BI-SLI 2015

ANONYMOUS ABSTRACT SUBMISSION FORM

Title of presentation:

A Quasi-Universal Nonword Repetition Task as a Diagnostic Tool

1. **Oral presentation**
2. Poster

A Quasi-Universal Nonword Repetition Task as a Diagnostic Tool

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 (NWRT), measuring verbal short-term memory, is a promising diagnostic tool as it is culturally nonbiased (Ellis-Weismer et al., 2000) and highly sensitive to LI (Conti-Ramsden et al., 2001). However, performance on the NWRT 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 NWRT that minimally draws on previous language-specific experience (Chiat, 2015). This quasi-universal NWRT 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 NWRTs tested verbal short-term memory. A quasi-universal (QU) NWRT contained items compatible with cross-linguistically diverse constraints on lexical phonology (Chiat, 2015). Items from a language-specific (LS) NWRT followed rules of Dutch lexical phonology (Rispens & Baker, 2012). To reveal the effects of LI and bilingualism on the NWRTs, a 2x4 mixed-design analysis of variance (ANOVA) was used with Version of NWRT 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 NWRT.

Descriptive statistics are presented in Table 1. The results of the mixed-design ANOVA show a significant main effect of Version ($F(1,116) = 51.7$, $p < .001$, $\eta_p^2 = .31$), a significant main effect of Group ($F(3,116) = 43.8$, $p < .001$, $\eta_p^2 = .53$), and a significant interaction between Version x Group ($F(3,116) = 8.2$, $p < .001$, $\eta_p^2 = .18$). Post-hoc analyses revealed large negative effects of LI on both NWRTs, whereas significant negative effects of bilingualism were only found on the LS NWRT (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 NWRT 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 NWRT 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 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.

Group	N	Quasi-Universal M (SD)	Language-Specific M (SD)
MOTD[a]	30	88.1 (6.5)	82.0 (6.9)
MOLI[a]	30	67.4 (12.2)	58.4 (11.4)
BITD[a]	30	86.3 (6.2)	73.4 (7.4)
BILI[a]	30	69.0 (12.2)	60.6 (13.1)

Table 1: Percentage of phonemes correct for the NWRTs.
[a]MOTD = monolingual typically developing; MOLI = monolingual language impaired;
BITD = bilingual typically developing; BILI = bilingual language impaired

Effect	Comparisons	N	Quasi-Universal p	Quasi-Universal d	Language-Specific p	Language-Specific d
Language Impairment	MOTD-MOLI[a]	60	<.001	2.12	<.001	2.50
	BITD-BILI[a]	60	<.001	1.79	<.001	1.20
Bilingualism	MOTD-BITD[a]	60	>.05	.28	<.001	1.20
	MOLI-BILI[a]	60	>.05	-.13	>.05	-.18

Table 2: Effects of LI and bilingualism on NWRT performance
[a]MOTD = monolingual typically developing; MOLI = monolingual language impaired;
BITD = bilingual typically developing; BILI = bilingual language impaired

Group	Quasi-Universal NWRT AUC	Cut-off	S_n	S_p
Monolinguals	.94	77.7	83%	90%
Bilinguals	.90	78.1	83%	93%

Table 3: The diagnostic accuracy (Area Under the Curve (AUC)),
cut-off scores, sensitivity (S_n) and specificity (S_p) of the QU NWRT.

References

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