
A Quasi-Universal Nonword Repetition Task as a Diagnostic Tool

Boerma Tessel*¹ and Elma Blom*¹

¹Utrecht University - UU (NETHERLANDS) – Netherlands

Abstract

It is an ongoing challenge for clinicians to determine whether or not a bilingual child suffers from Language Impairment (LI) (Kohnert, 2010). The nonword repetition task (NWRТ), measuring verbal short-term memory, is a promising diagnostic tool as it is culturally non-biased (Ellis-Weismer et al., 2000) and highly sensitive to LI (Conti-Ramsden et al., 2001). However, performance on the NWRТ is influenced by language-specific knowledge (Roy & Chiat, 2010), which disadvantages linguistically diverse learners thereby affecting the diagnostic accuracy of the instrument (Kohnert et al., 2006). The present research looks into the diagnostic potential of a newly developed quasi-universal NWRТ that minimally draws on previous language-specific experience (Chiat, 2015). This quasi-universal NWRТ is compared to a language-specific (Dutch) alternative and its diagnostic potential is examined. This study included 120 five and six year old children: 30 monolingual with typical development (TD), 30 monolingual with LI, 30 bilingual with TD and 30 bilingual with LI. Groups were matched on age, nonverbal IQ and, for the bilingual children, on degree of exposure to Dutch. Two NWRТs tested verbal short-term memory. A quasi-universal (QU) NWRТ contained items compatible with cross-linguistically diverse constraints on lexical phonology (Chiat, 2015). Items from a language-specific (LS) NWRТ followed rules of Dutch lexical phonology (Rispen & Baker, 2012). To reveal the effects of LI and bilingualism on the NWRТs, a 2x4 mixed-design analysis of variance (ANOVA) was used with Version of NWRТ as a within-subject factor and Group as a between-subject factor. Receiver Operating Characteristic (ROC) analyses were conducted to evaluate the diagnostic accuracy, sensitivity and specificity of the QU NWRТ.

Descriptive statistics are presented in Table 1. The results of the mixed-design ANOVA show a significant main effect of Version ($F(1,116) = 51.7, p < .001, \eta^2 = .31$), a significant main effect of Group ($F(3,116) = 43.8, p < .001, \eta^2 = .53$), and a significant interaction between Version x Group ($F(3,116) = 8.2, p < .001, \eta^2 = .18$). Post-hoc analyses revealed large negative effects of LI on both NWRТs, whereas significant negative effects of bilingualism were only found on the LS NWRТ (see Table 2). Table 3 presents the results of the ROC analyses which show similar results for the monolingual and bilingual group of children. The QU NWRТ was found to have excellent diagnostic accuracy and adequate levels of sensitivity and specificity in both groups.

The key finding of the present study is that a newly developed quasi-universal NWRТ which is designed to be minimally susceptible to experience in a specific language is a promising diagnostic tool to help identify LI in bilingual children. Large negative effects of LI in

*Speaker

a monolingual and bilingual group of children were revealed. Moreover, in contrast to a traditional language-specific NWRT, the quasi-universal task did not disadvantage bilingual children. The instrument was clinically accurate in both a monolingual and a bilingual group of children and thus seems suitable to disentangle language impairment from language difference.

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