT isiXhosa-speaking children in ELPs are likely to be more valid indicators of their ability when children are tested in their mother tongue language.

Contribution: This first South African study to investigate the effects of language of test administration on ELOM 4&5 performance in children attending English LOLT programmes indicates that isiXhosa speakers should be assessed in their mother tongue as required by the national home language assessment policy.

Keywords: Early Learning Outcomes Measure 4&5; language of assessment; early childhood; early learning programme; language of learning and teaching; isiXhosa; English.

Introduction

The Tashkent Declaration and Commitment to Action for Transforming Early Childhood Care and Education (ECCE) (UNESCO 2022) emphasises the importance of learning approaches that affirm multilingual education and the promotion of mother tongue language of instruction. The 1997 South African Language in Education Policy (LiEP) follows an additive multilingual approach that requires first (home) language instruction in the early years (Department of Basic Education [DBE] 1997). The underlying principle of the policy is to maintain the use of home language as the Language of Learning and Teaching (LOLT), especially in the early years of learning, while providing access to additional languages. The recent DBE Mother Tongue Based Bilingual Education (MTbBE) initiative addresses the transition from 'mother tongue' in Grade 4, promoting the use of bilingualism and African languages (DBE 2024). A mother tongue:

[i]s the language most familiar to the child when they begin formal schooling. But children could have more than one mother tongue. Typically, the mother tongue is the language the child uses regularly for communication in their home and/or community. It is usually the language which the child learns at

Home Language level in school. The notion of a 'mother tongue' is also known by other terms such as most familiar language(s), primary language(s), first language(s), or home language(s). (Bua-lit, 2024, p. 1)

Following South African policy and the relevant evidence base, the Early Learning Outcomes Measure (ELOM 4&5), which has been standardised for use in 11 South African languages, has consistently been administered in the child's 'home language' (Dawes et al. 2025; Giese et al. 2023). However, it is our experience and confirmed in studies that because of diverse language enrolments in early learning programmes (ELPs) (particularly, but not only, in urban areas), as well as parental preferences, many children who have African home languages attend facilities where the language of learning, teaching and assessment (LOLTA) is English (Mabiletja 2018). Furthermore, many children grow up exposed to multiple languages at home and in their communities, and there are also many attending ELPs who are exposed to other regional languages at home; so determining their 'home' language is not a simple matter.

In this contribution, we use the term ELP inclusively to refer to all South African programme types, including centre-based Early Child Development Centres (ECDs) and non-centre-based services such as playgroups and childminder services.

According to the 2016 Annual School Survey, only 6.6% of children in Grade R public schools are English 'home language' speakers (DBE 2023), and the 2021 ECD Census (DBE 2022) found that 36% of ELPs are unilingual. English is the language used in almost half of these (49%). A significant proportion of children who have a language other than English as their home language are therefore likely to attend an English LOLT ELP.

English is widely perceived to be the language of upward mobility in a world of work where English dominates (Evans & Cleghorn 2014; Msila 2009; Trudell et al. 2016; Venketsamy & Miller 2021). This can lead to a preference for children's instruction in English among African language parents from early on (Mabiletja 2018). These authors note that a factor influencing the choice of preschool and primary school is access to English as the medium of instruction in preparation for the world of work, where English dominates. It is also our experience that, as preparation for English LOLT primary schools, ECD Resource and Training Organisations often report that parents choose to send their children to English LOLT preschools. A small study of parent perceptions of the value of English at preschool for isiZulu children confirmed the high value placed on English as a universal language, which is important for further education (Saneka & De Witt 2019). This is despite evidence that children learn best when the first language of instruction in an ELP or school is their home language (e.g. Benson 2005; Bühmann & Trudell 2007; Pinnock 2009; Taylor & Von Fintel 2016). In addition, even where the LOLT is an African language, English and Afrikaans terms may be used for teaching

numeracy and mathematics (counting, shape names, etc.), and many learning support materials, including alphabet charts, are in English (Wildsmith-Cromarty, Dyer & Modipa 2023).

Results of studies on school-age African language children in South Africa have shown that when the child's home language and the LOLT differ, children obtain lower scores when assessed in a language other than that used at home (Van Staden, Bosker & Bergbauer 2016; Vorster, Mayet & Taylor 2012). Analyses of SACMEQ III data from Grade 6 learners collected in 15 Southern African countries in 2010 showed that speaking the language of instruction was a statistically significant pupil-level predictor of both reading and mathematics (Hungu 2011). Multilingual children have also been studied in other African countries. For example, Knauer et al. (2019) tested rural Kenyan children aged 2–6 years on receptive vocabulary tests in three languages: 'Luo (the local language), Swahili and English (official languages) at two time points, 5–6 weeks apart' (p. 1). 'Baseline receptive vocabulary scores in Luo and Swahili were strongly associated with receptive vocabulary scores in English at follow-up' (p. 1), indicating the importance of multilingual testing if one is to understand the cognitive growth of multilingual children.

Recent South African early-grade reading studies by Mohohlwane et al. (2024) indicate that children perform best when provided with home language instruction. There is also no evidence that an early exit from home language to English as the LOLT improves reading performance. They conclude that while children in Grade 1 can learn English, they have insufficient mastery of this as a LOLT. For pre-Grade R children and Grade R children, this is clearly even more likely to affect performance.

Ensuring valid estimates of language, cognitive and other abilities in young children who use one or more of our African languages at home, but who attend an English LOLT educational environment, poses questions for educators and researchers alike. To our knowledge, no research on the effects of language of testing among children prior to schooling has been conducted in South Africa.

The problem

Language of assessment is a crucial issue for the functional equivalence of ELOM 4&5 test administration for children exposed to multiple languages in the early years. When tests have functional equivalence, the instructions are understood the same way in adapted languages of testing and do not therefore advantage children assessed in the original language from which the test was adapted and translated (Pena 2007; Van de Vijver & Tanzer 2004). This issue was addressed in the standardisation of the ELOM 4&5 (see Method section).

The ELOM 4&5 has been used to assess more than 20000 children in a variety of settings in all official languages except

South African Sign Language (SASL) (Giese et al. 2023). Practice to date is that children are assessed in their home language/mother tongue unless they indicate otherwise at the start of the assessment. But is this necessarily the best practice when home language and LOLT differ? In which language should a child whose language is not English but who attends an English LOLT ELP be assessed on the ELOM 4&5 to obtain the fairest measure of their ability? Our study seeks to address this question. The findings may allow guidance on an appropriate approach to the language of assessment on the ELOM 4&5.

Research methods and design

Design

The study entails a comparison of the performance on the ELOM 4&5 of isiXhosa language children attending ELPs when administered in that language and in English, the ELP LOLT. As we were unable to ascertain the possible variety of languages spoken in participants' homes, we refer to isiXhosa as the child's 'home language' based on information provided by the child's ELP and by the child during the assessment.

To test the effects of the language of test administration on test performance, each child was assessed a number of days apart. For statistical analyses, the required sample size was computed with G*Power 3 software (Faul et al. 2007), setting power at 0.8, effect size at 0.20 (Cohen's *d*), alpha at 0.05 and assuming an F test in a multiple regression (the procedure most similar to a mixed linear model). The required sample size computed in this way was 39.

Measures

Early Learning Outcomes Measure 4&5

The ELOM 4&5 is a 23-item standardised test that provides a reliable and fair assessment of children regardless of their socio-economic and ethnolinguistic background and is available in all the official languages of South Africa except SASL (a version for SASL is in development). Content, construct, age and concurrent validity (with the WPPSI-IV), as well as test-retest reliability, have been established (Anderson 2021; Dawes et al. 2020; Snelling et al. 2019). To date, the ELOM 4&5 has been used to assess some 20000 4- and 5-year-old children in South Africa for various purposes, including investigations of the effectiveness of ELPs (Dawes et al. 2023; Giese et al. 2023) and in the Thrive by Five national survey of the development of 5-year-olds (Tredoux et al. 2023). The ELOM 4&5 assesses children's development in the following domains:

- Gross Motor Development (GMD) (4 items)
- Fine Motor Development and Visual-Motor Integration (FMC&VMI) (4 items)
- Emergent Numeracy and Mathematics (ENM) (5 items)
- Cognition and Executive Functioning (CEF) (4 items)
- Emergent Literacy and Language (ELL) (6 items)

Early Learning Outcomes Measure 4&5 administration takes about 45 min, and items are designed to be enjoyable and are

aligned with activities commonly found in preschool curricula.

Procedure

Assessment

Children were individually assessed by two trained, accredited assessors who are fluent in the child's language. Assessors were tested for the reliability of their scoring using a video of a child being tested and scored by a highly experienced occupational therapist (OT). The scoring of the two assessors was compared with that of the OT. One assessor demonstrated 89% agreement with the expert scoring, while the other obtained 96% agreement. All data were captured on password-protected tablets using the standard assessment kit. Once the assessment had been completed, the data were uploaded to a secure server and anonymised.

Participants

A convenience sample of isiXhosa-speaking children in their final year of an English LOLT ELP (prior to entering Grade R) was enrolled from ELPs that agreed to their children being assessed.

All children passed the ELOM 4&5 disability screen. As explained in the ELOM 4&5 Technical Manual (Dawes et al. 2025), four questions drawn from the World Health Organization 10-point Disability Screen are answered by the child's teacher or caregiver. They are designed to detect children who are likely to have disabilities or developmental problems in hearing, sight, mobility or intellectual functioning that are likely to negatively affect their ability to perform the items and to not provide a fair assessment of their abilities. Children who have one or more problems are excluded from the ELOM 4&5 administration. In this case, the child's teacher was requested to answer the disability screen questions.

The study sample included 39 boys and 46 girls ($N = 85$) (mean age: 62.12; standard deviation [SD] = 4.36 months at first assessment). All children were in programmes charging in the region of R480 per month. As there was minimal variation in fees, the effects of variations in fee level could not be tested.

Children were randomly assigned to one of two counterbalanced assessment conditions: ELOM 4&5 assessment in either English or isiXhosa first and the other language second, as shown in Table 1.

Eighty-four children's scores were valid (all data available for both administrations). Their scores were used in the analyses that follow.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of Cape Town, Ethics Review Committee of the Faculty of Humanities on 04 June 2024. The ethical approval

number is PSY2024-014. Primary caregivers were sent informed consent forms and requested to consent to their child's assessment. Only children whose caregivers gave consent were enrolled. Children were requested to assent to testing but could withdraw at any time with no consequences to them.

Results

Statistical analyses were undertaken using SPSS 30.0 (IBM Corp. 2023). Correlations between languages of administration for ELOM 4&5 Total and all domains are presented in Table 2. Statistically significant and high correlations are evident for all pairs, with those for GMD and FMC being lower than other domains and ELOM 4&5 Total score.

The first substantive question to be explored was whether or not there was a difference in the child's performance when assessed in English (the ELP LOLT) or isiXhosa (the child's home language). A dependent (paired samples) *t*-test was used to test the null hypothesis of no difference.

The results provided in Table 3 show statistically significant differences favouring children tested in isiXhosa for the ELOM 4&5 Total and three of the five domains: GMD, ENM and ELL. It is evident (following Cohen's 1988 conventions) that, apart from GMD, effect sizes for statistically significant comparisons are moderate. Overall, children did better when assessed in their home language rather than their LOLT (English).

Testing predictors of performance in the second language of assessment

The original design required the assessments in English and isiXhosa to be undertaken 10 days apart. Challenges in the field occasioned by holidays, festival days and child absences, among other factors, resulted in a broader range in the time between the two assessments. The average number of days between assessments was 22.61 (SD = 8.74;

mode = 14 days; range = 40 days). We were concerned that the time between assessments might affect the relationship between performances in the two languages, and we therefore used simple linear regression to assess the strength of the relationship between ELOM 4&5 Total scores in the two languages, with the interval of time as a predictor. For this analysis, we estimated a required sample size of 39 with G*Power 3 (power = 0.8; ES = 0.20; alpha = 0.05).

We treated language as a dichotomous variable and tested for differences in Total ELOM 4&5 score across the language of administration. Reframing the analysis as a linear regression allowed us to enter control variables. Predictors of the ELOM 4&5 Total score obtained in the language tested in the second assessment (either English or isiXhosa) were:

- Early Learning Outcomes Measure 4&5 Total score on the *first* language of assessment
- Sex
- Age at first assessment
- Days between the first and second assessments
- Task orientation score: a Total score derived from the assessor's rating of the child's attentiveness, concentration, diligence and interest shown while being tested.

We had hoped to include the effect of the amount of time the child had spent in an English Language ELP as a covariate. However, this was not possible because this information was not available. The dependent variable was the second language of assessment ELOM 4&5 Total score.

As reported in Table 4, we found that the Total ELOM 4&5 score on the first assessment in isiXhosa and the assessor's observation of the child's Task Orientation score on the second language of testing (English) both significantly predicted performance on the second language of testing (English). Child age and time between assessments were also significant but weak predictors of ELOM 4&5 Total when administered in English second. It is unclear why this is the case.

As reported in Table 5, the only significant predictor of ELOM 4&5 Total score when children were tested in the second assessment in isiXhosa was the ELOM 4&5 Total score when assessed in English on the first occasion.

It is of interest that children's Task Orientation (concentration, interest and attention while being tested) only predicted ELOM 4&5 Total scores when tested in English. A plausible explanation is that being tested in their less familiar language placed a higher cognitive demand on the child and required greater attention and concentration.

To test for an interaction between the language in which the ELOM 4&5 was administered and the order in which it was administered (i.e. before or after the English version) on ELOM 4&5 Total scores, we conducted a mixed linear model, taking ELOM Total scores as the outcome variable, the language in which the assessment was conducted, age

TABLE 1: Early Learning Outcomes Measure 4&5 samples by test language order.

Test language order	N	%
English administration first	47	55.3
isiXhosa administration first	38	44.7

TABLE 2: Early Learning Outcomes Measure 4&5 paired samples correlations.

Comparisons	N	Correlation	p-value (one-tailed)
ELOM 4&5 Total English & ELOM 4&5 Total isiXhosa	84	0.68	< 0.001
GMD Total English & GMD Total isiXhosa	84	0.26	< 0.001
FMC Total English & FMC Total isiXhosa	84	0.46	< 0.001
ENM Total English & ENM Total isiXhosa	84	0.61	< 0.001
CEF Total English & CEF Total isiXhosa	84	0.66	< 0.001
ELL Total English & ELL Total isiXhosa	84	0.61	< 0.001

ELOM, early learning outcomes measure; GMD, gross motor development; FMC, fine motor development; ENM, emergent numeracy and mathematics; ELL, emergent literacy and language; CEF, cognition and executive functioning.

TABLE 3: Early Learning Outcomes Measure 4&5 paired samples *t*-tests across language administrations*.

Paired comparisons	Paired differences					Effect size		
	Mean difference	SD	df	<i>t</i>	<i>p</i> -value (one-tailed)	Cohen's <i>d</i>	CI lower	CI upper
ELOM 4&5 Total English – ELOM 4&5 Total isiXhosa	-7.66	13.60	84	-5.20	< 0.001	-0.52	-0.74	-0.29
GMD Total English – GMD Total isiXhosa	-1.08	5.16	84	-1.92	< 0.050	-0.22	-0.43	-0.00
FMC Total English – FMC Total isiXhosa	-0.36	3.46	84	-0.94	0.446	-0.08	-0.30	0.13
ENM Total English – ENM Total isiXhosa	-2.75	3.57	83	-7.06	< 0.001	-0.77	-1.00	-0.52
CEF Total English – CEF Total isiXhosa	0.13	3.81	83	0.32	0.747	0.04	-0.18	0.25
ELL Total English – ELL Total isiXhosa	-3.60	5.60	83	-5.90	< 0.001	-0.64	-0.88	-0.41

ELOM, early learning outcomes measure; GMD, gross motor development; FMC, fine motor development; ENM, emergent numeracy and mathematics; ELL, emergent literacy and language; CEF, cognition and executive functioning; SD, standard deviation; *df*, degrees of freedom; CI, confidence interval.

*Bootstrapping with 1000 replications was used to estimate *p*-values and 95% confidence intervals.

TABLE 4: Predictors of English Early Learning Outcomes Measure 4&5 Total score when administered second.

Model	Coefficients			<i>t</i>	<i>p</i> -value
	<i>B</i>	SE	Beta		
(Constant)	-46.17	22.83	-	-2.02	0.047
Days between assessments	0.30	0.13	0.18	2.32	0.023
Child's sex	-0.15	2.19	-0.01	-0.07	0.947
Age in months	0.90	0.32	0.21	2.76	0.007
Total ELOM 4&5 score Xhosa	0.49	0.06	0.62*	8.26	< 0.001
Task orientation score for the English (2nd) assessment	1.88	0.39	0.37*	4.81	< 0.001

ELOM, early learning outcomes measure; SE, standard error.

TABLE 5: Predictors of isiXhosa Early Learning Outcomes Measure 4&5 Total score when administered second.

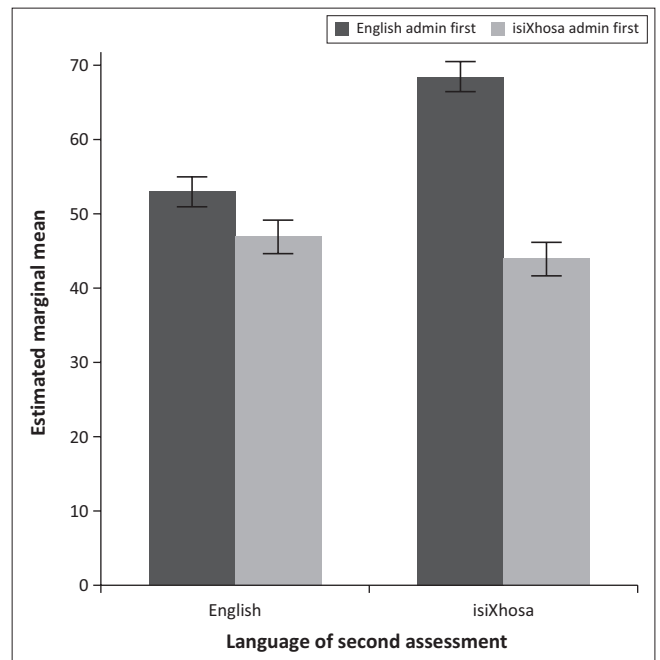
Model	Coefficients			<i>t</i>	<i>p</i> -value
	<i>B</i>	SE	Beta		
(Constant)	-9.91	34.96	-	-0.28	0.778
Days between assessments	0.27	0.18	0.13	1.53	0.129
Child's sex	4.62	3.24	0.12	1.42	0.158
Age in months	0.06	0.51	0.01	0.12	0.905
Total ELOM 4&5 score English	0.81	0.13	0.63*	6.22	< 0.001
Task orientation score for the isiXhosa (2nd) assessment	0.10	0.60	0.02	0.17	0.864

ELOM, early learning outcomes measure; SE, standard error.

at first assessment, days between assessments, the order in which the test was conducted (i.e. English then isiXhosa or the inverse) and the interaction of home language and the order in which the tests were conducted, as predictors.

Given that there were repeated assessments, children were nested within assessments, and a random effect for child was used in the model. Statistically significant effects were found for language of assessment ($B = 15.52$, $SE = 1.55$, $df = 1$, 83 , $p < 0.001$), the child's age ($B = 1.27$, $SE = 0.40$, $df = 1$, 81 , $p < 0.001$) and the interaction between language test order and language of administration ($B = -18.53$, $SE = 2.32$, $df = 1$, 83 , $p < 0.001$).

Pairwise comparisons were undertaken to further understand the interaction effect between test language order and the language in which ELOM 4&5 was administered. There was a significant difference between test administration in English first vs administration in isiXhosa first (t ratio = -7.98 ; $df = 83$, $p < 0.001$). Results are displayed in Figure 1.

**FIGURE 1:** Interaction effect of test language order on Early Learning Outcomes Measure 4&5 Total scores in isiXhosa and English. I bars are 95% confidence intervals.

The results indicate that the English LOLT preschool children performed better on the ELOM 4&5 in both isiXhosa (their home language) and in English when first assessed in English.

In sum, a 'practice' test administration in English preceding administration in isiXhosa contributed more to their performance when tested in their home language than a prior (practice) administration in their home language. Practice in the 'less familiar' preschool LOLT (English) advantaged their test performance in their home language (isiXhosa) more than practice in the latter. That said, isiXhosa home language test performance remained superior to performance when tested in English (the preschool LOLT).

Limitations

We did not have access to reliable information on the participants' exposure to English LOLT classes prior to the year of the study. As a result, we were not able to explore

the effects of English LOLT 'dose' on performance in both languages. This weakness should be addressed in future research. It would also be desirable to have information on the languages to which children are exposed at home and an indication of which is the most commonly used language. This would be useful in determining their most familiar language.

Discussion and conclusion

With the exception of two domains (FMC&VMI and CEF) in which there was no difference in performance, children who had attended an English LOLT ELP performed better on the ELOM 4&5 when tested in their home language. The time between assessments in English and isiXhosa did not predict scores at the second administration. Regression analyses showed that when tested in English, the degree of task orientation was significantly associated with ELOM 4&5 Total scores. This may indicate that children were more focused on the test when assessed in English. Task orientation did not contribute to ELOM 4&5 Total scores when children were tested in isiXhosa. Analysis of the interaction between language of first administration (English or isiXhosa) and order of administration indicated that English LOLT preschool children performed better on the ELOM 4&5 in both isiXhosa and in English when first assessed in English but still obtained higher scores overall when tested in isiXhosa, indicating that home language speakers with at least 10 months' exposure to an English LOLT ELP should be assessed in their home language on the ELOM 4&5. That higher task orientation scores were associated with better ELOM 4&5 results when isiXhosa speakers were tested in English suggests that children found the English administration more challenging, and that having been in an English LOLT class for 9 months had likely not reduced the effort required during the test.

Our study of children attending an English LOLT ELP affirms the South African LiEP and provides similar findings to a recent Kenyan study of language of testing in young children (Knauer et al. 2019). Administration of the ELOM 4&5 in children's isiXhosa mother tongue/home language produces consistently better performance regardless of whether the English or isiXhosa version was administered prior to the other version. The main implication of our finding, therefore, is that for children in English LOLT ELPs prior to Grade R, the child's home language (their mother tongue) should be the language in which the ELOM 4&5 is administered.

It remains a challenge, however, to decide on the most appropriate language of assessment for children living in households and communities where several languages are used. As we noted at the outset of this contribution, urban ELP classes in particular may accommodate children from a variety of African language backgrounds, making the implementation of home language LOLT policies well-nigh impossible in these multilingual classrooms. In such situations, the default LOLT often becomes English. We also

noted that children may be exposed to several languages at home and in their communities. As a result, a proportion of children in ELPs and in the Foundation Phase of school are likely to have multilingual language repertoires, within which some linguistic skills are likely to be more dominant than others as a function of exposure to usage in their homes and communities (Coetzee-Van Rooy 2018).

So, what language should be used when assessing the development of these children on tests such as ELOM 4&5? Clearly, the decision will influence the extent to which the assessment provides a fair indication of their abilities. Further research is clearly necessary if we are to improve our practices with children with multilingual language repertoires.

For now (and based on our experience), if possible, we suggest asking the child's main caregiver (e.g. mother) which languages are spoken at home with the child, and if more than one, asking which is spoken most often on an everyday basis. That (dominant language) would likely indicate the child's most familiar language and hence the most appropriate assessment language. In the absence of the caregiver or another member of the household, the child's educator would be the key informant on the child's 'home language'. At the point of test administration, children should be the final arbiters. They should be asked which language they would prefer to use during the assessment and be told that they can switch to another language should they wish to do so.

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Competing interests

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CRedit authorship contribution

Andrew Dawes: Conceptualisation, Methodology, Formal analysis, Investigation, Writing – original draft, Funding acquisition. Linda Biersteker: Conceptualisation, Methodology, Investigation, Writing – original draft, Project administration, Writing – review & editing. Colin Tredoux: Methodology, Formal analysis, Writing – original draft.

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Data availability

The data are available on open access at Data First at the University of Cape Town (<https://www.datafirst.uct.ac.za>).

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