J. Child Lang. **45** (2018), 120–147. © Cambridge University Press 2017
doi:10.1017/S0305000917000149

In few words: linguistic gap but adequate narrative structure in preschool bilingual children*

PAOLA BONIFACCI, MARGHERITA BARBIERI AND MARTA TOMASSINI

Department of Psychology, University of Bologna, Italy

AND

MAJA ROCH

Department of Developmental Psychology and Socialization, University of Padova, Italy

(*Received* 11 *May* 2016 – *Revised* 3 *January* 2017 – *Accepted* 27 *March* 2017 – *First published online* 8 *May* 2017)

ABSTRACT

The aim of this study was to compare linguistic and narrative skills of monolingual and bilingual preschoolers and to estimate linguistic predictors of the macro-structural level of narratives. A battery of linguistic measures in Italian was administered to sixty-four Monolinguals and sixty-four Early Bilinguals; it included Vocabulary, Phonological Awareness, Morphosyntactic Comprehension, Phonological Memory, Letter Knowledge, and Story Sequencing tasks. The narratives produced in the Story Sequencing task were coded. Bilinguals underachieved, compared to monolinguals, in vocabulary, phonological awareness and morphosyntactic comprehension; they also differed in Type and Token indexes and in free morphology, but not in the level of macro-structural complexity. Macro-structural parameters were predicted by Mean Length of Utterances in monolinguals, but not in bilinguals. Bilingual children are able to structure stories in their L2 with monolingual-like cohesive complexity, although 'in few words', that is, with weak L2 linguistic skills.

[*] The authors thank the Bologna City Council (Dr Gabriele Ventura and Dr Patrizia Serra) for promoting the LOGOS project in kindergartens in the Bologna city area. Address for correspondence: Dr. Paola Bonifacci, PhD, Dipartimento di Psicologia, Università di Bologna, Viale Berti Pichat n.5, 40127 Bologna. tel: 051 2091824; fax: 051 243086; e-mail: paola.bonifacci@unibo.it

INTRODUCTION

Narrative skills can be defined as the ability to tell a cohesive and structured story (either about something that has happened, or describing a book or plot) that gets the main points across so the listener can understand. In preschool years, this ability is considered to be an important predictor of later development of literacy, as documented by longitudinal studies (Snow, Tabors, Nicholson & Kurland, 1995; Wellman, Lewis, Freebairn, Avrich, Hansen & Stein, 2011). Specifically, narrative skills are thought to be related to reading comprehension (Cain & Oakhill, 1996); there are common underlying processes involved in both tasks, such as understanding of a story grammar, but also indexes of broader oral language skills, including lexical and grammatical knowledge. The analysis of the development of narrative skills has recently been examined more thoroughly in studies that targeted bilingual populations (Roch & Florit, 2013; Roch, Florit & Levorato, 2016; Squires, Lugo-Neris, Peña, Bedore, Bohman & Gillam, 2014). According to Hudson and Shapiro (1991), narrative skills require the following: conceptual knowledge, i.e. a general knowledge of the world; linguistic knowledge, which allows one to produce a correct text from a lexical, syntactic, and semantic point of view; structural knowledge, that is, to know the structural components suitable for each narrative genre; and, finally, pragmatic knowledge, which refers to the point of view of the narrator and his/her knowledge about the story, in the specific context in which it takes place. The complex multidirectional interactions among various levels of linguistic competence underlying the narrative skills makes it hard to disentangle the contribution of each component in typically developing monolingual children. On this matter, bilingualism offers several advantages as an entry point to the study of narrative skills, because, although a number of studies have demonstrated that bilingualism is not a risk factor for the development of language delay (Paradis, Genesee & Crago, 2011), low scores are often obtained for vocabulary measures in L2 by bilinguals, although, compared to monolinguals, they may develop better metalinguistic skills that represent an important resource for general language and cognitive development (Bialystok, 2009).

Measures of narrative skills are highly ecological tasks that address how language is expressed in everyday life, and thus represent an intriguing research area for the comprehension of the relationship between different levels of linguistic processing. This becomes particularly interesting in children who speak more than one language. Moreover, the structure of children's narratives is relatively invariant across languages (Fiestas & Peña, 2004; Gutiérrez-Clellen, 2002; Pearson, 2002; Squires *et al.*, 2014). Narratives allow for a parallel assessment of linguistic skills that are not susceptible to the disadvantages of standardized tests, namely, scoring

https://doi.org/10.1017/S0305000917000149 Published online by Cambridge University Press

based on typical monolingual performance (Simon-Cereijido & Gutiérrez-Clellen, 2009).

Narrative skills have been widely investigated in school-aged children from both monolingual (e.g. Berman & Slobin, 1994; Peterson & McCabe, 1983) and bilingual (Gutiérrez-Clellen, 2004; Pearson, 2002) populations, while fewer studies focussed on bilingual preschool children (Fiestas & Peña, 2004; Uccelli & Páez, 2007; Iluz-Cohen & Walters, 2012; Roch & Florit, 2013). Considering the multi-faceted nature of narratives, the present paper is aimed at comparing linguistic skills and the quality of narrative production in bilingual and monolingual children. In order to better understand the underlying idea of the current work, the existing literature on the development of narrative skills in monolingual, and, subsequently, in bilingual, children is reported.

Research on the development of narrative competence in monolingual children

Between four and ten years of age, children's ability to produce and comprehend complex texts increases progressively (e.g. Florit, Roch & Levorato, 2014; Lever & Sénéchal, 2011; Pearson, 2002), and story-telling is a task that is often used by language specialists and researchers because it allows them to detect a variety of information regarding children's development in language, lexical knowledge, and level of acquisition of grammatical and morphosyntactic structures (Botting, 2002; Cleave, Girolametto, Chen & Johnson, 2010; Fiestas & Peña, 2004; Iluz-Cohen & Walters, 2012), thus providing valuable information about children's linguistic and metalinguistic knowledge (Miller, Heilmann, Nockerts, Iglesias, Fabiano & Francis, 2006; Squires *et al.*, 2014).

Studies that have assessed developmental trajectories of narrative skills have often used picture series such as, for example: *Frog, where are you?* (Mayer, 1969), the *Bus Story Test* (Renfrew, 1997), and *The Picnic Story* (Tavano & Biancuzzi, 2008). Using picture elicitation tasks to investigate narrative skills encourages the child to talk, thus allowing the observer to analyze vocabulary and grammatical structures that are present in children's discourse from an early age. In addition, the cognitive load is reduced, thanks to the presence of the pictures: children are not required to recall past events, as in the case of personal narratives, but they can produce stories by simply connecting and describing different images, or they can make the story richer and more sophisticated by adding details and structural elements. With this method it is possible to obtain information as to the level of language acquisition and the use of linguistic and discursive forms that are typical of the child's own language (Ervin-Tripp, 1989).

Monolingual children between the ages of three and four have been found to produce a higher number of simple than complex clauses, with the latter

being primarily causal clauses (D'Amico, Albano, Marano & Devescovi, 2008). This provides interesting insight, in the light of the importance of causality in narrative macro-structure. At the end of preschool age, typically developing children have acquired a basic knowledge or schema of stories (Trabasso, Stein & Johnston, 1981) and are able to produce narratives that include more than two sequentially connected elements. They tend to place too much emphasis on specific details depicted in pictures, however, lacking a general sense of discourse organization; furthermore, their stories often end without proper conclusions (Peterson & McCabe, 1983). In other words, the narratives at this stage lack a general coherent representation. At about six years of age, children begin to produce narratives containing a sequence of events that are purpose oriented, and the story grammar of narratives improves by the inclusion of initiating events, goal-directed actions, and consequences (Berman, 1988). During the school-age years, narrative skills continue to develop, and children include elements related to decontextualized language in their narrative productions (Stein & Glenn, 1979), with older children being able to include more events, mental states, and temporal and causal relations between events (Curenton & Justice, 2004). According to D'Amico *et al*. (2008), at around nine to eleven years of age the number of simple and complex clauses used tend to become stable and, at this time, children attain mature narrative skills, which will be further refined during the next few years.

Some studies have investigated the relationship between linguistic knowledge and narrative skills, showing that lexical and grammatical skills influence children's acquisition of narrative proficiency (Berman & Slobin, 1994; Bishop & Donlan, 2005). Hipfner-Boucher, Milburn, Weitzman, Greenberg, Pelletier, and Girolametto (2014) investigated the relationship between measures of oral narrative structure and measures of phonological awareness (blending and elision) in preschoolers, and they found an association between narrative structure and phonological awareness, and between vocabulary and phonological awareness. The authors explain these relationships by suggesting common structural (relating parts to a whole) and processing (representational analysis and control of attention) demands that underlie both narrative skills and phonological awareness. There is, however, a paucity of research that specifically addresses the relationship between linguistic knowledge and narrative skills in preschool monolingual children.

Research on linguistic and narrative competence in bilingual children

Bilingual children, here defined, for the need of synthesis, as those children who speak or are exposed to two languages in everyday life (De Lamo White & Jin, 2011), may differ in linguistic competence in their second language

(L2), based on age and quality of exposure (Kovelman, Baker & Petitto, 2008; Paradis *et al.*, 2011). Children who are exposed at school to a language that is different from their home language may show delays in some aspects of their L2 linguistic knowledge compared to their monolingual peers (August & Shanahan, 2006), particularly in vocabulary knowledge (Lindsey, Manis & Bailey, 2003; Manis, Lindsey & Bailey, 2004), but may be as competent as their monolingual peers in other cognitive and linguistic skills (Bonifacci, Giombini, Bellocchi & Contento, 2011; Bonifacci & Tobia, 2016). International guidelines (ASHA, 1985, 2004) on clinical assessment in multilingual contexts strongly suggest that the assessment of bilingual performance in L2 should be accompanied by an evaluation of L1 linguistic skills, because highlighting weaknesses in L2 does not necessarily mean that the same pattern stands for L1 linguistic competencies. Considering the difficulties in assessing L1 competencies, particularly for language-minority children, a vast body of literature has been aimed at studying linguistic competencies in L2, in order to achieve information regarding a typical bilingual developmental trajectory. However, to date, the evidence collected is contextualized to L2 proficiency and cannot be extended to general (L1 and L2) linguistic development. Nevertheless, the analysis of the sole L2 developmental trajectory is useful in that it provides information about the instructional language; therefore, identifying patterns of strengths and weaknesses in L2 may help to identify potential risk factors for language delays. In the study run by Paradis, Schneider, and Sorenson Duncan (2013), a combination of measures in L2, excluding vocabulary, discriminated between bilingual children with and without Specific Language Impairment (SLI); nonword repetition and tense morphology were the strongest discriminators, together with the parental questionnaire that addressed first-language development. Furthermore, as specified by Paradis (2016) when assessing competencies in L2, story-telling tasks and measures of cognitive processing such as nonword repetition might be more sensible tasks to use when identifying language delays in bilinguals than norm referenced linguistic assessments.

Based on the assumption that narrative skills are influenced, but not limited to, linguistic knowledge, a number of studies have specifically addressed the issue of quality of narratives and development of narrative skills, both in L1 and L2, in bilingual populations.

As in monolinguals, the ability to produce narratives in both L1 and L2 develops from preschool to school age (Gutiérrez-Clellen, 2002; Pearson, 2002; Squires *et al.*, 2014; Uccelli & Páez, 2007). Gutiérrez-Clellen (2002) highlights that even children with limited expertise in one of the two languages may be able to produce stories in their weaker language with an adequate narrative structure and a good global quality. Squires *et al.* (2014), found that, at a macro-structural level, bilingual children with

typical development become progressively more able to produce structured and complex narratives in their L2, with L1 macro-structure predicting macro-structure in L2. However, the authors suggest that children had to independently learn the nuances of each language in order to be able to use them, with a minor degree of language-transfer in micro-structure. An additional suggestion made by the authors is that only children who reached a good level of knowledge in narrative structure would be able to include more advanced literate language forms in their productions.

Uccelli and Páez (2007) analyzed vocabulary and narrative skills of low socioeconomic status (SES) Spanish–English bilingual children, who were asked to tell a story in Spanish (L1) and English (L2). They found that bilinguals showed, both in their L1 and L2, a poorer vocabulary compared to monolinguals (Spanish and English), although the bilinguals' vocabulary significantly improved between the last year of kindergarten and the first year of primary school. A similar effect of poorer vocabulary in both L1 and L2 was found in a study by Páez, Tabors, and López (2007), and, as reviewed by Bialystok (2009), this pattern seems to be consistent across the lifespan, even for simultaneous bilinguals. The weaknesses in bilinguals' vocabulary scores have recently been challenged by some studies conducted on French–English bilinguals in Canada. There, the bilingual disadvantage in vocabulary scores was found neither in L1 nor in L2, suggesting that a favourable language-learning environment (Thordardottir, 2011) and socio-cultural context (Smithson, Paradis & Nicoladis, 2014) might significantly modulate vocabulary development in bilingual populations. Despite conflicting results in vocabulary skills assessed in either L1 or L2, it is acknowledged that bilinguals may equal or exceed monolinguals' knowledge when considering the 'total conceptual vocabulary', that is, the total number of words that a child knows in one and/or the other language (e.g. Pearson, Fernández & Oller, 1995). Concerning narrative level, Uccelli and Páez (2007) showed that bilingual children progressively improved, from kindergarten to first grade in their L1 (story scores) and in their L2 (story scores and language scores). The story score measure was mainly intended as a macro-structural parameter, and it included three parameters: story elements, story sequence, and perspective. On the other hand, the language score was principally aimed at assessing micro-structural indexes related to linguistic aspects, and it included syntactic and lexical measures.

Fiestas and Peña (2004) analyzed the stories produced by preschool bilingual children who speak Spanish at home and English at school; they used a measure of story complexity by counting how many story elements (setting, initiating event, internal response, plan, attempt, consequence, and ending) were included in the children's narratives. The productivity score included number of clauses, number of words, and Mean Length of Utterances (MLU). The authors showed that children produced, in both

English and Spanish, a similar pattern of story complexity and productivity. The differences concerned the inclusion of specific elements of the story grammar: in Spanish, the children included mainly the trigger events and attempts, while in English the consequences were also present. The authors interpreted these differences with reference to cultural influences on narrative contextualization and also to the different exposure to the vocabulary of story-telling in school and at home.

Iluz-Cohen and Walters (2012) collected narratives by asking children to tell stories (either in English or in Hebrew) after looking at picture stimuli from English and Hebrew children's books; the authors observed that the morphosyntactic and lexical measures were related to each other, but not to measures of the story grammar, demonstrating the independence of narrative structure and linguistic skills used for producing the narratives. In the study by Gagarina *et al*. (2012), conducted for the development of the Multilingual Assessment Instrument for Narratives (MAIN), it was found that bilingual children had similar skills in the story structure of narratives in both languages. According to the authors, this result might be explained as an effect of a transfer process and sharing of competencies between L1 and L2, especially because story grammar skills can be considered as common underlying competencies with an interface to both cognition and language processing. Similar conclusions were proposed by Kupersmitt and Berman (2001), Schwartz and Shaul (2013), Viberg (2001), and Pearson (2002), who suggested that mental representations of story grammar could transfer from one language to the other, but that this transfer is primarily related to a conceptual level, which is available in the processing of L2, once a linguistic threshold has been reached.

In summary, previous studies showed that in both bilingual and monolingual children the macro-structure of the stories in narrative tasks improves as children progress from kindergarten to primary school, therefore highlighting an improvement in the overall quality of the narrative. On the other hand, lexical and morphological skills, if observed in bilinguals' L2, might show differential trajectories compared to those of monolingual children, with bilingual children often lagging behind their monolingual peers even after more than three years of exposure to the L2 (Paradis, 2016). There are, however, only a few studies that have analyzed the relationship between L2 linguistic competence and narrative productions in bilingual populations.

The present study

Rationale: The main contribution of the current work is to provide additional evidence on the assessment methods of bilingual children, particularly as far as narrative competence is concerned. Although best practice would suggest, when possible, assessing bilingual children in both

languages, very often this is not possible because of the great variety of L1 spoken by bilinguals. Therefore, it is relevant to identify specific valid measures in which bilinguals might reach monolingual-like levels of linguistic proficiency, and more specifically, to bear in mind that narratives represent ecologically valid and rich linguistic data while avoiding monolingual test norms, which might also suffer from cultural biases. The main focus of the present paper is to investigate whether bilingual children, as compared to their monolingual peers, might show similar narratives as far as the macro-structure is concerned, even in the case of lower-level lexical and morphosyntactic skills. The main hypothesis is that bilinguals who have poorer linguistic abilities (in their weaker language) than monolinguals of the same age may show similar abilities to monolinguals in higher-order measures, such as the ability to produce a story using story grammar elements. The second aim was to investigate the predictive role of linguistic knowledge in the instructional language in macro-structural parameters of narrative skills in the same language, separately for the two populations considered, including both standardized measures and parameters obtained directly from narrative production.

The specific research questions addressed in the present study were the following:

1. At preschool age, are there differences between monolingual and bilingual children in the structure of the narratives produced, namely in the macro-structure and in the linguistic skills used to produce a narrative, that is, the micro-structure? Considering the literature reviewed, we hypothesized a difference between bilinguals and monolinguals in L2 lexical skills, and therefore in indexes of lexical variety. We did not expect bilingual and monolingual children to show any differences in macro-structural indexes of linguistic production.
2. Which are the best linguistic predictors of narrative production in bilingual and monolingual populations? This question refers to an exploratory aim of the study, since few data are available in the literature in relation to this. The main hypothesis is that in bilinguals, thanks to transfer processes of mental representation and knowledge of story structure that are shared by the two languages, macro-structure parameters should be relatively independent from linguistic knowledge in L2, whereas this relationship should be more consistent for the group of monolinguals.

METHOD

Participants

Screening phase. The study battery was initially administered, for screening purposes, to a group of 290 children whose parents signed the

https://doi.org/10.1017/S0305000917000149 Published online by Cambridge University Press

informed consent. The children were recruited from mainstream kindergartens where the Laboratory for the Assessment of Learning Disabilities (LADA) of Bologna University's Department of Psychology (Italy) was running the LOGOS project, which is aimed at early identification and intervention in indexes of learning difficulties.

A total of 128 children (mean age: 4;8, SD: 0;3) who fulfilled the selection criteria described below were selected from this larger group, and took part in the study.

Based on the inclusion criteria for the bilingual sample, 61 of the original 290 participants were excluded because they did not fulfil the requirements (i.e. they had one Italian parent). For both the bilingual and monolingual samples, a further inclusion criterion was adopted, that is, only the children who correctly rearranged the story picture used in the narrative task (see below for details) were included. A total of 101 children were excluded from the initial larger group based on this criterion, with no significant differences between the monolingual (n = 48) and bilingual group (n = 53) ($\chi^2(1) = 0{\cdot}138$, $p = {\cdot}71$).

In the final sample of 128 participants, children were divided into two groups:

1. A group of 64 bilingual children (Bs) (mean age: 4;8, SD: 0;3, Range: 4;2–5;3; 31 females, 33 males), speaking minority languages at home. Mean Age Of Exposure (AoE), defined as the age when a bilingual child first begins to receive intensive, systematic, and maintained exposure to his/her new language (Kovelman *et al.*, 2008), was 1;6 (SD: 0;8). All of the children started kindergarten in Italy, and 72% of them also attended nursery school. All of the children could be considered as early bilinguals, because they were all exposed to the Italian language before age three (Kovelman *et al.*, 2008; Bellocchi, Bonifacci & Burani, 2016), as established by consulting their entry into the school system and by collecting information from class teachers. There were twelve main native language groups: Tagalog (10·9%), Urdu (10·9%), Arabic (15·6%), Romanian (28·1%), Bengali (9·4%), Spanish (9·4%), Chinese (4·7%), Russian and Hindi (3·1% each), Albanian, French and Polish (1·6% each).

   The selection criteria were:
   - Exposure to an L1 other than Italian (L2) within the family context;
   - Having both parents speaking an L1 other than Italian at home;
   - Being born in Italy or having arrived in the first year after birth;
   - Having been exposed to Italian before age three;
   - Not having been referred to neuropsychiatric units for any range of developmental disorder, or sensory or neurological impairment.

2. One group of 64 Italian Monolinguals (Ms) (mean age: 4;8, SD: 0;3, Range: 4;1–5;3; 35 females, 29 males) was matched with the bilinguals for chronological age ($t(126) = -1{\cdot}6$, $p = {\cdot}11$), sex ($\chi^2(1) = 0{\cdot}5$, $p = {\cdot}49$), nursery programme attendance ($\chi^2(1) = 2{\cdot}2$, $p = {\cdot}14$). Where possible, children were selected from the same classes or, alternatively, from schools in the same district. The matching for nursery programme attendance (which in Italy is a service that is provided through payment of a fee) permitted moderate control over the socioeconomic status of the group, whereas the fact that participants were recruited within the same classes or school district provided a marginal control of educational exposure, considering, among other aspects, that all the teachers were enrolled in the LOGOS Project, which provides teacher training and sharing of didactic strategies.
   For the monolingual group inclusion criteria were: being born in Italy from Italian-speaking parents and not being exposed to any other foreign language at home. None of the children had been referred for any range of developmental disorder, or sensory or neurological impairment.

The Italian preschool programme is a three-year programme that involves children from three to six years. During these preschool years formal instruction regarding literacy skills is not provided, although children are involved in activities that are aimed at improving socialization and cognitive and linguistic development.

Materials

Learning Difficulties Indexes battery (IDA; Bonifacci, Pellizzari, Giuliano & Serra, 2015). This test battery has been developed to assess a wide range of linguistic skills in preschoolers and is composed of six tasks that measure articulation and vocabulary, phonological awareness, morphosyntactic comprehension, phonological memory, story sequencing, and letter knowledge. The internal consistency reliability values reported refer to the normative sample ($N = 1416$). Normative data are reported for four 6-month age intervals (4;0 to 5;11) and, for each subscale, z-scores were calculated based on mean values reported by the test's manual. Reliability indexes, as reported in the test's manual, refer either to Cronbach's alpha or to Kuder–Richardson Formula 20 (KR-20) value. The battery is composed of the following subscales:

Vocabulary. Children were asked to name thirty-six images selected for decreasing frequency in the spoken language (Barca, Burani & Arduino, 2002). The accuracy score, ranging from 0 to 36, was considered. The scale's KR-20 was ·85. This subtest also allows for an evaluation of speech sound skills, testing the fifty-two main sounds of the Italian language (single phonemes or consonant groups).

Phonological awareness. The battery included four different subtests aimed at assessing phonological awareness: syllable blending (e.g. *to-po* → *topo* 'mouse') (6 items); syllable segmentation (*carota* → *ca-ro-ta* 'carrot') (6 items); first syllable recognition (*cane–casa* 'dog–house') (4 items); and rhymes (*porta–torta* 'door–cake') (4 items). The stimuli for the first two tasks were presented orally and children were required to give a verbal answer. For the second two pairs of tasks children were presented with a target picture and were required to choose, from among four pictures, which one started or ended with the same sounds (i.e. syllable). Each item received a score of 1 for a correct response and a score of 0 for an incorrect answer, for a maximum total score of 20. The scale's KR-20 was ·84.

Morphosyntactic comprehension. Children were presented with three pictures representing three different scenarios. For each picture, they were asked to identify or manipulate elements of the scene by comprehending different types of sentences pronounced by the examiner (e.g. the child had to correctly place a card depicting a book after hearing a sentence such as "The book is under the pillow"). The morphosyntactic structures investigated were: singular/plurals (4 items), locatives (7 items), active/passive (4 items), and relative clauses (3 items). A total of eighteen sentences were presented, and for each of them a score of 2 (correct answer at first attempt), 1 (correct answer at second attempt), or 0 (wrong answer), was given. The total score, ranging from 0 to 36, was considered. The scale's Cronbach's alpha was ·70.

Phonological memory. This is a nonword repetition task in which children are presented with eight nonwords: two 2-syllable, two 3-syllable, two 4-syllable, and two 5-syllable words. Children are told that the researcher is going to say some 'magic words', and are asked to repeat them exactly. A score of 2 was given for perfectly repeated words, while a score of 0 was given for repetition errors in any of the sounds (vowels and consonants). Only in the case of mispronunciation of a sound due to a speech-sound articulation error was a score of 1 given. For example, if a child pronounced the word *rana* 'frog' as *lana* in the vocabulary task, showing a difficulty with the phoneme 'r', a repetition of the nonword *fimedura* as *fimedula* would be scored 1. If, however, a child said *fimedula*, but in the previous task he/she had shown the capacity to articulate the sound 'r' correctly, the score was 0. The total score ranged from 0 to 16, and the scale's Cronbach's alpha was ·72.

Letter knowledge. Children were presented with a picture of a train with one letter (from *a* to *z*) in each coach. The experimenter had to choose four letters within the child's name or from the first few letters of his/her surname, thus considered to be familiar letters, and four random letters that were not part of the name of the child, considered to be unfamiliar letters. Then the experimenter randomly indicated these letters in the train picture and the child was required to say the sound or the name of the

letter. A score of 1 was given for each correct response, for a maximum score of 8. The scale's Cronbach's alpha was ·70.

Story sequencing. The task is composed of five pictures depicting a brief tale of a little dinosaur, named Dino, who is preparing a cake. The five cards contain the following main elements:

1. Image of Dino with an empty cart in front of a supermarket;
2. Image of Dino inside the supermarket with cake ingredients in the cart;
3. Image of Dino in the kitchen preparing the cake;
4. Image of the cake near the oven;
5. Image of Dino sitting at the table with the cake ready and another chair nearby.

Each participant was presented with four pictures presented in the wrong order (fixed and predetermined: 4-2-5-3). Image number 1 was given as a prompt, explaining that Dino wanted to prepare a surprise for his friend Ida, and that he went to the supermarket. Then the child was asked to arrange the pictures in the correct order and tell the story aloud. In order to reduce the memory load when producing narratives, the pictures were left on the table during the story-telling.

A score of 1 was given for each picture that was in the correct place (maximum score: 4). The scale's Cronbach's alpha was ·82. Then, as specified in the next paragraph, narratives produced by the children were coded and scored to analyze linguistic expressive abilities. Some examples of narratives produced by monolingual and bilingual children are included in the 'Discussion' section. As previously mentioned, only the 128 children who rearranged the story correctly were included in the study, in order to consider only those narratives that were derived from the same story sequence; the number of children excluded (48 monolinguals and 53 bilinguals) was not statistically different ($\chi^2(1) = 0{\cdot}138$, $p = {\cdot}71$). The rationale that guided the exclusion of children who did not rearrange the story correctly was based on different considerations: the story production that followed an incorrect arrangement of the story would refer to a different story plot, and consequently would not be suitable to be encoded according to the macro-structural parameters used in the present study.

Narratives: coding and scoring

Based on literature analysis, a scheme for coding narrative productions was derived; most criteria were derived from the MAIN scoring rubric (Gagarina *et al*., 2012). The conceptual framework that guided the development of the MAIN was to include both macro-structural and micro-structural scoring parameters, the first based on story grammar, the second referring to linguistic features used in the construction of a

https://doi.org/10.1017/S0305000917000149 Published online by Cambridge University Press

coherent discourse in a specific language (Gagarina, Klop, Tsimpli & Walters, 2016).

MACRO-STRUCTURAL MEASURES

Number of macro-structural elements. Each story elicitation was coded based on six macro-structural elements. For each one, two independent experts identified a set of main points that received a score of 1 if included in the story-telling.

- Goal: celebrate (birthday), having the cake ready;
- Attempt: shopping, preparing the cake, cooking;
- Outcome: cake ready;
- Mental states: waiting for Ida
- Setting: supermarket, home, kitchen;

Each macro-structural element produced by the child was scored 1, and this gave a maximum macro-structure element score of 10 for the story elicitation set. The maximum score consists of all possible elements that can potentially be elicited by the picture set.

Level of macro-structural complexity. Alongside the count of macro-structural elements, which represents a general and single quantitative measure of story production, the MAIN-scoring rubric allows researchers to score the complexity of story production. The complexity score ranges from low to high, based on the relationships between the macro-structural elements of Goal (G), Attempt (A), and Outcome (O): (i) LOW COMPLEXITY implies the presence of two elements, namely one Attempt and one Outcome within the episodes of a story; (ii) MEDIUM COMPLEXITY implies the presence of two elements, namely one Goal and one Attempt (GA) or one Goal and one Outcome (GO); this is considered more complex than low complexity because the characters' goals are mentioned by the children; and (iii) HIGH COMPLEXITY implies the presence of a complete sequence of three relevant elements, namely one Goal, one Attempt, and one Outcome (GAO). When the story production did not include at least one Attempt and one Outcome its complexity was classified as 0 (ABSENCE OF COMPLEXITY). For each participant, the highest level of complexity reached was identified. Absence, low, medium, and high complexity levels were respectively scored as 0, 1, 2, and 3.

MICRO-STRUCTURE MEASURES

Lexical level. To analyze the lexical complexity of narrative productions the following set of parameters was used:

- *Total number of words* included in the production;
- *Number of lexical errors:* sum of paraphasias, nonsense words, unintelligible words, simplifications, repetitions. Lexical errors represent mistakes in

vocabulary use (irrespective of the correct morphology of the words). Errors and omissions in morphemes were counted, irrespective of their vocabulary count. For example, attributing the determinate instead of indeterminate article is a morpheme error but not a lexical error. Saying 'the bird' (first mention) is a morpheme use error but not a lexical error. This measure is considered an index of lexical immaturity, that is, the difficulty in finding the appropriate word in the discourse, thus leading to more errors and hesitations;

- *Token:* total number of correct words, thus excluding fillers ('ehm'), false starts ('she … she … '), unintelligible words, paraphasia (*talovo/tavolo* 'table/talbe');
- *Type*: number of different words within the production. This is calculated by subtracting all repeated words from the number of tokens;
- *Type/Token Ratio (TTR)*: This refers to the range of vocabulary for size of speech sample and is considered an index of lexical diversity, independently of sample size (Richards, 1987). It has been used as a predictor of foreign language learning aptitude and attainment (Skehan, 1986). This measure was used because texts were of similar/the same length and therefore was considered to be sufficient for the evaluation of lexical diversity. It is calculated by the ratio between the number of correct words (Token) and the number of non-repeated words (Type).

Morphosyntactic level. To analyze the quality of production at the morphosyntactic level the following indexes were considered:

- Proportion of errors and omission in free and bound morphemes on tokens;
- *Mean Length of Utterances (MLU)*. Calculated by dividing the total number of tokens by the number of sentences, defined, as suggested by Marini, Andreetta, del Tin, and Carlomagno (2011), on the basis of four hierarchical criteria: acoustic (the sentence is defined by the presence of breaks); semantic (the sentence is a semantic unit); grammatical (the sentence is a complete grammatical sentence in which its subordinate clauses are also included); and phonological (the sentence is delimited by the presence of a word that is interrupted, indicating a false start).

Text cohesion level. Finally, three indexes were considered as referring to text cohesion:

- Number of principal clauses;
- Number of coordinate clauses;
- Number of subordinate clauses;
- Proportion between the number of principal and complex (subordinate and coordinate) clauses.

https://doi.org/10.1017/S0305000917000149 Published online by Cambridge University Press

TRANSCRIPTION AND CODING RELIABILITY. Two postgraduate psychologists, Italian monolinguals, were trained in the transcription and coding procedures by the first and last author. During task administration, the narrative productions were recorded manually by transcribing them accurately on the record form, and scored by one of the authors. All complete and intelligible utterances were included in the analyses. Uncertainties in coding were discussed and resolved by the research group. Nearly 30% of narratives (story-tellings), were randomly selected to be coded independently by another author.

Inter-rater agreement for transcriptions was expressed through Cronbach's alpha for each task and show an adequate level of reliability, as follows: macro-structural level, Cronbach's alpha = ·78; lexical level (Type, Token, Lexical errors, Total number of words), Cronbach's alpha = ·86; Morphosyntactic level (MLU), Cronbach's alpha = ·96; Text cohesion, Cronbach's alpha = ·99).

For the narrative task, mean raw scores were considered, as reported in Table 2.

Procedure

Children were familiarized with the examiners during ordinary school activities for approximately one hour. They were then tested individually in a quiet room in their school, in one session that lasted for approximately 30 minutes; breaks were allowed if the child showed signs of fatigue. The IDA battery was administered and scored by trained developmental psychology master's degree students and one PhD student. One author, who is a qualified clinical psychologist, supervised the scoring procedure. All parents gave informed consent prior to the beginning of the research. Ethical approval was obtained by the Ethics Committee of the University of Bologna for the LOGOS project, which involved the administration of the IDA Battery in a wide sample of children within the City Council of Bologna.

RESULTS

Issues related to chronological age and age of exposure to Italian language

Although the two groups did not differ significantly in age, we controlled for a possible effect of age because it is known that narratives undergo a significant period of development at the ages under scrutiny. Thus, all analyses were run including age as a covariate; age was generally non-significant as a covariate, thus we reported data from these analyses only when they differed from univariate analyses. Then, only for the bilingual group, further consideration was given to the Age of First Bilingual Exposure (AoE-L2), defined by Kovelman *et al*. (2008) as the

https://doi.org/10.1017/S0305000917000149 Published online by Cambridge University Press

age when a bilingual child first began to receive intensive, systematic, and maintained exposure to his/her new language. Correlation analyses were run for the bilingual group, between AoE and IDA subscales (linguistic assessment), and between AoE and parameters from narratives. In the first set of analyses it emerged that AoE was significantly related to Morphosyntactic comprehension ($R = 0{\cdot}3$; $p = {\cdot}015$) and, considering parameters from narratives, the only significant correlation was found between AoE and the number of utterances ($R = -0{\cdot}3$, $p = .012$).

Linguistic assessment

Table 1 reports mean and SD values (*z*-scores) together with Cohen's *d* effect sizes for each linguistic variable. A Manova was run with Group (Bs, Ms) as main factor and *z*-scores of IDA subscales (vocabulary, phonological awareness, morphosyntactic comprehension, phonological memory, letter knowledge) as dependent variables. A main effect of Group emerged ($F(5,122) = 16{\cdot}7$, $p < {\cdot}001$, $\eta^2 = {\cdot}41$), with bilinguals performing globally worse than monolingual peers. Univariate analyses highlighted the fact that monolinguals outperformed bilinguals in vocabulary, phonological awareness, and morphosyntactic comprehension (all *p*s $< {\cdot}001$), but the two groups did not differ in phonological memory ($p = {\cdot}33$) or in letter knowledge ($p = {\cdot}052$).

Narratives

MACRO-STRUCTURAL LEVEL. The different parameters referring to the quality of narratives were either investigated in the fixed factor Group (Ms vs. Bs) with a single *t*-test, or with multivariate analyses, depending on the number of variables considered within each factor. In the case of structural complexity, given that this was a categorical variable, a chi-square analysis was run.

In Table 2, descriptive statistics for mean raw scores are reported, together with Cohen's *d*, for each parameter considered in the analysis of narratives.

The first MANOVA was run on the number of macro-structural elements. There were no differences between groups ($F(5,122) = 2{\cdot}04$, $p = {\cdot}08$, $\eta^2 = {\cdot}08$). Considering the Mancova with age as a covariate, a marginal effect of group emerged ($F(5,121) = 2{\cdot}32$, $p = {\cdot}047$, $\eta^2 = {\cdot}09$), with bilinguals reporting a relatively smaller number of macro-structure events. Univariate analyses highlighted a main difference in Attempt ($p < {\cdot}05$) and Settings ($p < {\cdot}05$), but when adjusted for Bonferroni correction for multiple comparisons ($p < {\cdot}01$) none of the differences remained significant. The two groups did not differ for Goal ($p = {\cdot}27$), Outcome ($p = {\cdot}73$), or Mental State ($p = {\cdot}68$) subscales. A chi-square analysis revealed that Bilinguals and Monolinguals did not differ in their level of

TABLE 1. *Descriptive statistics (mean and SD of z-scores) and effect size (Cohen's* d*) for bilingual and monolingual groups in linguistic abilities (IDA Battery)*

	Monolinguals (n = 64)		Bilinguals (n = 64)				
IDA subscales	Mean	SD	Mean	SD	Cohen's *d*	F	Sign.
Vocabulary	0·41	0·44	−1·07	1·33	1·67	71·17	<·001
Phonological awareness	0·10	0·88	−0·52	0·96	0·68	14·78	<·001
Morphosyntactic comprehension	0·34	0·55	−0·50	0·89	1·17	41·72	<·001
Phonological memory	−0·21	1·22	−0·40	1·04	0·17	0·95	n.s.
Letter knowledge	0·26	0·99	−0·08	0·98	0·35	3·84	·052

macro-structural complexity ($\chi^2(1, N = 128) = 1{\cdot}67$, $p = {\cdot}64$): bilinguals reported 54·7% of GAO in their narratives, and monolinguals 50% of GAO structures. This can be considered a high level of complexity since Goal, Attempt, and Outcome were all included in the story-telling.

MICRO-STRUCTURAL LEVEL

Lexical level. *t*-tests were run on single parameters of the lexical level. It emerged that bilinguals produced a lower number of words ($t(126) = 2{\cdot}57$, $p < {\cdot}05$, $d = {\cdot}45$), as well as a lower number of Tokens ($t(126) = 3{\cdot}36$, $p < {\cdot}01$, $d = {\cdot}59$), and Types ($t(126) = 4{\cdot}42$. $p < {\cdot}001$, $d = {\cdot}78$). They also showed a higher level of lexical immaturity, committing more errors than monolinguals ($t(126) = 2{\cdot}62$, $p < {\cdot}05$, $d = {\cdot}49$). However, bilinguals did not differ from monolinguals in the Type/Token ratio ($t(126) = 1{\cdot}09$, $p = {\cdot}28$, $d = {\cdot}2$). When adjusted for Bonferroni correction for multiple comparisons ($p < {\cdot}01$), only group differences in Tokens and Types remained significant. Nonetheless, the only difference between the two groups that shows a high effect size is indeed the difference in the number of Types, while the difference in the Tokens showed only a medium effect size. Age, included as a covariate, proved to be marginally significant only in lexical maturity ($F(1,127) = 3{\cdot}9$, $p = {\cdot}05$, $\eta^2 = {\cdot}03$), with an overall effect of group ($F(1,127) = 8{\cdot}4$, $p < {\cdot}01$, $\eta^2 = {\cdot}06$), which remained significant after Bonferroni correction.

Morphosyntactic level. *t*-tests on the proportion of free morphemes (out of the number of tokens) highlighted the fact that bilinguals made more morphosyntactic mistakes than monolinguals in free morphemes ($t(126) = -3{\cdot}32$, $p < {\cdot}01$, $d = {\cdot}71$), with a medium effect size, but not in bound

https://doi.org/10.1017/S0305000917000149 Published online by Cambridge University Press

TABLE 2. *Descriptive statistics (mean and SD of raw scores) and effect size (Cohen's* d*) for bilingual and monolingual groups in the parameters of narratives*

		Monolinguals (n = 64)		Bilinguals (n = 64)			
Levels of analysis	Parameters	Mean	SD	Mean	SD	Cohen's *d*	Sig.
Macrostructural level*	Goal (max = 2)	0·56	0·59	0·66	0·60	0·17	n.s.
	Attempt (max = 3)	2·58	0·66	2·31	0·69	0·40	<·05
	Outcome (max = 1)	0·80	0·41	0·77	0·43	0·07	n.s.
	Mental state (max = 1)	0·17	0·38	0·14	0·35	0·08	n.s.
	Setting (max = 3)	0·91	0·71	0·66	0·62	0·38	<·05
Lexical level	Lexical errors	0·53	1·47	1·67	3·16	0·49	<·05
	Total word number	27·33	8·50	23·31	9·18	0·45	<·05
	Token	26·77	8·21	21·63	9·10	0·59	<·01
	TYPE	20·58	5·84	15·97	5·94	0·78	<·001
	Type/token ratio	0·78	0·09	0·76	0·12	0·20	n.s.
Morphosyntactic Level	% errors free morphemes	0·00	0·01	0·03	0·06	0·71	<·01
	% errors bond morphemes	0·01	0·04	0·02	0·07	0·29	n.s.
	Number of utterances	5·41	1·09	5·09	1·47	0·25	n.s.
	MLU**	5·10	1·46	4·75	2·43	0·18	n.s.
Text cohesion	Principal clauses	2·53	1·20	2·38	1·29	0·12	n.s.
	Coordinate clauses	2·78	1·47	2·50	1·61	0·18	n.s.
	Subordinate clauses	1·05	0·98	0·80	1·09	0·24	n.s.
	Complex clauses (total)	3·83	2·00	3·30	2·08	0·26	n.s.
	% complex clauses	57·36	24·50	53·92	27·21	0·13	n.s.

NOTES: * Max = 10; **MLU = tokens/number of sentences.

morphemes ($t(126) = -1{\cdot}55$, $p = {\cdot}12$, $d = {\cdot}29$). The two groups did not differ either in the number of utterances ($t(126) = 1{\cdot}36$, $p = {\cdot}17$, $d = {\cdot}25$) or in the Mean Length of Utterance (MLU) ($t(126) = 0{\cdot}97$, $p = {\cdot}33$, $d = {\cdot}18$).

Text cohesion. *t*-tests run on parameters of text cohesion showed that the two groups did not differ in any measure: number of principal clauses ($t(126) = 0{\cdot}71$, $p = {\cdot}48$, $d = {\cdot}12$), number of coordinate clauses ($t(126) = 1{\cdot}03$, $p = {\cdot}30$, $d = {\cdot}18$), number of subordinate clauses ($t(126) = 1{\cdot}36$, $p = {\cdot}17$, $d = {\cdot}24$), total number of complex clauses ($t(126) = 1{\cdot}47$, $p = {\cdot}14$, $d = {\cdot}26$), percentage of complex clauses out of the total number of clauses ($t(126) = 0{\cdot}75$, $p = {\cdot}45$, $d = {\cdot}13$).

Relationship between linguistic knowledge and narrative skills

The first multiple linear regression analysis (see Table 3) was run separately for the two groups (Bilinguals, Monolinguals), with *z*-scores of IDA battery subscales (vocabulary, phonological awareness, morphosyntactic comprehension, phonological memory, letter knowledge) as independent variables, and total macro-structural elements as a dependent variable. For monolinguals, the model was not significant ($R^2_{adj} = -0{\cdot}001$, $p = {\cdot}43$), whereas it was near to significance for the bilingual group ($R^2_{adj} = 0{\cdot}09$, $p = {\cdot}05$). In this model, none of the single IDA subscales was a significant predictor of the narratives' total macro-structural score.

The second linear regression analysis (see Table 4), run separately for the bilingual and monolingual groups, was carried out with measures of micro-structure, namely, MLU and Type/Tokens as independent variables, and total macro-structural elements as a dependent variable. It emerged that the model was significant for the monolingual group ($R^2_{adj} = 0{\cdot}13$, $p < {\cdot}01$), with MLU a significant ($\beta = {\cdot}4$, $p < {\cdot}01$) predictor of macro-structural richness. The model was not significant for the bilingual group ($R^2_{adj} = -0{\cdot}03$, $p = {\cdot}99$).

DISCUSSION

In the present study, bilingual preschool children were compared to their monolingual peers in measures of linguistic knowledge (vocabulary, phonological awareness, morphosyntactic comprehension, phonological memory, and letter knowledge) and narrative skills (telling of a story sequence composed of five images), taking into account both macro-structural and micro-structural parameters of story production. The aims of the study were twofold: first, to assess differences in L2 linguistic competence and narrative skills between bilingual minority children and monolingual children. The second aim was to investigate the predictive role of linguistic knowledge in the instructional language in macro-structural parameters of narrative skills in the same language, separately

TABLE 3. *Summary of linear regression analyses, separately for bilingual and monolingual groups, for linguistic measures predicting Macro-structural Level (total number of elements)*

Group	Model	Predictors	B	SE	Beta	t	Sig.
Monolinguals (n = 64)	$R^2_{adj} = -0.001$ ($F(5,63) = 0.98$, $p = .43$)	Vocabulary	0·78	0·44	0·25	1·75	·86
		Phonological awareness	0·19	0·21	0·12	0·94	·35
		Morphosyntactic comprehension	−0·14	0·39	−0·56	−0·37	·72
		Phonological memory	0·02	0·16	0·01	0·12	·91
		Letter knowledge	−0·09	0·2	−0·07	−0·48	·63
Bilinguals (n = 64)	$R^2_{adj} = 0.09$ ($F(5,63) = 2.3$, $p = .055$)	Vocabulary	0·16	0·13	0·17	1·22	·23
		Phonological awareness	0·22	0·16	0·17	1·37	·18
		Morphosyntactic comprehension	0·17	0·21	0·12	·83	·41
		Phonological memory	0·16	0·16	0·14	1·01	·32
		Letter knowledge	−0·18	0·16	−0·10	−0·79	·43

TABLE 4. *Summary of linear regression analyses, separately for bilingual and monolingual groups, of micro-structural variables predicting Macro-structural Level (total number of elements)*

Group	Model	Predictors	B	SE	Beta	t	Sig.
Monolinguals (n = 64)	$R2_{adj} = 0.13$ ($F(2,63) = 5.52$, $p < .001$)	MLU	0·37	0·12	0·39	3·24	·002
		Type/Token	0·15	1·91	−0·001	0·008	·99
Bilinguals (n = 64)	$R2_{adj} = -0.03$ ($F(2,63) = 0.01$, $p = .99$)	MLU	−0·006	0·06	−0·012	−0·96	·92
		Type/Token	−0·11	1·27	−0·01	−0·84	·93

for the two populations considered, including both standardized measures and parameters obtained directly from narrative production.

Based on the existing literature reviewed in the 'Introduction', we hypothesized a difference between bilinguals and monolinguals in L2 linguistic knowledge, with a particular weakness in vocabulary scores. We also expected poor L2 competence to possibly influence narrative indexes of lexical variety, but not macro-structural parameters. In line with this, we expected that linguistic competence in Italian (instructional language) would better predict narrative skills in monolinguals than in bilinguals. One important contribution of the current study is that linguistic competence, although collected only in L2, was obtained not only from standardized tests but also, directly, from narratives. Previous works

showed that standardized tests for language assessment might not reflect the real linguistic skills of bilinguals since their performance is compared to expected performance by monolinguals at a certain age. Linguistic parameters obtained directly from narratives represent an additional, more ecological, measure of linguistic skills in which children may be stimulated to use everyday language. Therefore, a narrative task provides the possibility to investigate the child's ability to USE the language. Integrating the information regarding L2 proficiency from standardized measures with that from a narrative task should provide a complete picture of the linguistic profile of bilingual children in L2, the language they use in the educational setting.

Considering the comparison between bilinguals and monolinguals in the linguistic measures battery (in L2 for bilinguals), there was a difference between groups in vocabulary, phonological awareness, and morphosyntactic comprehension, as expected. The two groups did not differ in letter knowledge and phonological memory (tested through a nonword repetition task). These results indicated a general difficulty experienced by bilinguals in the L2 language level expected for their age when compared to monolinguals, for all measures. Our results on vocabulary size are perfectly in line with a vast number of studies documenting lower L2 vocabulary scores in bilinguals compared to monolinguals (e.g. Bialystok. 2009) and, together with data on morphosyntactic comprehension and phonological awareness, suggest that bilingual minority children at this stage of development (preschool years) show a delay in L2 compared to their monolingual peers, probably due to a still modest exposure to L2. However, a similar performance between the two groups was found in measures that were more specifically related to processing skills, such as phonological memory. Thus, bilinguals seem to show a circumscribed disadvantage in L2 linguistic knowledge but seem to have adequate processing and cognitive skills.

As far as narrative skills are concerned, it emerged that in L2 narratives bilinguals showed a tendency to underperform in the overall number of macro-structural elements. The detailed analysis of subscales showed that bilinguals and monolinguals did not differ in Goal, Outcome, and Mental States, whereas bilinguals reported slightly fewer elements as far as Settings and Attempts were concerned, possibly due to their limited vocabulary. However, none of these differences held for Bonferroni corrections and their effect sizes were generally low, thus suggesting an absence of disadvantage in the ability to report macro-structural elements in their narratives. The two groups did not differ in the level of macro-structural complexity; that is, both groups reported an equal number (54·7% Bs and 50% Ms) of Goal, Attempt, and Outcome elements within their narratives. This suggests that, although bilinguals reported

fewer elements according to some parameters, they were equally able as monolinguals as far as the elements of story grammar are concerned. This finding suggests that, although bilinguals have lower linguistic skills in their L2, as highlighted in preceding analyses, when compared to their monolingual peers, they are able to tell stories of similar structural complexity, showing that they have the ability to use the language for communication purposes. This is in line with other studies that highlighted the fact that bilinguals did not differ from monolinguals at the macro-structural level of narratives (Iluz-Cohen & Walters, 2012). Data from both groups also showed that about half the children reported stories that lacked the three main components, thus supporting the idea that, in preschool years, children's stories still lack a complete discourse organization (Peterson & McCabe, 1983). Accordingly, it is also worth underlining that a high percentage of children included in the screening phase were excluded for not being able to rearrange the story correctly, and this could suggest that at this age children might not have a stable representation of story grammar.

Regarding the components of other narrative skills analyzed in the present study, it emerged that bilinguals' L2 narratives did not differ from those of monolinguals as far as text cohesion was concerned; that is, the number of principal, coordinate, and subordinate clauses, as well as the proportion between the number of principal and complex (subordinate and coordinate) clauses, did not differ. In the same vein, at a morphosyntactic level, the two groups did not differ in the number of utterances, in the MLU and in the proportion of errors in bound morphemes. The only significant difference was in the proportion of free morphemes, although mean values were generally very low for both groups. These trends were nevertheless coupled with deficiencies at a lexical level, where bilinguals' narratives remained characterized, compared to those of monolinguals, by more lexical errors, a lower number of total words, and fewer types and tokens. We will provide some examples here so as to better illustrate the nature of the task and the crucial differences between the two groups. Two examples of monolingual productions follow: (a) "Dino va a prendere delle cose al supermercato per fare una torta alla sua amica, dopo entra nel supermercato e quando ha finito di prendere le cose va a casa e prepara la torta, poi mette in forno la torta poi la tira fuori e la taglia" (47 words) – 'Dino goes to get some things at the supermarket to make a cake for his friend. Then he goes into the supermarket and when he finishes getting the things he needs, he goes home and makes the cake, then puts the cake in the oven and then gets it out and cuts it';(b) "Qui lui andava a fare la spesa, e lui ha preso gli ingredienti e poi li impastava e poi metteva dentro la torta nel forno, poi aspettava Ida" (28 words) – 'Here he went shopping, and he has got the ingredients and then he kneaded them and

then he put the cake in the oven, and waited for Ida'. The following, on the other hand, are examples of narratives produced by bilingual children: (a) "Sta andando a comprare gli ingredienti della torta per la festa della lucertola, sta preparando poi la mette in forno e la aspetta" (23 words) – 'He is going to buy the ingredients of the cake for the lizard's party, he is preparing then he puts it in the oven and waits for it'; (b) "Va al supermercato doveva fare TOTTA,[1] presi tutti farina e OVE inizia a FALLA poi ha fatto TOTTA e la mangia tutta, taglia PENDE e mangia" (26 words) – 'Goes to the supermarket he had to prepare CAKE, all flour and EGGS taken and starts to make it and then he made CAKE, and he eats it all, cuts, TAKE and eats'.

As these examples highlight, the pattern of results described above support the idea that bilinguals are characterized by an adequate competence in L2 language use and linguistic knowledge at a morphosyntactic level, although this is coupled with deficiencies at a lexical level. Nevertheless, the differences that emerged were characterized by low to medium effect sizes. Again, these results indicate that, in an elicited narrative production, bilinguals show similar levels to their monolingual peers.

The current findings also offer novel insight into linguistic parameters derived directly from narratives: as compared to results from standardized measures, it emerged that bilinguals and monolinguals differed in fewer measures when more ecological measures of language use were adopted. In order to obtain a more realistic picture of the language skills of bilinguals, standardized measures should be combined with ecological measures of language production.

Finally, to analyze the relationship between linguistic knowledge and narrative skills, two sets of regression analyses were run in order to investigate linguistic predictors of narrative skills at a macro-structural level. From the first analysis, where it was assessed whether standardized linguistic measures predicted the number of macro-structural elements reported in narratives, none of the models proved to be significant, although there was a tendency to statistical significance in the bilingual group. In the second analysis, MLU, but not tokens, emerged as a significant predictor of the number of macro-structural elements in the monolingual group but not in the bilingual group. The first pattern of results suggests a relative independence between general linguistic knowledge and narrative skills, particularly for monolinguals. This might be interpreted in the light of an important role played by non-linguistic factors in narrative quality. In other words, individual differences in linguistic knowledge within average levels of performance (i.e. in the

[1] Words in capital letters contained phonological errors in Italian.

absence of language impairment), do not necessarily predict the quality of narrative structure. Further investigation should be carried out on other potential predictors, such as general knowledge, pragmatic skills, print exposure, and so on. As far as bilingual children are concerned, the pattern of results is less clear. None of the subscales included in the regression model actually turned out to be a specific predictor of macro-structural parameters (number of reported elements). This might be interpreted in the light of a transversal but minor interdependence of language production and comprehension, as suggested by Pickering and Garrod (2013), and bilingualism may offer a particular perspective in highlighting connections that may not be manifest in monolingual populations.

A second set of regressions analyzed the relationship between micro- and macro-structural elements in the narrative production of bilinguals and monolinguals. It emerged that in monolinguals, but not in bilinguals, the macro-structural level was influenced by MLU, suggesting that the quality of narrative production, at a macro-structural level, is influenced by the syntactic complexity achieved in the same language. For bilinguals, no significant predictor emerged: one might speculate that the quality of their L2 narrative production is scarcely influenced by the linguistic structure of the narratives.

To sum up, the present study offers new insight into the relationship between linguistic abilities and narrative skills, calling attention to the fact that preschool bilingual children are able to structure stories in their L2 with similar cohesive and macro-structural complexity to monolingual peers, although 'in few words', that is, showing an L2 lexical delay compared to monolingual peers. This is in line with the hypothesis that language skills tend to develop in synchrony for monolingual speakers, but might develop at different rates in bilingual children (Pearson, 2002).

The present study presents some limitations, one of which is the small sample of language production analyzed, due to the fact that children were asked to produce narratives that described a relatively simple, and brief, five-picture story. Further investigation should be aimed at analyzing longer samples of language production, possibly associated with both telling and retelling tasks. Moreover, in the present study, L1 competencies were not considered, and this was primarily due to the fact that the sample included language minority bilinguals who spoke a variety of different languages, with a lack of quantitative and qualitative tools to assess linguistic and narrative skills in their L1. Finally, it would be worthwhile, in future studies, to investigate, in a more thorough manner, the role of the SES and home literacy environment as mediating factors in the relationship between linguistic and narrative skills. For the purposes of the present study, we suggest that the selection criteria adopted, together with the minor

predictive role of SES in Italy (OCSE-PISA, 2006), contribute to substantially minimize the role of SES in explaining the pattern of strengths and weaknesses in narrative skills discussed here. As a final remark, it has to be underlined that the narratives discussed in the present study were collected from the sample of children selected from a larger group for having correctly rearranged the story sequence. On the one hand, this might be considered a potential shortcoming of the study, because, being collected from a group of children with good sequential reasoning skills, the narratives may be partially biased. However, the advantage of this conservative selection procedure is that it provides a guarantee that all the participants had adequate reasoning skills.

There is clearly a particular need for unbiased assessment tools for language-general skills in bilingual populations, in order to bypass the frequent risk of over- and understatement of the profile of bilingual competence. The combined analysis of levels of language knowledge and narrative skills may allow us, therefore, to better detect strengths and weaknesses in bilingual development. This represents the main clinical and educational implication of the current work: when considering the ability to use the language for communication purposes alongside the performance obtained from standardized tests, the typical delays highlighted in bilinguals in their L2 become less evident. Therefore, the evaluation of narrative skills contributes to a better understanding of the typical bilingual profile, thus providing important suggestions as to the best educational practices for bilingual populations.

REFERENCES

ASHA (American Speech-Language-Hearing Association) (1985). *Clinical management of communicatively handicapped minority language populations* [Position Statement]. Online: <www.asha.org/policy>.

ASHA (American Speech-Language-Hearing Association) (2004). *Knowledge and skills needed by speech-language pathologists and audiologists to provide culturally and linguistically appropriate services* [Knowledge and skills]. Online: <www.asha.org/policy>.

August, D. & Shanahan, T. (2006). Developing literacy in second-language learners. *Report of the National Literacy Panel on Language-Minority Children and Youth*. Mahwah, NJ: Lawrence Erlbaum.

Barca, L., Burani, C. & Arduino, L. S. (2002). Word naming times and psycholinguistic norms for Italian nouns. *Behavior Research Methods, Instruments & Computers* **34**(3), 424–34.

Bellocchi, S., Bonifacci, P. & Burani, C. (2016). Lexicality, frequency and stress assignment effects in bilingual children reading Italian as a second language. *Bilingualism: Language and Cognition* **19**(1), 89–105.

Berman, R. (1988). On the ability to relate events in narrative. *Discourse Processes* **11**, 469–97.

Berman, R. & Slobin, D. I. (1994). *Relating events in narratives*. Hillsdale, NJ. Laurence Erlbaum Associates.

Bialystok, E. (2009). Bilingualism: the good, the bad, and the indifferent. *Bilingualism: Language and Cognition* **12**(1), 3–11.

Bishop, D. & Donlan, C. (2005). The role of syntax in encoding and recall of pictorial narratives: evidence from specific language impairment. *British Journal of Developmental Psychology* **23**(1), 25–46.
Bonifacci, P., Giombini, L., Bellocchi, S. & Contento, S. (2011). Speed of processing, anticipation, inhibition and working memory in bilinguals. *Developmental Science* **14**(2), 256–69.
Bonifacci, P., Pellizzari, C., Giuliano, P. & Serra, P. (2015). *IDA: Indicatori Difficoltà di Apprendimento* [*Learning Difficulties Indexes*]. Firenze: Hogrefe.
Bonifacci, P. & Tobia, V. (2016). Crossing barriers: profiles of reading and comprehension skills in early and late bilinguals, poor comprehenders, reading impaired, and typically developing children. *Learning and Individual Differences* **47**, 17–26.
Botting, N. (2002). Narrative as a tool for the assessment of linguistic and pragmatic impairments. *Child Language Teaching and Therapy* **18**(1), 1–21.
Cain, K. & Oakhill, J. (1996). The nature of the relation between comprehension skill and the ability to tell a story. *British Journal of Developmental Psychology* **14**(2) 187–201.
Cleave, P. L., Girolametto, L. E., Chen, X. & Johnson, C. J. (2010). Narrative abilities in children with specific language impairment: the impact of bilingualism. *Journal of Communication Disorders* **43**(6), 511–22.
Curenton, S. M. & Justice, L. M. (2004). African American and Caucasian preschoolers' use of decontextualized language: literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools* **35**(3), 240–53.
D'Amico, S., Albano, S., Marano, A. & Devescovi, A. (2008). La valutazione delle competenza narrativa in bambini prescolari e scolari attraverso un libro illustrato. *Rivista di psicolinguistica applicata / Journal of Applied Psycholinguistics* **8**(1/2), 73–90.
De Lamo White, C. & Jin, L. (2011). Evaluation of speech and language assessment approaches with bilingual children. *International Journal of Language & Communication Disorders* **46**(6), 613–27.
Ervin-Tripp, S. (1989). *Speech acts and syntactic development: Linked or independent?* (*Berkeley Cognitive Science Report No. 61*) Berkeley, CA: University of California.
Fiestas, C. E. & Peña, E. D. (2004). Narrative discourse in bilingual children: language and task effects. *Language, Speech, and Hearing Services in Schools* **35**(2), 155–68.
Florit, E., Roch, M. & Levorato, M. C. (2014). Listening text comprehension in preschoolers: a longitudinal study on the role of semantic components. *Reading & Writing* **27**(5), 793–817.
Gagarina, N., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Balčiūnienė, I., Bohnacker, U. & Walters, J. (2012). MAIN: Multilingual Assessment Instrument for Narratives. *ZAS Papers in Linguistics* **56**.
Gagarina, N., Klop, D., Tsimpli, I. & Walters, J. (2016). Narrative abilities in bilingual children. *Applied Psycholinguistics* **37**(1), 11–7.
Gutiérrez-Clellen, V. F. (2002). Narratives in two languages: assessing performance of bilingual children. *Linguistics and Education* **13**(2), 175–97.
Gutiérrez-Clellen, V. F. (2004). Narrative development and disorders in bilingual children. In B. Goldstein (ed.), *Bilingual language development and disorders in Spanish–English speakers*, 235–56. Baltimore, MD: Paul H. Brookes Publishing.
Hipfner-Boucher, K., Milburn, T., Weitzman, E., Greenberg, J., Pelletier, J. & Girolametto, L. (2014). Relationships between preschoolers' oral language and phonological awareness. *First Language* **34**(2), 178–97.
Hudson, J. A. & Shapiro, L. R. (1991). From knowing to telling: the development of children's scripts, stories, and personal narratives. In A. McCabe & C. Peterson (eds), *Developing narrative structure*, 89–136. Hillsdale, NJ: Lawrence Erlbaum Associates.
Iluz-Cohen, P. & Walters, J. (2012). Telling stories in two languages: narratives of bilingual preschool children with typical and impaired language. *Bilingualism: Language and Cognition* **15**(1), 58–74.
Kovelman, I., Baker, S. & Petitto, L. A. (2008). Age of first bilingual language exposure as a new window into bilingual reading development. *Bilingualism: Language and Cognition* **11**(2), 203–23.

Kupersmitt, J. & Berman, R. A. (2001). Linguistic features of Spanish–Hebrew children's narratives. In L. Verhoeven & S. Stromqvist (eds), *Narrative development in a multilingual context*, 277–317. Amsterdam: John Benjamins.
Lever, R. & Sénéchal, M. (2011). Discussing stories: on how a dialogic reading intervention improves kindergartners' oral narrative construction. *Journal of Experimental Child Psychology* **108**(1), 1–24.
Lindsey, K. A., Manis, F. R. & Bailey, C. E. (2003). Prediction of first-grade reading in Spanish-speaking English language learners. *Journal of Educational Psychology* **95**(3), 482–94.
Manis, F. R., Lindsey, K. A. & Bailey, C. E. (2004). Development of reading in grades K–2 in Spanish-speaking English language learners. *Learning Disabilities Research and Practice* **19**(4), 214–24.
Marini, A., Andreetta, S., del Tin, S. & Carlomagno, S. (2011). A multi-level approach to the analysis of narrative language in aphasia. *Aphasiology* **25**(11), 1372–92.
Mayer, M. (1969). *Frog, where are you?* New York: Dial Press.
Miller, J. F., Heilmann, J., Nockerts, A., Iglesias, A., Fabiano, L. & Francis, D. J. (2006). Oral language and reading in bilingual children. *Learning Disabilities Research & Practice* **21**(1), 30–43.
OCSE-PISA (Programme for International Student Assessment) (2006). *Rapporto Nazionale OCSE-PISA 2003. Il livello di competenza dei quindicenni in matematica, lettura, scienze e problem solving [National Report OCSE-PISA 2003. Level of competence of fifteen-year-old students in math, reading, science e problem solving]*. Rome: Armando Editore.
Páez, M., Tabors, P. & López, L. (2007). Dual language and literacy development of Spanish-speaking preschool children. *Journal of Applied Developmental Psychology* **28**(2), 85–102.
Paradis, J. (2016). The development of English as a second language with and without specific language impairment: clinical implications. *Journal of Speech, Language, and Hearing Research* **59**, 171–82.
Paradis, J., Genesee, F. & Crago, M. B. (2011). *Dual language development and disorders*. Baltimore, MD: Brookes Publishing.
Paradis, J., Schneider, P. & Sorenson Duncan, T. S. (2013). Discriminating children with language impairment among English-language learners from diverse first-language backgrounds. *Journal of Speech, Language, and Hearing Research* **56**(3), 971–81.
Pearson, B. Z. (2002). Narrative competence among monolingual and bilingual school children in Miami. In D. K. Oller & R. E. Eilers (eds), *Language and literacy in bilingual children*, 135–74. Clevedon: Multilingual Matters.
Pearson, B. Z., Fernández, S. & Oller, D. K. (1995). Cross-language synonyms in the lexicons of bilingual infants: One language or two? *Journal of Child Language* **22**(2), 345–68.
Peterson, C. & McCabe, A. (1983). *Developmental psycholinguistics: three ways of looking at a child's narrative*. New York. Plenum.
Pickering, M. J. & Garrod, S. (2013). An integrated theory of language production and comprehension. *Behavioral and Brain Sciences* **36**(4), 329–92.
Renfrew, C. E. (1997). *The Renfrew Language Scales: Bus Story Test: A test of narrative speech*, 4th ed. Bicester: Winslow Press Limited.
Richards, M. (1987). Type/token ratios: What do they really tell us? *Journal of Child Language* **14**(2), 201–9.
Roch, M. & Florit, E. (2013). Narratives in preschool bilingual children: the role of exposure. *Rivista Di Psicolinguistica Applicata* **13**(2), 55–63.
Roch, M., Florit, E. & Levorato, C. (2016). Narrative competence of Italian–English bilingual children between 5 and 7 years. *Applied Psycholinguistics* **37**(1), 49–67.
Schwartz, M. & Shaul, Y. (2013). Narrative development among language-minority children: the role of bilingual versus monolingual preschool education. *Language, Culture and Curriculum* **26**(1), 36–51.

Simon-Cereijido, G. & Gutiérrez-Clellen, V. F. (2009). A cross-linguistic and bilingual evaluation of the interdependence between lexicon and grammar. *Applied Psycholinguistics* **30**(2), 315–37.

Skehan, P. (1986). *Early lexical development and the prediction of foreign language learning success*. Paper presented at the CILT/ESRC Conference on Second Language Acquisition, Windsor, Berkshire.

Smithson, L., Paradis, J. & Nicoladis, E. (2014). Bilingualism and receptive vocabulary achievement: Could sociocultural context make a difference? *Bilingualism: Language and Cognition* **17**(4), 810–21.

Snow, C. E., Tabors, P. O., Nicholson, P. A. & Kurland, B. F. (1995). SHELL: oral language and early literacy skills in kindergarten and first-grade children. *Journal of Research in Childhood Education* **10**(1), 37–48.

Squires, K. E., Lugo-Neris, M. J., Peña, E. D., Bedore, L. M., Bohman, T. M. & Gilliam, R. B. (2014). Story retelling by bilingual children with language impairments and typically developing controls. *International Journal of Language and Communication Disorders* **49**(1), 60–74.

Stein, N. L. & Glenn, C. G. (1979). An analysis of story comprehension in elementary school children. In: R. Freedle (ed.), *New directions in discourse processing*, 2, 53–120. Norwood, NJ: Ablex.

Tavano, A. & Biancuzzi, E. (2008). *The Picnic Story*. Milan: University Press.

Thordardottir, E. (2011). The relationship between bilingual exposure and vocabulary development. *International Journal of Bilingualism* **15**(4), 426–45.

Trabasso, T., Stein, N. L. & Johnson, L. R. (1981). Children's knowledge of events: a causal analysis of story structure. In G. H. Bower (ed.), *Learning and motivation*, 15, 237–82. New York: Academic Press.

Uccelli, P. & Páez, M. M. (2007). Narrative and vocabulary development of bilingual children from kindergarten to first grade: developmental changes and associations among English and Spanish skills. *Language, Speech, and Hearing Services in Schools* **38**(3), 225–36.

Viberg, A. (2001). Age-related and L2-related features in bilingual narrative development in Sweden. In L. Verhoeven & S. Stromqvist (eds), *Narrative development in a multilingual context*, 87–129. Amsterdam: John Benjamins.

Wellman, R. L., Lewis, B. A., Freebairn, L. A., Avrich, A. A., Hansen, A. J. & Stein, C. M. (2011). Narrative ability of children with speech sound disorders and the prediction of later literacy skills. *Language, Speech, and Hearing Services in Schools* **42**(4), 561–57.