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GUEST EDITORIAL

Perspectives on bilingual children's narratives elicited with the Multilingual Assessment Instrument for Narratives

DIANE PESCO
Concordia University

ELIZABETH KAY-RAINING BIRD
Dalhousie University

ADDRESS FOR CORRESPONDENCE
Diane Pesco, Department of Education, FG 6.201, Concordia University, 1455 Boulevard De Maisonneuve West, Montréal, QC H3G 1M8, Canada. E-mail: dpesco@education.concordia.ca

This Special Issue is all about the stories of children: preschool- and school-age children; bilingual and monolingual children; children developing typically or identified as having a specific language impairment (SLI); and children speaking and experiencing one or more of the following languages: English, Finnish, German, Greek, Hebrew, Italian, Russian, Slovak, Swedish, and Turkish in minority or majority language contexts. The stories are fictional ones, about baby birds and baby goats, a cat and a dog: a cast of characters the reader will come to know well as they read the Introduction (Gagarina, Klop, Tsimpli, & Walters, 2016) and individual articles. They were collected using a new narrative assessment tool that is common to all the articles within the issue: the Language Impairment Testing in Multilingual Settings—Multilingual Assessment Instrument for Narratives (LITMUS-MAIN; Gagarina et al., 2012, 2015), described at some length by its developers in the Introduction to the Special Issue.

Accomplishing the feat of collecting stories from children around the globe using the same protocol is rare, though it has precedent in the developmental and cross-linguistic frog story studies (Berman et al., 1994). In this most recent effort, researchers working in several different countries use the LITMUS-MAIN to further our understanding of children's developing narrative abilities, viewed primarily through the lens of story grammar. The story grammar model has been highly influential in the study of children's narratives, particularly of the fictional genre (but for reviews of alternative approaches to both fictional and personal narratives, see Berman, 2009; Nicolopoulou, 1997; Schick & Melzi, 2010).

According to the story grammar model (and as elaborated in this issue), stories are organized in accord with mental schemas and include central events that

characters respond to by establishing goals and attempting to achieve them. In addition to informing the LITMUS-MAIN, the model has heavily influenced other narrative assessments (e.g., the Edmonton Narrative Norms Instrument; Schneider, Dubé, & Hayward, 2005) and shaped narrative intervention over the last three decades, as demonstrated in recent meta-analyses (Pesco & Gagné, 2015; Petersen, 2011). Given the ubiquitousness of the story grammar model, the reader may well be familiar with it.

What is *novel* about the LITMUS-MAIN is that the four wordless stories (i.e., picture sets) were carefully designed to be parallel in a number of important ways. This feature is entirely consistent with its intent: to assess children's narrative skills in more than one language (see Introduction to this issue). The parallelism of the stories also allows for pre- and posttesting while avoiding practice effects, and for examining variations in children's storytelling or comprehension as a function of narrative task (e.g., retelling vs. telling stories). Moreover, the LITMUS-MAIN has taken a core construct in story grammar, namely, characters' engagement in goal-directed behavior, and operationalized it in an interesting way (following Stein & Glenn, 1979; and Westby, 2005): that is, by using goals as the pivot of a story complexity score. Given its qualities, the tool could be useful in assessing not only bilingual children for whom it was designed but also monolingual children.

Working from the assumption that children's capacity to understand and tell stories is the product of development in various domains (i.e., linguistic, cognitive, and social), the authors in this issue report findings for story structure, story complexity, and internal state terms of children ages 3 to 9, with most focusing on the period 5 to 7 years. In addition, productivity (e.g., story length), microstructure (i.e., lexical and syntactic features), and other variables (e.g., working memory) were investigated in some studies. The studies are presented in Table 1, including children's ages and the key variables. Some important generalizations that can be drawn from the studies are discussed below.

A subset of the studies examined developmental changes (see in this issue, Bohnacker, 2016; Gagarina, 2016; Maviş, Tunçer, & Gagarina, 2016; and Roch, Florit, & Levorato, 2016), using cross-sectional designs. Kunnari, Välimaa, and Laukkanen-Nevala (2016) also examined age as a predictor. As shown in the table, when children within a 3- to 6-year-old range were compared to children within a 6- to 8-year-old range, the older children generally had higher scores (see in this issue, Bohnacker, 2016; Gagarina, 2016; and Roch et al., 2016; for an exception, see Mavis et al., 2016). When older children were compared (i.e., 7 and 9 years in Gagarina), children performed more similarly. In addition, age was predictive for the use of goals in stories for children in a narrower age range of 5 to 6.5 years (Kunnari et al.). Some studies provided fine-grained analyses at particular ages, showing, for example, that a minority of children produced goals at ages 5 and 6 (see in this issue, Bohnacker, 2016; Gagarina, 2016; and Kapalková, Polišenská, & Marková, 2016). These findings are consistent with data reported elsewhere for monolingual children of the same age (Stein & Albro, 1997, cited in Nicolopoulou & Richner, 2007). Furthermore, while comprehension of goals was good at ages 5–6 years (see in this issue, Bohnacker, 2016; and Kapalková et al., 2016), it was still relatively weak compared to children's understanding of other story grammar elements. In summary, this set of studies shows that

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Table 1. *Study designs, dependent variables (DVs), and primary results ordered by similarity of factors*

Authors	Languages & Status	Numbers, Total, & Group	Mean Age (Range) (years;months)	DVs	Primary Results[a]
Bohnacker	Swedish MAJ, LoI	$N = 52$	—	SS	Younger < older SS, SC, IST, COMP
	English MIN	19 BiTD SIM & SEQ	5;4 (4;11–5;11)	SC	Swedish MAJ = English MIN SS, SC
	LoI mixed	33 BiTD SIM & SEQ	6;7 (6;0–7;9)	IST COMP	Swedish MAJ > English MIN COMP (younger only)
Roch, Florit, & Levorato	Italian MAJ	$N = 62$	—	SS	Younger < older SS, SC, COMP
	English MIN, LoI	30 BiTD SEQ	5;5 (5;0–6;11)	SC	Italian MAJ > English MIN SS, SC, COMP (younger only); TW, IST (all ages)
		32 BiTD SEQ	6;6 (6;0–7;2)	COMP	Retell > tell
Maviş, Tunçer, & Gagarina	German MAJ, LoI	$N = 36$, Study 1	4;10 (2;11–7;11)	SS	Younger = middle, younger < older, middle < older SC
	Turkish MIN	15 BiTD SIM	— (2;11–3;11)	SC	Younger < middle, younger < older, middle = older
	Turkish data only	13 BiTD SIM	— (4;0–5;11)	IST COMP	COMP
		8 BiTD SIM	— (6;0–7;11)		Age NS, SS, ITS (but age correlates with all variables)
					Model > tell COMP scores
					Girls > boys*
Gagarina	German MAJ, LoI	$N = 58$	— (2;7–10;6)	SS	Younger < middle, younger < older, middle = older
	Russian MIN, LoI	34 BiTD SIM	—	SC	SS, SC, IST (German MAJ & Russian MIN)
	Bilingual instruction			IST COMP	Younger < middle, younger < older, middle = older
	school-age groups	24 BiTD SEQ	—	Micro	SC-GAO (Russian MIN), younger = older (German
	only	21 preschool	3;9		MAJ)
		15 1st grade	7;0		Russian MIN – German MAJ correlations SS (+), IST
		22 3rd grade	9;3		(no data, 7 years only)
					SIM > SEQ German MAJ (Russian MIN*) SS
					SIM > SEQ German MAJ & Russian MIN SC
					SIM > SEQ Russian MIN SC-GAO, German MAJ *ns*
					SIM = SEQ German MAJ & Russian MIN IST
					SIM > SEQ German MAJ & Russian MIN TW

Table 1 (*cont.*)

Authors	Languages & Status	Numbers, Total, & Group	Mean Age (Range) (years;months)	DVs	Primary Results[a]
Kunnari, Välimaa, & Laukkanen-Nevala	Finnish MAJ, LoI Swedish MIN	$N = 32$ 16 Mono TD 16 BiTD SIM	— 5;9 (5;1–6;7) 5;8 (5;0–6;6)	SS SC IST	Finnish MAJ = Swedish MIN SS, SC, IST Retell > tell bi SC, ITS (Finnish MAJ & Swedish MIN) Retell > tell SS (Finnish MAJ only) Mono > bi retell (tell task*; Finnish only compared)
Kapalková, Polišenská, Marková, & Fenton	Slovak MAJ English MIN, LoI	$N = 40$ BiTD SEQ	5;11 (5–6)	SS SC COMP Micro	Slovak MAJ > English MIN SS; Slovak MAJ = English MIN COMP Slovak MAJ ≈ English MIN SC (i.e., reactions produced <; goals produced ≈ but low rates) Slovak MAJ > English MIN NDW
Altman, Armon-Lotem, Fichman, & Walters	Hebrew MAJ, LoI English MIN	$N = 31$ 19 BiTD SEQ 12 BiSLI SEQ	— (5;6–6;6) 5;11 (5;6–6;6) 5;11 (5;8–6;6)	SC IST Micro	Hebrew MAJ = English MIN SC Hebrew MAJ < English MIN consciousness IST Hebrew MAJ > English MIN mental-state verbs IST SLI SC, MLCU, & MLCU-max = TD SLI TW < TD

Tsimpli, Peristeri, & Andreou	Greek MAJ, LoI Albanian or other MIN Greek data only	$N = 72$ 21 Mono SLI 21 Mono TD 15 BiSLI SEQ 15 BiTD SEQ	— (5–11) 9;3 (5;5–11;6) 9;0 (5;2–11;5) 9;1 (5;7–11;8) 9;1 (5;5–11;9)	SS IST Micro	Bi > mono TD & SLI SS Bi > mono TD & bi = mono SLI, ToM-related IST Bi = mono TD & SLI groups, ToM-unrelated IST Bi = mono TD & bi < mono SLI, NDW Bi > mono TD & bi = mono SLI, subordination SLI = TD mono & bi, SS SLI < TD mono & bi, ToM-related & ToM-unrelated IST SLI < TD mono & bi, NDW SLI = TD mono SLI < TD Bi, subordination

Note: MAJ, Majority Language; LoI, language of instruction; SS, story structure; SC, story complexity; IST, internal state terms; COMP, comprehension questions; MIN, minority language; SIM, simultaneous bilingual; SEQ, sequential; BiTD, bilingual typically developing; TW, total words; SC-GAO, highest level of SC (goal, attempt, outcome sequence); MonoTD, monolingual TD; NDW, number of different words; MLCU, mean length of C-unit; MLCU-max, longest 3 C-units; MonoSLI, monolingual specific language impairment; ToM, theory of mind.

[a]Factors vary by study but include age, language, task, gender, bilingualism, and impairment.

*Approaches significance.

the LITMUS-MAIN is sensitive to development in a variety of languages. The instrument detected developmental changes particularly between the ages of 4 and 7. The analyses also revealed variations by age in the integration of goals, a critical feature of storytelling.

A number of bilingual factors impacted the performance of the children in these studies. First, when authors reported differences in performance across languages, children almost always performed better in the majority language (see in this issue, Altman, Armon-Lotem, Fichman, & Walters, 2016; Bohnacker, 2016; Kapalková et al., 2016; and Roch et al., 2016). This was true for both macro- and microstructural measures, although macrostructure differences disappeared in older children in some studies (see in this issue, Bohnacker, 2016; and Roch et al., 2016). Second, the majority language advantages were present in studies of sequential bilinguals (see in this issue, Altman et al., 2016; Kapalková et al., 2016; and Roch et al., 2016), but not in the single study of simultaneous bilinguals (see in this issue, Kunnari et al., 2016). This would suggest that the minority language of sequential bilinguals is at risk in the groups studied, a finding consistent with previous studies (e.g., Hammer, Lawrence, & Miccio, 2008; Verhoeven, Steenge, van Weerdenburg, & van Balkom, 2011). Differences between sequential and simultaneous bilinguals were tested directly in only one study (Gagarina, 2016 [this issue]). This author found that simultaneous bilingual first and third graders in bilingual education programs scored higher on story structure in the majority language and complexity measures in both languages compared to their sequential bilingual counterparts (with the exception of the highest complexity level, goal–attempt–outcome production, in the majority language and internal state terms in both languages). Third, the majority of studies focused upon children who were being (pre)schooled in the majority language (see in this issue, Altman et al., 2016; Bohnacker, 2016; Kunnari et al., 2016; Mavis et al., 2016; and Tsimpli et al., 2016). Two others studied children in minority-language immersion programs (see in this issue, Kapalková et al., 2016; and Roch et al., 2016), and one studied children who were bilingually educated (Gagarina, 2016). Research in the United States suggests that bilingual education programs lead to better minority language outcomes (e.g., Collier & Thomas, 2009; Thomas & Collier, 2012). Direct comparisons of bilingual and monolingual education are not done in the present studies, but one might predict the same is true for these European samples. Fourth, the performance of bilingual and monolingual children was compared in two studies in this issue (Kunnari et al., 2016; Tsimpli et al., 2016). Kunnari et al. found group differences favoring monolinguals in the 5-year-olds they studied. In contrast, Tsimpli et al. reported similarities between monolinguals and bilinguals on some variables, and results favoring 9-year-old (on average) bilinguals on others. In both studies, only performance in the majority language was compared, and this was the language of instruction.

The research group's working hypothesis was that story grammar knowledge, particularly as captured by story complexity on the LITMUS-MAIN, would be invariant across a bilingual child's languages. Children performed similarly across languages on complexity measures in some studies (see in this issue, Altman et al., 2016; Bohnacker, 2016; and Kunnari et al., 2016), but also on story structure in the latter two studies (Altman et al. did not report the structure score). These

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findings, along with the advantage for simultaneous bilinguals over sequential bilinguals observed in one study, and higher scores in the majority versus the minority language (observed within sequential bilingualism), require elucidation. Among the possible explanations for these findings are language dominance and proficiency; language exposure (e.g., home and school); and the relatedness of a child's languages (i.e., same or different language "family"). While dominance and proficiency were not investigated in this first ambitious set of studies of the LITMUS-MAIN, we know these to be important factors in the study of bilingualism. Furthermore, research on monolinguals has demonstrated that different linguistic domains (e.g., vocabulary and syntax) differentially predict performance on narrative measures (Heilmann, Miller, Nockerts, & Dunaway, 2010); these data could suggest some avenues for future work on bilinguals. In addition, second language exposure, reported descriptively in a few studies in the issue, could be further explored as a predictor of macrostructure. Finally, some authors, notably Gagarina (2016), raise the possibility that certain features of macrostructure are less reliant on linguistic proficiency than others, a hypothesis that warrants further direct testing.

The Special Issue also includes two studies examining the narrative abilities of bilingual children with SLI. One of these involved bilingual English–Hebrew speakers (primarily exposed to English at home, but Israeli-born and instructed in Hebrew) with and without SLI (Altman et al., 2016). The other study (Tsimpli, Peristeri, & Andreou, 2016) was of monolingual and bilingual Greek-speaking children with and without SLI. As Table 1 shows, the participants in both studies were nearly 6 on average, but the age range was narrower in Altman et al. (5–6 years compared to 5–12 in Tsimpli et al.).

It is interesting that in Altman et al. (2016 [this issue]), differences in story complexity were not observed between the SLI group and a typically developing group. Tsimpli et al. (2016) found, however, that typically developing children outperformed the children with SLI on story structure, in both monolingual and bilingual groups. The discrepancy in findings from the two studies does not appear to be task related, because both studies employed the retell task of the LITMUS-MAIN. The results might be explained by the differences in narrative measures across the two studies (complexity vs. structure; neither study measured both), or the interaction of age with SLI; perhaps as children get older (as they were in Tsimpli et al., 2016) they lag further behind their peers. However, in Tsimpli et al., within the SLI group, monolingual and bilingual children scored similarly on most variables, in line with data suggesting that bilingualism does not worsen outcomes for children with SLI (Paradis, 2010).

Both of the studies on SLI also examined internal state terms in detail; the results were mixed, favoring the first language for some internal states, and the second language for others (Altman et al., 2016), and favoring bilinguals over monolinguals in some instances (Tsimpli et al., 2016). These findings, in addition to being inherently interesting, show that the LITMUS-MAIN can be used to derive a quite nuanced view of children's narrative skills.

As alluded to earlier, the LITMUS-MAIN is also ideal for examining task effects; these were addressed in this issue by Kapalková et al. (2016), Mavis et al. (2016), and Roch et al. (2016). The picture that emerged from these data was

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that bilingual children told stories with more story grammar elements and greater complexity when they retold a story from pictures than when they produced one while looking at pictures alone. These findings are important both for future research and for clinical applications of the LITMUS-MAIN. It would be of particular interest to compare how storytelling on the LITMUS-MAIN (apparently more difficult based on the data reported in the present set of studies) fares in comparison to retell tasks at distinguishing SLI from typical performance.

The reader is invited to delve into this set of studies on bilingual narratives assessed with the LITMUS-MAIN and the authors' own reflections on their data. In addition to providing rich data on narrative production and comprehension across a variety of language pairs, the authors remind us how very many children are bilingual and how pressing a matter it is to reflect this reality in theory and practice. The LITMUS-MAIN is a significant step in this direction, as was the international collaboration required to bring the instrument, the research, and this Special Issue to fruition.

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