

Examining the nature of bilingual phonological awareness & rapid naming at two points in time

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INTRODUCTION

Phonological awareness (PA) and rapid naming (RAN) are significant precursors for reading across languages and for monolinguals and bilinguals. However, measurement of these skills in both languages of emergent bilinguals is less common. We are less sure to what extent these skills are language general and rest on a shared underlying ability or language specific and transfer across languages.

METHOD

Two groups of emergent bilinguals (n = 69 isiXhosa-English; n = 70 isiZulu-English) were tested at mid Gr 1 and start of Gr 3 (2019 & 2021) on bilingual phonological processing and reading. The CTOPP, and similar measures in isiXhosa and isiZulu were administered.

CONTEXT

Multilingualism

L1 vocabulary: Xhosa > Zulu
Eng vocabulary: Xhosa < Zulu
Xhosa group receptive to 2 lx; Zulu group receptive to 3 lx.

Instruction

L1 = language of instruction
English instruction from Gr 1: 3-4 h/week.
Oral language focus in Gr 1.
Xhosa group were part of an intervention for mother tongue support.

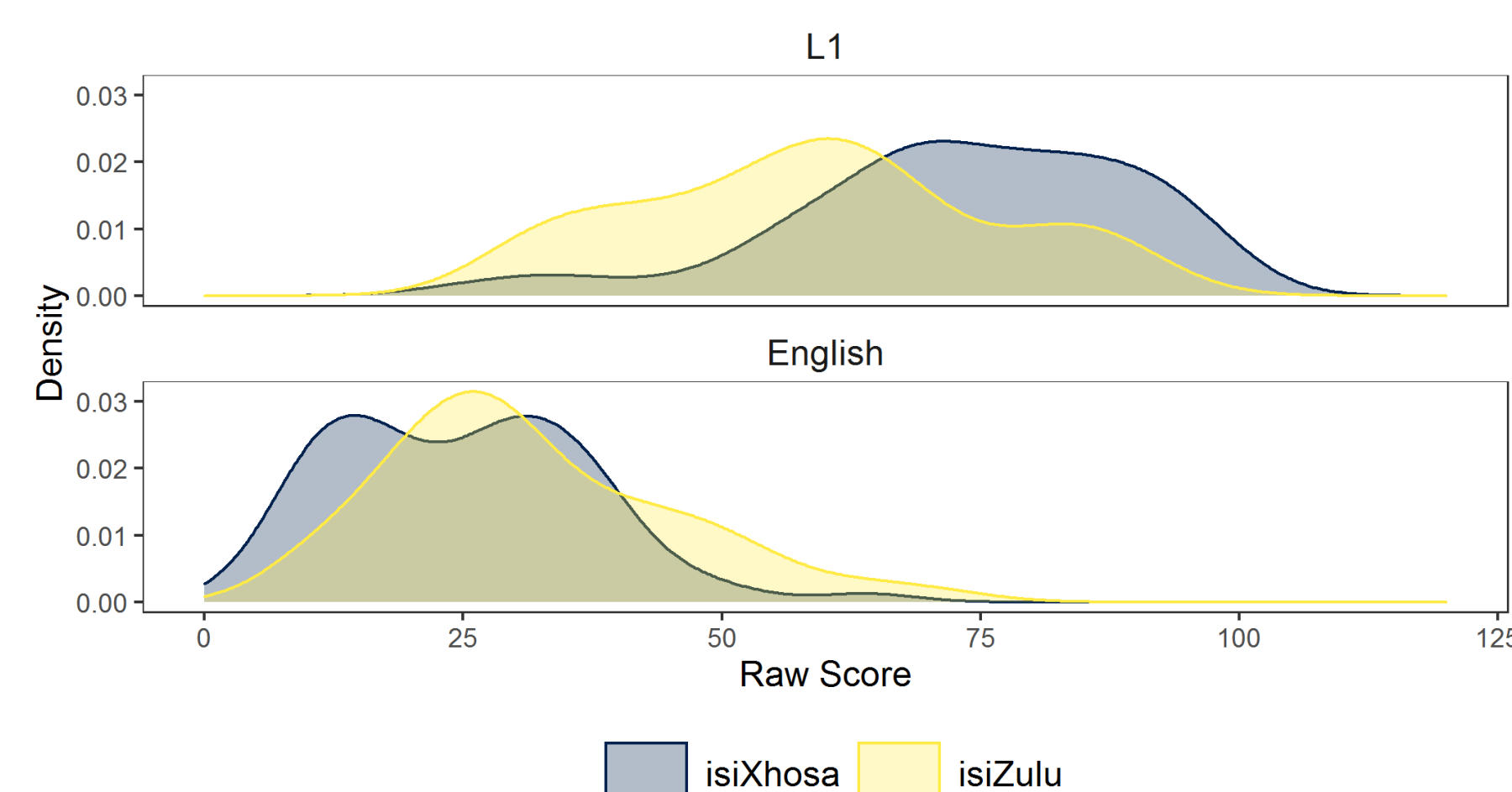


Figure 1. Distribution of raw vocabulary scores

Strong cross-language correlations for PA, especially in later grades

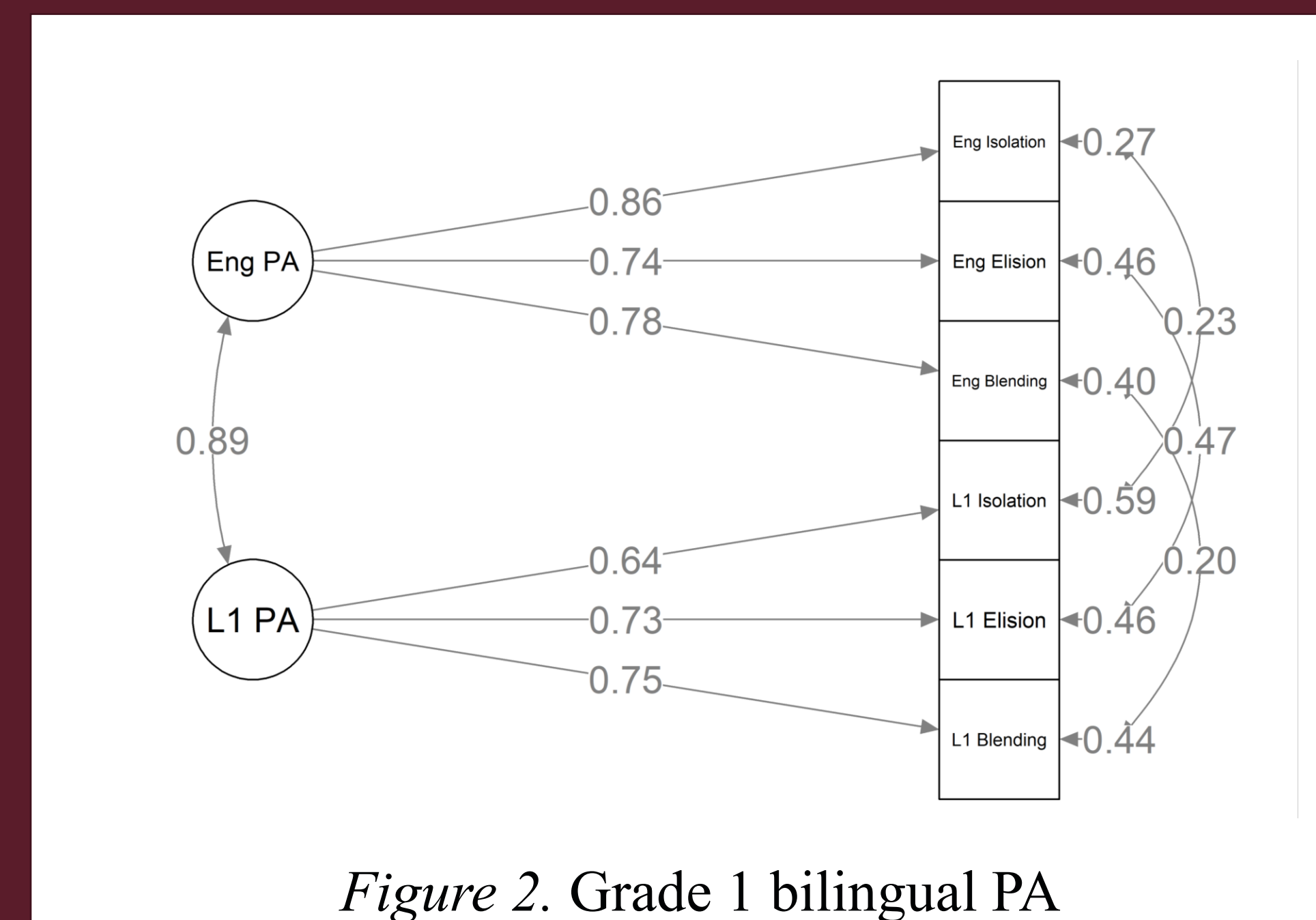


Figure 2. Grade 1 bilingual PA

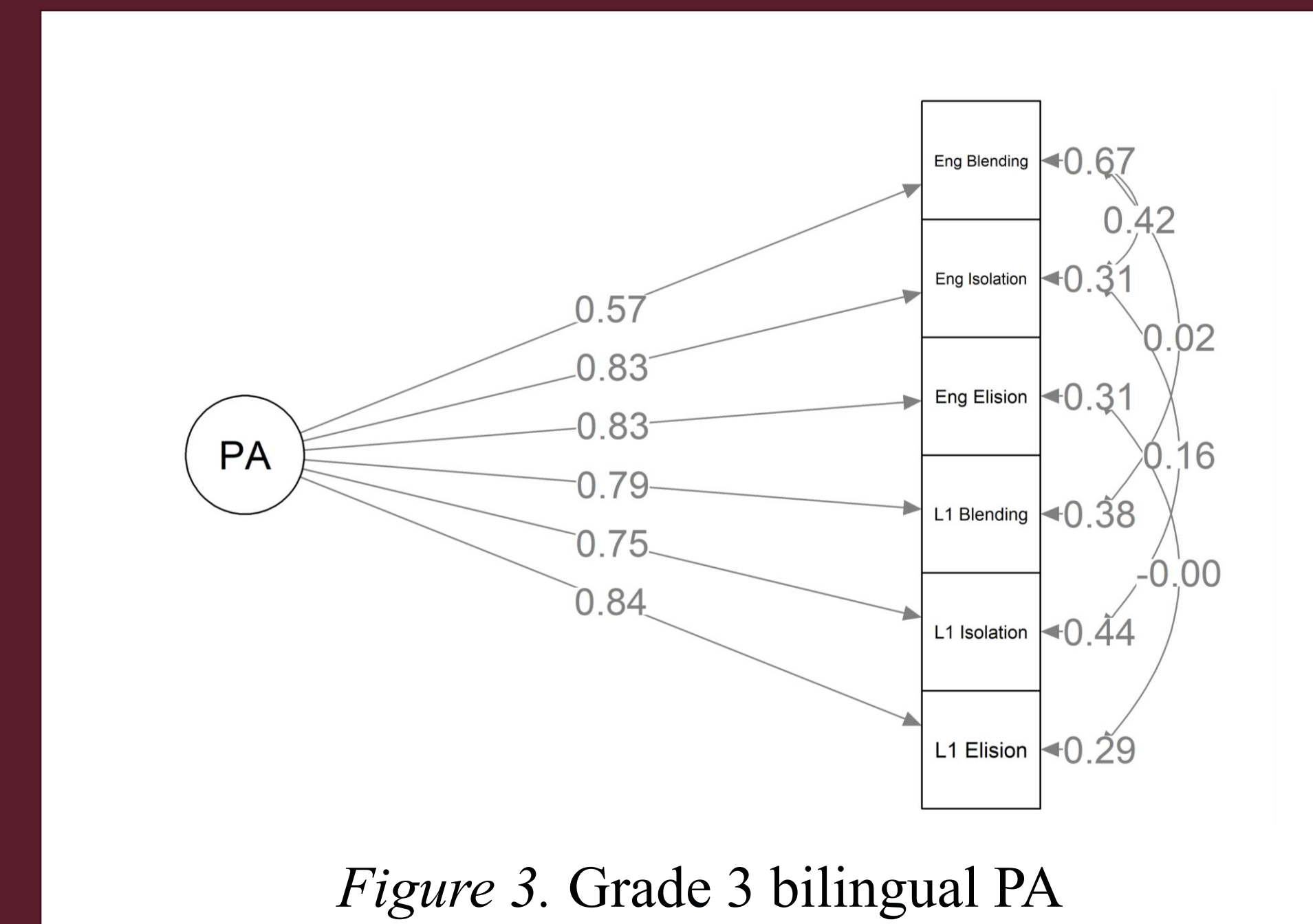


Figure 3. Grade 3 bilingual PA

L2 non-alphanumeric RAN is influenced by L2 language exposure

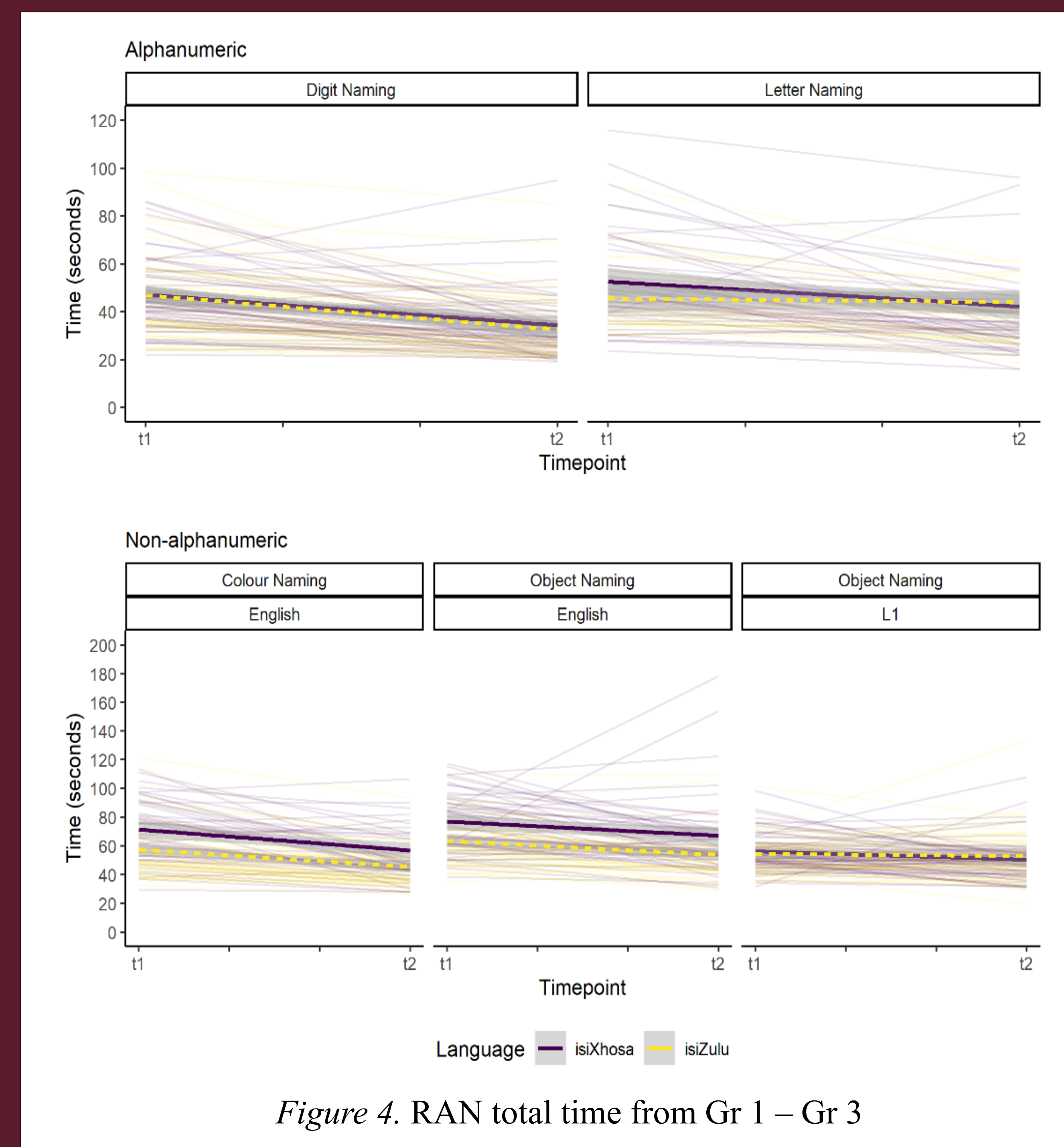


Figure 4. RAN total time from Gr 1 – Gr 3

DISCUSSION

Phonological awareness rests on the general awareness that the sounds in words can be manipulated. Language familiarity plays a role in earlier phases of PA development, while children are developing their L2 vocabulary and their sensitivity to L2 syllable structure and phonemes. The measurement of PA in early grades may need to be language specific.

RAN represents an underlying skill, which can be measured in any language the child knows best. Naming times of non-alphanumeric items will be slower in the language children are less familiar with, or which they use less often, which may impact the correlation with reading. Researchers should prioritise the measurement of digit RAN which is less affected by instruction and language familiarity.

RESULTS

Models fit in R using lavaan. MLR estimation with robust Huber-White standard errors due to non-normal distribution and missing data. Robust statistics reported.

CFA Gr 1: The fit statistics of the two-factor model were: scaled $\chi^2(5) = 2.531, p = .772$, scaling factor = 0.976, robust CFI = 1.000, robust TLI = 1.018, robust RMSEA = 0, 90% CI [0; .079], SRMR = .011. The results of the one factor model were: scaled $\chi^2(6) = 12.713, p = .048$, scaling factor = 1.053, robust CFI = 0.982, robust TLI = 0.956, robust RMSEA = 0.092, 90% CI [.009; .163], SRMR = .025. The chi square difference test, which compared both models was significant, confirming that the two-factor (language specific) model was superior, $\Delta\chi^2 = 7.589, \Delta df = 1, p = .006$.

CFA Gr 3: The fit statistics for the two-factor model were: scaled $\chi^2(4) = 1.397, p = .845$, scaling factor = 0.856, robust CFI = 1.000, robust TLI = 1.020, robust RMSEA = 0.000, 90% CI [0; .71], SRMR = .008. The fit statistics for the one factor model were: scaled $\chi^2(5) = 3.859, p = .570$, scaling factor = 0.929, robust CFI = 1.000, robust TLI = 1.008, robust RMSEA = 0.000, 90% CI [0; .106], SRMR = .013. The chi square difference test indicated that there was no significant difference between the one and two factor configural models, supporting that the one factor model was preferred as it had more degrees of freedom (i.e., was more parsimonious), $\Delta\chi^2 = 1.96, \Delta df = 1, p = .162$.

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