

Beyond Monolingual Norms: Analyzing the Complexity of Greek-Turkish Bilingual Children's Written Narratives

Received: 15 May 2024; Revised: 22 August 2024; Published: 23 October 2024

Ifigenia Dosi

Democritus University of Thrace, Greece
Email: idosi@helit.duth.gr
ORCID: <https://orcid.org/0000-0003-4911-2049>

Eleni Kouki

Democritus University of Thrace, Greece
Email: elkouk@helit.duth.gr
ORCID: <https://orcid.org/0009-0005-2287-1311>

Anastasia Lada

Vrije Universiteit Brussel, Belgium
Email: anastasia.lada@vub.be
ORCID: <https://orcid.org/0000-0003-1616-2891>

Stefanie Keulen

Vrije Universiteit Brussel, Belgium
Email: stefanie.keulen@vub.be
ORCID: <https://orcid.org/0000-0003-4582-5199>

Abstract:

This research explores the written narratives of Greek-Turkish bilingual and Greek monolingual children, focusing on their retelling abilities. We analyze both the macrostructure and microstructure of their narratives, utilizing the story-grammar model for the macrostructure analysis and examining lexical diversity, syntactic complexity, spelling accuracy, connectives, and word stressing for the microstructure assessment. We also examine correlations with contextual factors, including home and schooling input. Thirty-six children, comprising an equal number of bilinguals and monolinguals, participate in a picture narrative task (retelling mode). Our findings indicate that while bilingual children exhibit proficiency in constructing the story-grammar comparable to their monolingual counterparts, notable differences emerge in the microstructure of their narratives. Specifically, bilingual children produce shorter narratives. They also demonstrate lower lexical and noun diversity, syntactic complexity, and spelling accuracy (in inflectional suffixes) compared to monolingual children. These observed differences in the microstructure imply a potential trade-off between establishing the core story schema and elaborating on narrative details in bilingual narratives. Additionally, our study identifies early literacy practices (i.e., print exposure in preschool years) and current literacy practices (literacy habits outside the school setting) as predicting differently aspects of the microstructure in each group, further enhancing our understanding of how bilingualism influences narrative development. This underscores the importance of examining both the macrostructure, microstructure, and contextual factors for a comprehensive understanding of narrative development in bilingual and monolingual children.

Keywords: bilingualism, retelling narratives, macrostructure, microstructure



1. Introduction

The growing body of research investigating narrative skills in bilingual children and second language (L2) learners reflects a heightened interest in narrative analysis within the scientific and educational communities (Gagarina et al., 2012). In this study, we define bilinguals as individuals exposed to both languages before the Critical Period (Meisel, 2009; Unsworth et al., 2014), while L2 learners are those whose language exposure begins after this period. Our focus on narratives delves into children's communicative competence, which encompasses a range of linguistic, cognitive, and social abilities (Bongartz & Torregrossa, 2017). Traditionally, analyses of narrative skills delve into two key aspects: the macrostructure and microstructure (Gagarina et al., 2012). The macrostructure refers to the overall organization of the narrative, encompassing elements such as the setting (time and place), characters, and the sequence of events. Conversely, the microstructure focuses on the finer details that contribute to local coherence, such as lexical and syntactic complexity.

While increased language proficiency has been shown to improve narrative production, particularly structure and cohesion, in both bilingual and L2 children, a debate persists regarding whether a specific proficiency threshold needs to be reached for these benefits to emerge (Dosi & Douka, 2021). Furthermore, contextual factors, particularly those related to emergent literacy (e.g., home literacy practices and parental book reading) alongside formal schooling, have also been linked to enhanced narrative skills (Karlsen et al., 2016).

This study builds on existing research to investigate the written narratives in Greek as L2 of late sequential bilingual children (aged 9-10 years, mean age: 9.5 years, S.D.: 1.1 years; Age of Onset (AoO)¹ to Greek, mean age: 4.9 years, S.D.: 1.2 years). These children are dominant in Turkish (L1) and are acquiring and learning Greek (L2). Their education takes place at a public school that embraces intercultural understanding, although all classes are conducted only in Greek. We employed a retelling task in their L2 (Greek) to examine their written narratives and delve into both the macrostructure, analyzed through the story-grammar model, and the microstructure, assessed through factors like lexical diversity, syntactic complexity, spelling errors, use of connectives, and stress marking. Our research aims to contribute to a more nuanced understanding of how bilingualism shapes narrative development by highlighting the significance of examining both the macro- and microstructure of narratives.

2. The Development of Narratives Abilities in Monolingual and Bilingual Children

This section delves into the interplay between language acquisition and bilingualism by examining the developmental trajectory of narrative abilities in both monolingual and bilingual children. Narratives offer a rich window into various aspects of language development, making them a valuable tool for such an investigation. Narratives, whether oral or written, can be elicited through various methods, including picture prompts or video stimuli, in telling or retelling modes (Andreou, 2015). Analyzing narratives involves examining both the macrostructure and microstructure components,

¹ The Age of Onset (AoO) refers to the age at which the speaker was first exposed to the L2, which, in this study, is Greek.



which are considered separate yet interdependent aspects of narrative discourse competence (Gagarina et al., 2012). The macrostructure relates to the overall organization of the story, including its setting (time and place), characters, and episodes (goal, attempt and outcome for each episode), while the microstructure encompasses sentence-level features like lexical diversity, syntactic complexity, use of connectives, tense, aspect, among others (Gagarina et al., 2012, 2019). Various factors, including language proficiency, contextual influences, and cognitive abilities, impact narrative skills, with literacy practices and exposure to storytelling playing significant roles in narrative development (Karlsen et al., 2016).

Our study investigates how narrative abilities unfold across two populations. However, before diving in, it is crucial to acknowledge the multifaceted nature of bilingualism itself. We will first discuss the various factors that influence storytelling proficiency across linguistic domains, ultimately contributing to a deeper understanding of this dynamic process of language development.

2.1 Contextual factors affecting bilinguals' narrative abilities

Before presenting the development of narrative abilities in both monolingual and bilingual children, it is important to consider the various factors that influence bilingualism itself. One significant aspect is the age when an individual is first exposed to the L2 (AoO). Researchers classify bilinguals accordingly, with simultaneous bilinguals being exposed to both languages from birth (Meisel, 2009), while sequential bilinguals begin later (Meisel, 2009). Nonetheless, the precise age brackets for these classifications remain subject to debate (Grosjean, 1989; De Houwer, 1995; Rothweiler, 2006). In this study, we adhere to Grosjean's (1989) categorization, defining simultaneous bilinguals as those exposed from 0-3 years old, early sequential bilinguals from 3-4 years old, and late sequential bilinguals from 4-7 years old. Another critical determinant is the extent of exposure to each language, referred to as input (Unsworth, 2014), and literacy in both languages, known as biliteracy. These investigations have demonstrated that robust bilingual educational environments and biliteracy have a positive impact on the development of both languages (Dosi et al., 2016; Bongartz & Torregrossa, 2017; Andreou & Tsimpli, 2020; Andreou et al., 2020). The definition of literacy varies across studies, ranging from the ability to read and write to print exposure and hours of schooling (Keefe & Copeland, 2011). In this study, we predominantly refer to (early) literacy as print exposure in either early or later years.

Many studies (Rydland et al., 2014; Squires et al., 2014; Karlsen et al., 2016; Bongartz & Torregrossa, 2017) further support the significance of skill transfer between languages, especially in terms of literacy skills from L1. Proficiency in literacy in L1 can enhance a learner's aptitude for storytelling in L2 (Bongartz & Torregrossa, 2017), underlining the importance of balanced literacy strategies fostering development in both languages (Rydland et al., 2014; Squires et al., 2014; Karlsen et al., 2016). For instance, the literacy environment at home has been shown to impact children's narrative skills in terms of macrostructure (Karlsen et al., 2016). In the same vein, reading books has been found to enhance cognitive abilities that are crucial for making inferences, problem-solving, and anticipating narrative events for both monolingual and bilingual children (Hammett et al., 2003).



At the same time, many bilingual children might experience low home literacy due to infrequent storybook reading, which can be influenced by the available time and resources within families (Karlsen et al., 2016). Consequently, limited prior experiences with qualitative linguistic input may negatively affect their language development (i.e., microstructural aspects) (Andreou, 2015; Karlsen et al., 2016). For instance, learners who have more years in L2 and have spent more time in the education system of L2 demonstrated a higher diversity of nouns in their stories (Dosi & Douka, 2021). Based on the above, we infer that exposure primarily through print is more critical than oral input, as it typically offers higher quality, such as more sophisticated vocabulary and complex syntax.

It appears that AoO has a greater impact on various aspects of microstructure (Tsimpli, 2014), whereas macrostructure is influenced more by language exposure, primarily through schooling (see Andreou, 2015, for a comprehensive discussion). Additionally, biliteracy affects both microstructure and macrostructure, potentially enhancing the overall quality and complexity of storytelling in L2 (macrostructure), though its influence on the microstructure is more nuanced and may differ depending on which specific aspects are being analyzed (Bongartz & Torregrossa, 2017; Andreou et al., 2020; Andreou & Tsimpli, 2020).

2.2 Oral and written narrative proficiency in monolingual and bilingual children

Narrative writing, characterized by its structured discourse, demands coherence and organization, often facilitated by peer collaboration for error correction and coherence enhancement (Purba, 2018; Ulu, 2019). Crafting narratives involves integrating two distinct forms of knowledge: (a) *macrostructure*, i.e., an understanding of the overall story structure, encompassing elements such as setting (time and place), characters, goal, attempt, and outcome of each episode, and (b) *microstructure*, i.e., proficiency in diverse linguistic aspects like vocabulary, morphosyntax, and cohesion (Aksu-Koç & Aktan-Erciyes, 2018; Purba, 2018; Gagarina et al., 2019; Ulu, 2019; Košutar et al., 2022).

2.2.1 The development of macrostructure in monolingual and bilingual children

The story-grammar model facilitates the analysis of the narrative macrostructure, presenting narrative structure with components like setting (time and place), character introduction, and episodes (Gagarina et al., 2019; Košutar et al., 2022). Each episode typically involves an initiating event (i.e., goal), the protagonist's attempt to resolve a problem, and the outcome (Aksu-Koç & Aktan-Erciyes, 2018; Košutar et al., 2022). Despite the complex nature of narrative construction, monolingual children as young as three or four can produce oral narratives, albeit with simpler structures initially, gradually incorporating causality and character reactions with age (Bohnacker et al., 2021; Diakogiorgi et al., 2021; Košutar et al., 2022). Motsiou (2014) suggests that by the age of 9 or 10, monolingual children are proposed to develop oral storytelling abilities resembling those of adults. However, despite reaching ages as late as 11, some typically developing monolingual children may still not attain the expected levels of narrative complexity in written narratives, indicating ongoing development beyond the age of 12 (Diakogiorgi et al., 2021). Researchers have noted that written narratives also depict oral narrative abilities (Andreou, 2015; Bongartz & Torregrossa, 2017; Diakogiorgi et al., 2021).



It is important to note that most studies on bilingual children focus on oral narrative skills in L2 to minimize the impact of varying literacy levels, specifically the variations in participants' writing skills. Recent studies on oral narratives suggest that bilingual children's macrostructure, the overall organization of their stories, might be less dependent on their L2 proficiency (Kupersmitt & Armon-Lotem, 2019). In the same vein, Illuz-Cohen and Walters (2012) propose that macrostructure remains consistent across both languages a bilingual child uses. This consistency might help them transfer ideas and knowledge between their languages. Overall, a bilingual child's ability to use macrostructure seems to be more influenced by their general cognitive development than by their fluency in any one language (Andreou, 2015). Nonetheless, other studies on L1 dominant bilinguals who are more proficient in their L1 and tested in their L2, regardless of their AoO, have found that language proficiency impacts the macrostructure in L2 in both oral (Bitetti et al., 2020; Bohnacker et al., 2021; Chan et al., 2023) and written narratives (Dosi & Douka, 2021). These discrepancies might not be solely due to language dominance but also influenced by contextual factors like early exposure to print (preschool years) or the duration and type (oral/written) of L2 exposure. Additionally, it is noteworthy that the studies mentioned primarily examined language pairs belonging to fusional languages. It would be interesting to investigate whether greater morphological differences would arise when testing typologically different language pairs, such as combinations of fusional and agglutinative languages (like Greek and Turkish, respectively).

2.2.2 The development of microstructure in monolingual and bilingual children

The microstructure, which explores narrative at the sentence level, involves various measures of vocabulary and grammar, including narrative length, lexical diversity, syntactic complexity, use of connectives, tense, aspect, nominal or verb agreement, among others (Košutar et al., 2022). Studies on oral narratives reveal differences in microstructure between bilingual and monolingual speakers (Kapia, 2013; Andreou, 2015; Dosi & Douka, 2021; Paspali, 2023). Studies show that even when tested in their dominant language, bilingual narratives, including those from simultaneous bilinguals, tend to be shorter and syntactically less complex compared to narratives from monolinguals, despite that both of their languages have similar syntactic complexity (Albanian-Greek; cf. Kapia, 2013). Differences in narration length, type-token ratio (TTR), and syntactic complexity were also noted in early sequential bilinguals, particularly in typologically distant language pairs (Greek-German; cf. Paspali, 2023). Conversely, comparable syntactic complexity but increased morphological errors among bilingual speakers were reported, despite both languages belonging to the category of fusional languages (Rodina, 2017). In the above studies, syntactic complexity was measured by the ratio of main vs. subordinate clauses. Therefore, other studies also suggested the examination of the complexity of the noun phrases or even lexical complexity (see Complexity-Accuracy-Fluency; Housen et al., 2012; Bulté & Housen, 2018). Noun and verb diversity is lower in bilinguals' narratives, regardless of AoO and language typology, especially among those with low proficiency in their L2 (Andreou, 2015; Dosi & Douka, 2021; Paspali, 2023). However, similar microstructure levels to monolinguals were found in studies on oral (Tsimpli et al., 2016) and written narratives (Sánchez Abchi & De Mier, 2017).

While aspects of macrostructure can be transferred between languages, microstructure components show no correlation across languages (Méndez, 2018). Additionally, while story complexity may be



less reliant on linguistic abilities, narrative proficiency often correlates with language proficiency, particularly in fostering syntactic and lexical skills in both bilingual and monolingual speakers (Gagarina et al., 2019; Dosi & Douka, 2021; Košutar et al., 2022). Younger monolingual children typically focus more on lexical diversity, whereas older children demonstrate proficiency in both lexical diversity and syntactic complexity (Košutar et al., 2022). Research has shown that bilingual children's narrative skills also develop with age, though there are some differences due to their language exposure (oral or written; Andreou, 2015). Additionally, evidence from studies focusing on the written productions of bilingual children has shown that they produce more spelling errors than their monolingual peers (Vettori et al., 2023; Wolters & Kim, 2024). It is important to note that the oral and written input bilingual children receive both within and outside the school environment, as well as the number of years they are exposed to each language, often affects their performance on microstructural aspects (Andreou et al., 2020; Andreou & Tsimpli, 2020). Unfortunately, to our knowledge, there are no studies on Greek bilingual children and their errors, for example, on word stress marking. Stressing is a relatively easy aspect of literacy development, although even monolingual children often omit stress markers (Protopapas et al., 2007; Diakogiorgi et al., 2021).

In a nutshell, previous studies suggest bilinguals can achieve a similar level of macrostructure, the overall story organization, as monolinguals. However, their performance is often related to their language proficiency in the language of testing. In contrast, significant differences emerged between bilinguals and monolinguals in microstructure (e.g. length of the narrative, lexical diversity, syntactic complexity, use of connectives, morphology). At this point, it is important to note most of the studies have tested fusional language pairs. Additionally, while the majority focused on spoken narratives, the limited research on written narratives suggests that bilingual children may encounter spelling difficulties. Moreover, contextual factors such as early literacy practices (i.e., shared book reading) and time spent in school are linked to the development of both macro- and microstructure.

3. Similarities and Differences between Greek and Turkish

Before presenting the current study, it is important to briefly overview the linguistic similarities and differences between Greek and Turkish. This context will help in understanding the nuances of bilingual performance in these languages, as a detailed analysis of children's errors is beyond the scope of this study.

Greek and Turkish belong to different language families—Greek is Indo-European (South Balkan), while Turkish is Altaic (Ralli, 2005). Both languages are synthetic, with words composed of multiple morphemes. Greek is a fusional language and features rich inflectional morphology, where nouns, verbs, and adjectives inflect for categories like case, number, gender, and tense. Although Greek typically follows a Subject-Verb-Object (SVO) order, it allows flexibility due to extensive inflectional suffixes (Joseph & Philippaki-Warbuton, 1987). In contrast, Turkish is an agglutinative language, forming words through a linear sequence of morphemes (Göksel & Kerslake, 2005), and generally follows a Subject-Object-Verb (SOV) order with less flexibility, lacking grammatical gender and having a simpler case system.



Greek and Turkish use different alphabets, but both languages are transparent in reading, meaning there is a strong correspondence between graphemes and phonemes. However, Greek is non-transparent in writing due to historical factors. Greek also uses systematic patterns in spelling derivational and inflectional morphemes, which can include ambiguous digraphs and letters with overlapping phonetic values (Horrocks, 2010), such as "α" and "ε", which are both pronounced /e/. For instance, in the spelling of bases, the correct spelling of a base like "καιρ /cer/" in "καιρός /cer-os/" (weather) depends on memorization specific to that word, constituting spelling of bases. In the spelling of derivational morphemes, "/o/" is consistently spelled "ω" when part of the derivational suffix "/on/" (e.g., "θυμ-ών-ω /θim-on-o/" - I get angry). Similarly, spelling in inflectional suffixes necessitates grammatical understanding and follows systematic and consistent spelling patterns, such as the suffix "/o/" always being spelled "ω" (e.g., "θυμ-ών-ω /θim-on-o/" - I get angry). In contrast, Turkish, with its reformed alphabet, is designed for minimal ambiguity, ensuring a close match between spelling and pronunciation (Lewis, 2002).

Greek is a pitch-accent language where stress is phonemic and can change a word's meaning (Joseph & Philippaki-Warbuton, 1987). Stress is marked in writing with the diacritical mark *tonos* (´) over the stressed syllable, which can appear on any of the last three syllables, making stress placement crucial for pronunciation and meaning (Ralli, 2005). For instance, *καλός* ([kalós], good) and *σπίτι* ([spíti], house) have different stress patterns, essential for distinguishing word meanings, as seen with paronyms like *νόμος* ([nomos], law) and *νομός* ([nomos], prefecture). Monosyllabic words lack a stress marker. In contrast, Turkish stress is generally on the final syllable, with some exceptions in compound and borrowed words. Turkish does not use diacritical marks for stress, and stress rarely alters word meaning as it does in Greek (Göksel & Kerslake, 2005).

The significance of this study lies in its exploration of an understudied language pair: Greek (L2) and Turkish (L1), which exhibit significant differences as outlined above. Unlike the predominant focus on fusional languages in existing literature, this study also considers participants' linguistic input and literacy practices in both languages. Additionally, it examines written narratives of bilingual children, contrasting with the prevalent emphasis on oral narratives in previous research. This focus on written narratives is particularly important given the limited evidence in this area, providing valuable insights for both academia and educators. Given that our participants attend a public school where Greek is the language of instruction and have received Greek literacy education for at least three years, we have chosen to assess their proficiency through written narratives in their L2.

4. The Present Study

4.1 Objectives, research questions, and predictions

The present study investigates the written Greek narratives of late sequential bilingual children (aged 9-10 years, mean age: 9.5 years, S.D.: 1.1 years; AoO to L2 (Greek), mean age: 4.9 years, S.D.: 1.2 years) who are dominant in Turkish (L1) and acquiring and learning Greek (L2) at a public school with an intercultural focus but Greek-only instruction (30 teaching hours per week). Using a retelling task, we examined both macrostructure, through the story-grammar model, and microstructure, including



lexical diversity, noun and verb diversity, syntactic complexity, spelling errors, use of connectives, stress marking and punctuation. Additionally, we aimed to identify potential correlations between macrostructure, various aspects of microstructure, and contextual factors. To achieve this, we formulated the three following research questions (RQs) and corresponding predictions.

- 1) Do Greek-Turkish bilingual children exhibit any differences in macrostructure, i.e., their ability to construct the core story-grammar elements (setting, including time and place, characters, goal, attempt and outcome of an event) compared to their monolingual Greek peers when retelling narratives?

Drawing on the story-grammar model by Gagarina et al. (2019) and Košutar et al. (2022), and aligning with previous research using this model (Kupersmitt & Armon-Lotem, 2019), we expect to find no significant differences in the overall story structure (macrostructure) between bilingual and monolingual children.

- 2) Do Greek-Turkish bilingual children demonstrate significant differences in microstructural aspects of their retellings, i.e., the length of narratives, lexical diversity, noun and verb diversity, syntactic complexity, use of connectives, stress markers, punctuation, spelling errors in inflectional, derivational morphemes and bases compared to monolingual Greek children?

We expect that Greek-Turkish bilingual children will generate shorter narratives with less varied lexical diversity, lower syntactic complexity, reduced use of connectives, stress markers and punctuation markers compared to monolingual Greek children (Protopapas et al., 2007; Gagarina et al., 2019; Bohnacker et al., 2021; Dosi & Douka, 2021; Košutar et al., 2022). Additionally, we anticipate encountering spelling errors (Vettori et al., 2023; Wolters & Kim, 2024), especially in bases (lexical morphemes), similar to findings observed by Diakogiorgi et al. (2021), since there are challenges in remembering the orthography of these lexical morphemes of Greek words.

- 3) To what extent does language exposure through engagement in literacy activities influence the narrative abilities of the participants at both the macrostructural and microstructural levels?

Based on the previous studies, we expect that language exposure through engagement in literacy activities (Hammett et al., 2003; Karlsen et al., 2016) will be positively correlated with both the macrostructure and microstructure performance. This is because increased exposure to language and enhanced literacy practices are likely to contribute to more comprehensive storytelling, utilization of complex structures, and greater diversity in nouns and verbs (Dosi & Douka, 2021).

4.2 Participants

This study examined the narrative skills of thirty-six elementary school children aged 9 to 10 years old. This age range was chosen following earlier research (Motsiou, 2014) suggesting that children typically acquire storytelling abilities comparable to adults by this age. The participants were divided into two groups of 18 subjects: a bilingual group (BL), mean age: 9.6, S.D.: 0.4, AoO to Greek, mean age: 4.9, S.D.: 1.2; and the monolingual group (ML), mean age: 9.3, S.D.: 0.8. The BL group comprised



solely late sequential bilinguals, hence the AoO was not considered as a variable in our analyses. The bilingual participants were born in the Rodopi region of Greece, near the Turkish border, where the Greek-Turkish community is notably ghettoized and primarily uses Turkish despite living in Greece. As a result, these children are dominant in Turkish, with Greek as their non-dominant language², which is understandable, as they primarily speak Turkish with their parents and siblings at home. Typically, these children begin to receive more consistent exposure to Greek once they enter kindergarten, usually around the age of four. Recruitment of all participants took place in public schools situated in Greece (central Athens and the Rodopi region). Participants were matched for their socioeconomic status (i.e., maternal education; graduates of junior or senior high school). Additionally, individuals diagnosed with learning difficulties were excluded from the study.

To assess literacy backgrounds, bilingual participants filled out a questionnaire written in Greek detailing their early and current literacy experiences and self-reported their reading and writing skills in both of their languages. Questions about early literacy practices encompass activities like shared book reading during preschool years. However, a limitation of this approach is the absence of a parental questionnaire, which means we could not cross-check the children's responses. Current literacy considerations included language preferences for writing (texting, emailing, writing cards or lists) and reading habits (engaging with books or comics, reading aloud, browsing websites, playing video games). Monolinguals also completed the questionnaire, which included solely questions about their early and current literacy practices in Greek. We conducted a reliability analysis using Cronbach's alpha to evaluate the internal consistency of the questions (for BLs: $\alpha = .864$, indicating high reliability; for MLs: $\alpha = .895$, also indicating high reliability).

The questionnaire results revealed that the BL group spends 55% of their day exposed to print in Turkish (SD: 16.6) outside of school, compared to 35.7% in Greek (SD: 31.5). This pattern was also observed for print exposure before the age of six, with 43.4% of exposure to written language in Turkish (SD: 39.1) compared to 19.6% in Greek (SD: 38.1). Noteworthy is the high standard deviation within each group, indicating that participants had varying levels of exposure to print in each language, ranging from very low to very high³. From the above information, it is not surprising that they consider themselves highly proficient in reading Turkish (91.6%, SD: 19.2), but less proficient in writing Turkish (69.4%, SD: 25.1). Despite attending Greek schools, they rate themselves as less proficient in both reading and writing in Greek (65.7%, SD: 10.9 and 55.2%, SD: 9.8, respectively). Among the ML group, it was found that participants were not consistently exposed to books before the age of six (45.8%, SD: 19.7), with similar results for current print exposure (41.4%, SD: 10.7), indicating a tendency for children to avoid reading books outside of school. Nevertheless, considering their chronological age and reading experience, they view themselves as experienced readers in their L1 Greek (90.6%, SD: 20.2), albeit feeling less proficient in writing (71.9%, SD: 25.6).

² Their dominance is measured by questionnaires, teachers' reports, and the outcomes of Greek standardized vocabulary tests.

³ The questionnaire responses were converted into percentages. Some questions used a scale of rare/sometimes/often/always, which corresponded to values of 0-3 respectively. As a result, not all participants achieved a total score of 100%.



4.3 Materials and methods

4.3.1 The narrative task

The Edmonton Narrative Norms Instrument (ENNI; Schneider et al., 2005) is the tool used to assess narrative skills in children. The ENNI includes two sets of picture stories, "A" and "B", each containing six stories of varying complexity. These stories are designed to elicit narratives from children, allowing researchers to evaluate various aspects of narrative abilities, such as vocabulary, grammar, coherence, and overall narrative structure. For Greek, it was adapted from Andreou (2015). We administered a written narrative task in retelling mode, specifically choosing the B2 story, which involved three characters and was deemed suitable for participants of this age group. More specifically, the story involves a dog and a rabbit who are friends. The rabbit eats too much and becomes ill, prompting the dog to seek help from a doctor rabbit who assists his friend (see Appendix 1). The story encompasses 313 words, including 31 subordinate clauses and 7 coordinate clauses.

4.3.2 Procedure

The story was narrated by the teacher. Initially, children listened to the story while viewing accompanying pictures. Both the BL and ML groups participated in the activity simultaneously. This was done to maintain consistency in the activity's conditions and to ensure that each group's performance was assessed under the same circumstances. Subsequently, they were presented with the pictures and instructed to write a narrative based on the story they had heard. The instructions provided were: "As you listen to the story, observe the corresponding pictures on the whiteboard. Once the story finished, please write down the narrative to the best of your ability". The participants can see the pictures while writing the story. Participants wrote the story individually on paper and they were not allowed to ask for help. They were given a total of 45 minutes for the entire process.

4.3.3 Macro- and microstructure measures

Examining the macrostructure, we assessed story-grammar elements including time, place, character introduction (3 characters), and the narrative structure of episodes following the coding method outlined in Andreou (2015; goal-attempt-outcome for 2 episodes). For time, place and the mention of the characters 0-1 points were given, while for each aspect of the episode they received 2 points. The total score was 17 (see Appendix 2).

For the microstructure analysis, several metrics were considered: (a) narrative length, quantified by word count of the whole text of each participant; (b) The Mean-Segmental Type-Token Ratio (MSTTR) represents the average Type-Token Ratio (TTR) calculated across consecutive 50-word segments of a text (Koizumi & In'nami, 2012); the MSTTR is calculated by dividing the total number of unique words (types) by the total number of words (tokens) within each 50-word segment of the text (lemmatization was performed prior to analysis) (c) noun diversity ratio, calculated by dividing the number of different noun types by the total number of noun tokens within the 50-word segments; (d) verb diversity ratio, calculated by dividing the number of different verb types by the total number of verb tokens across the 50-word segments; (e) syntactic complexity, evaluated by dividing the number of subordinate clauses by the total number of verb clauses throughout the 50-word segments; (f) the



frequency of connective usage (such as conjunctions, prepositions, and adverbs linking sentences, episodes, and their components) within the 50-word segments; (g) the frequency of punctuation marker usage across the 50-word window in a text, (h) stress was assessed based on whether participants accurately placed the stress marker; (i) spelling errors were categorized into lexical, derivational, and inflectional morphemes. These measures were chosen not only because many studies (Diakogiorgi et al., 2021; Dosi & Douka, 2021; Košutar et al., 2022; Paspali, 2023; Wolters & Kim, 2024) have found significant differences between monolinguals and bilinguals, particularly when bilinguals are non-dominant in the language being tested, but also due to specific linguistic features pertinent to the languages in question.

Table 1 summarizes the measures used for macro- and microstructure analysis, as well as the contextual factors considered in this study.

Table 1. Summary of Measures for Macrostructure, Microstructure, and Contextual Factors

Macrostructure	Microstructure	Contextual factors	
Time (setting)	Length	Written Input (before the age of six)	In Greek
Place (setting)	MSTTR		In Turkish (not applicable to the ML group)
Character1 intro	Noun diversity	Written Input (after the age of six; outside schooling)	In Greek
Character2 intro	Verb diversity		In Turkish (not applicable to the ML group)
Episode 1 - goal	Syntactic complexity	Self-Evaluation of Reading Proficiency	In Greek
Episode 1 - attempt	Stress accuracy		In Turkish (not applicable to the ML group)
Episode 1 - outcome	Use of connectives	Self-Evaluation of Writing Proficiency	In Greek
Character3 intro	Use of punctuation		In Turkish (not applicable to the ML group)
Episode 2 - goal	Spelling errors - Inflectional suffixes		
Episode 2 - attempt	Spelling errors - Derivational suffixes		
Episode 2 - outcome	Spelling errors - Lexical morphemes (bases)		

4.4 Statistical data analyses

To address our first and second research questions, we conducted a Multivariate analysis of variance (MANOVA), since data distribution was normal (Shapiro-Wilk Test, $p > 0.05$), setting as dependent



variables the total scores of story-grammar, narrative length, MSTTR, noun and verb diversity, syntactic complexity, use of punctuation and stress markers, and spelling errors into lexical, derivational, and inflectional morphemes and as fixed factors the two groups. For our final research question, we conducted bivariate Pearson correlation analyses separately for each group to explore whether similar contextual factors correlate with corresponding macro- and microstructural aspects. Based on the outcomes of these correlation analyses, we then performed linear (stepwise) regressions for each group individually.

5. Results

5.1 Macrostructure

Both groups demonstrated comparable performance in understanding story-grammar (c.f. Table 2). Specifically, the BL group achieved an average score of 85.3%, while the ML group scored slightly lower at 83.7%. However, no statistically significant differences were observed between the two groups ($F(1,36) = .579, p = .009, \eta^2 = .313$). Upon closer examination of their responses, it was interesting to note that the BL group more frequently referenced the setting of the story (13 out of 18 participants), whereas ML participants tended to omit mentioning the setting more frequently (only 5 out of 18 participants mentioned the setting). Another notable disparity between the two groups is the frequency of mentioning the goal in the second episode, 'The dog hopes that the doctor will help'. Interestingly, this goal was referenced less frequently by the BL group (5 out of 18) compared to the ML group (11 out of 18). However, this particular aspect of the episode was less commonly referenced by both groups in comparison to the attempt. The mention of the outcome in the second episode, 'The rabbit doctor takes a walk with the rabbit', posed some challenges, albeit to a lesser degree compared to the goal of the same episode. Participants noted that the rabbit walked to feel better, yet many omitted mentioning that it was alongside the doctor (4 out of 18 for BLs and 7 out of 18 for MLs referred to this outcome).



Table 2. Macrostructure/Story-Grammar scores for Both Groups (%)

	BL			ML		
	Mean (S.D.)	Min	Max	Mean (S.D.)	Min	Max
Total score	85.3 (11.1)	64.7	100.0	83.7 (9.7)	58.8	100.0
Time (setting)	83.3 (0.4)	0.0	100.0	94.4 (0.2)	0.0	100.0
Place (setting)	72.2 (0.5)	0.0	100.0	27.8 (0.5)	0.0	100.0
Character1 intro	100 (0.0)	100.0	100.0	100 (0.0)	100.0	100.0
Character2 intro	100 (0.0)	100.0	100.0	100 (0.0)	100.0	100.0
Episode 1 - goal	100 (0.0)	100.0	100.0	100 (0.0)	100.0	100.0
Episode 1 - attempt	100 (0.0)	100.0	100.0	100 (0.0)	100.0	100.0
Episode 1 - outcome	100 (0.0)	100.0	100.0	100 (0.0)	100.0	100.0
Character3 intro	100 (0.0)	100.0	100.0	100 (0.0)	100.0	100.0
Episode 2 - goal	27.8 (0.9)	0.0	100.0	61.1 (1.0)	0.0	100.0
Episode 2 - attempt	94.4 (0.5)	0.0	100.0	77.8 (0.9)	0.0	100.0
Episode 2 - outcome	77.8 (0.9)	0.0	100.0	61.1 (1.0)	0.0	100.0

5.2 Microstructure

Table 3 outlines the microstructure scores for both groups. The outcomes of the MANOVA indicated that the two groups differed significantly in narrative length ($F(1,36) = 13.806, p < .001, \eta^2 = .289$), MSTTR ($F(1,36) = 10.689, p = .002, \eta^2 = .239$), noun diversity ($F(1,36) = 10.356, p = .003, \eta^2 = .233$), syntactic complexity ($F(1,36) = 10.079, p = .003, \eta^2 = .229$), and errors in inflectional morphemes ($F(1,36) = 5.961, p = .020, \eta^2 = .149$). Compared to BLs, MLs produced longer narratives with greater lexical and noun diversity, more complex syntactic structures, and fewer errors in inflectional morphemes.

No significant differences were found between the groups in the other aspects of microstructure (verb diversity: $F(1,36) = .861, p = .360, \eta^2 = .025$; stress accuracy: $F(1,36) = .505, p = .482, \eta^2 = .015$; use of connectives: $F(1,36) = .452, p = .506, \eta^2 = .013$; punctuation: $F(1,36) = 1.624, p = .211, \eta^2 = .046$; errors in derivational morphemes: $F(1,36) = .033, p = .856, \eta^2 = .001$; errors in lexical morphemes: $F(1,36) = .039, p = .844, \eta^2 = .001$).



Table 3. Microstructure Scores for Both Groups

	BL			ML			
	Mean (S.D.)	Min	Max	Mean (S.D.)	Min	Max	
Length (raw numbers)	75.5** (16.4)	50.0	104.0	107.1** (32.2)	63.0	218.0	
MSTTR %	53.6** (7.3)	40.0	64.0	62.6** (9.2)	44.8	80.0	
Noun diversity (%)	70.0** (12.6)	41.6	84.0	73.8** (11.2)	50.0	92.3	
Verb diversity (%)	82.7 (13.8)	50.0	100.0	86.8 (12.5)	62.5	100.0	
Syntactic complexity (%)	23.3** (15.5)	0.0	50.0	38.6** (13.4)	12.5	66.7	
Stress accuracy (%)	81.7 (30.3)	0.0	100.0	87.5 (17.4)	28.0	100.0	
Connectives (mean of frequencies)	2.6 (1.4)	0.0	6.0	2.3 (1.1)	1.0	5.0	
Punctuation (mean of frequencies)	2.1 (1.7)	0.0	6.0	2.8 (1.7)	0.0	5.0	
Spelling errors	Inflectional suffixes (raw numbers)	3.1* (2.1)	0.0	9.0	1.6* (1.7)	0.0	6.0
	Derivational suffixes (raw numbers)	0.7 (1.0)	0.0	3.0	0.6 (0.8)	0.0	2.0
	Lexical morphemes (bases; raw numbers)	3.4 (2.5)	0.0	8.0	3.6 (2.5)	0.0	8.0

* for $p < .01$; ** for $p < .001$; the cases without * are non-significant

5.3 Contextual factors & macro- and microstructure

Bivariate correlations were conducted separately for each group since our data had a normal distribution (Shapiro-Wilk Test, $p > 0.05$). In the BL group (Table 4), positive correlations were found between literacy (print exposure) in Greek and syntactic complexity ($r(18) = .499, p = .035$), indicating that increased exposure to written language in the L2 (Greek) leads to the use of more complex sentences. Regression analysis showed that current literacy/print exposure in the L2 predicts 24.9% of the variance in the use of syntactically more complex sentences in the L2 ($R^2 = .249, F(1, 16) = 5.309, p = .035, \beta = .499$). Early literacy in Turkish correlated with noun diversity ($r(18) = .578, p = .012$), suggesting that greater exposure to books in Turkish (L1) before the age of 6 enhances conceptual vocabulary, which in turn correlates with current noun diversity in Greek (L2). Regression outcomes have shown that early literacy practices, specifically print exposure in Turkish, predict 24.9% of the variance in noun diversity ($R^2 = .334, F(1, 16) = 8.031, p = .012, \beta = .578$). Additionally, the use of connectives correlated with self-reported proficiency in writing ($r(18) = .487, p = .040$), meaning that the BLs who consider themselves more proficient in writing tend to use more connectives. Regression analysis shows that self-reports on writing proficiency predict 23.7% of the variance ($R^2 = .237, F(1, 16) = 4.974, p = .040, \beta = .487$).



Table 4. Pearson Correlation Data of Bilingual Group.

	Syntactic complexity	Noun diversity	Connectives
Current literacy in Greek	.499*	-	-
Early literacy in Turkish	-	.578*	-
Proficiency in writing	-	-	.487*

(N = 18; *indicates $p < .05$)

In the ML group (Table 5), literacy, i.e., exposure to print material correlates with fewer spelling errors in inflectional and derivational morphemes ($r(18) = -.484, p = .042$; $r(18) = -.597, p = .009$, respectively). This indicates that increased print exposure leads to fewer spelling errors in these morphemes. Regression analyses revealed that print exposure predicts 23.4% of the variance in accurate spelling of inflectional morphemes ($R^2 = .234, F(1, 16) = 4.900, p = .042, \beta = .484$) and 35.7% of the variance in accurate spelling of derivational morphemes ($R^2 = .357, F(1, 16) = 8.874, p = .009, \beta = .597$).

Table 5. Pearson Correlation Data of Monolingual Group.

	Errors in inflectional morphemes	Errors in derivational morphemes
Current literacy	-.484*	-.597*

(N = 18; *indicates $p < .05$)

6. Discussion

This study aimed to explore the narrative development of young Greek-Turkish bilingual children in comparison to their monolingual Greek peers. Through analysis of written narratives generated via a retelling task, we examined both the macrostructure (overall organization; RQ1) and microstructure (language details; RQ2). Additionally, we aimed to identify potential predictor variables, such as literacy practices and print exposure, for both macro- and microstructure (RQ3).

Our findings reveal interesting insights into the narrative abilities of both groups. Addressing our first research question, our prediction was confirmed: both monolinguals and bilinguals exhibited similar performance in story-grammar (macrostructure), aligning with previous studies (Illuz-Cohen and Walters, 2012; Andreou, 2015; Kupersmitt & Armon-Lotem, 2019). This indicates that, despite being non-dominant in their L2 and having lower vocabulary levels, our participants can accurately refer to aspects of story-grammar (Kapalková et al., 2015; Méndez et al., 2018; Bohnacker et al., 2021; Košutar et al., 2022), suggesting that macrostructure is less language dependent (Kupersmitt & Armon-Lotem, 2019). Though statistical analyses were not conducted for the subcomponents of macrostructure, examining specific story components unveiled some interesting patterns. The bilingual group displayed a higher tendency to mention the place, possibly reflecting a focus on establishing the context for the story. Conversely, the ML group referenced the goal within a particular episode more frequently, similar to the findings of Dosi and Douka (2021). This goal had to do with the hope of the one character that the doctor would help. Both monolingual and bilingual participants omitted verbs indicating mental states and instead emphasized the actions within the narrative (similar to the findings of Andreou, 2015; Dosi & Douka, 2021). Several participants failed to mention that in the resolution (i.e., outcome) of the second episode, the rabbit walked with the doctor rather than alone, possibly



because they emphasized the rabbit's well-being overall and aimed to conclude the story promptly. These observations align with the conclusions drawn by Diakogiorgi et al. (2021), indicating that even at the age of 12, macrostructural aspects of storytelling may not be yet fully developed, and even more so at ages 9-10. This stands in contrast to Motsiou (2014), who suggests that these aspects are fully developed by the age of 9 or 10.

Our second prediction was partially confirmed. As expected, narrative length differed significantly between the two groups, with BL narratives being shorter (Kapia, 2013; Paspali, 2023). This aligns with previous research suggesting that bilingual children may produce briefer narratives due to their lower language proficiency (Bohnacker et al., 2021). It was interesting that in the monolingual group, one participant produced a very lengthy story of 218 words. Lexical diversity also exhibited a similar trend, with the monolingual group producing more unique words compared to bilinguals. This could be attributed to factors like exposure and proficiency in Greek (Košutar et al., 2022; Paspali, 2023). The ML group, with greater exposure and subsequently higher proficiency in L2, may have enhanced their ability to access and utilize a broader vocabulary, leading to the production of more unique words compared to the BL group. Moreover, it was found that monolinguals exhibited greater noun diversity compared to bilinguals (Košutar et al., 2022). The two groups did not differ significantly in their verb diversity, both maintaining a high level of diversity exceeding 80%, similar to the observations made by Dosi and Douka (2021). Syntactic complexity also exhibited differences, consistent with previous research findings (Kapia, 2013; Dosi & Douka, 2021; Košutar et al., 2022; Paspali, 2023), indicating that the BL group used more main clauses. Table 3 reveals that some bilingual participants exclusively use main clauses, lacking any subordinate clauses. Additionally, the observed subordinate clauses are primarily complement clauses, with adverbial clauses being less frequent (similar to the findings of Andreou, 2015). In terms of spelling errors, the bilingual group exhibited a higher frequency, especially in inflectional suffixes, compared to monolinguals (Vettori et al., 2023; Wolters & Kim, 2024). This pattern aligns with the findings of Diakogiorgi et al. (2021), indicating that spelling in inflectional morphemes is transparent and typically acquired within the initial years of exposure to a written system, therefore monolinguals did not encounter problems with spelling in inflectional morphemes. Considering our bilingual participants had limited exposure to Greek and are in the early stages of mastering their L2 (Greek), it is important to note that spelling errors in inflectional morphemes may stem from the continuing stages of literacy development in their L2 (Greek). The lack of significant differences in derivational morphology is possibly attributed to both groups' greater use of simple rather than derivative words. Furthermore, the lack of observed differences in the spelling of lexical morphemes, contrary to our expectations, could be attributed to their inherent unpredictability. This unpredictability remains challenging even for monolinguals due to diachronic changes (Diakogiorgi et al., 2021). It is important to note that some bilingual participants made no spelling errors in inflectional, derivational or lexical morphemes. In the same vein, no significant differences emerged in stress patterns between the two groups, indicating the bilingual children exhibit awareness of stress markers in Greek, their non-dominant language, possibly, since the use of stress markers is an easy area of literacy development (Protopapas et al., 2007). Among bilinguals, there was variability—some used no stress markers while others used them all correctly, resulting in a large standard deviation. However, it is important to note that a similar pattern was observed among monolinguals. No significant



differences were found between the two groups in the use of connectives and punctuation. The former finding indicates that our participants are rather young, and their narrative abilities are still under development (Motsiou, 2014; Diakogiorgi et al., 2021). The latter finding shows that due to their inexperience with written language and its conventions, both groups are not fully aware of how to use punctuation markers and their written productions look similar to their oral ones (Diakogiorgi et al., 2021; Dosi & Douka, 2021).

Our third research hypothesis was not entirely confirmed. With respect to macrostructure, contrary to previous studies (Hammett et al., 2003; Karlsen et al., 2016), we did not find the expected correlations or predictor variables. One possible explanation is that both groups scored very high, and the simplicity of the story – comprising two episodes and three main characters – may have influenced the results. Similarly, Dosi and Douka (2021) did not observe any correlations with a simple story. Using a more complex story in future studies might reveal such correlations. Another explanation is that macrostructure is influenced by cognitive abilities (Karlsen et al., 2016; Andreou & Tsimpli, 2020), which were not assessed in this study, potentially explaining the absence of identified predictor variables. Therefore, this topic remains open for further investigation. Regarding microstructure, our prediction was confirmed, since (early) literacy predicted some of the aspects of microstructure (Andreou, 2015; Karlsen et al., 2016). More specifically, in the bilingual group early literacy in Turkish predicted noun diversity implying that increased exposure to books even in L1 before age 6 boosts conceptual vocabulary, which subsequently correlates with greater noun diversity in L2 (Greek) (similar to Karlsen et al., 2016, Bongartz & Torregrossa, 2017, Dosi & Douka, 2021). Moreover, current literacy in Greek predicted syntactic complexity (Andreou, 2015; Andreou et al., 2020), suggesting that increased exposure to written material in L2 leads to the use of more complex sentences in this language. Moreover, self-evaluation in writing proficiency predicted the use of connectives for bilinguals, suggesting that bilinguals who perceive themselves as more proficient in writing tend to use a greater number of connectives (Chung et al., 2021). It is also important to consider the significant variability in bilinguals' profiles regarding their current print exposure to Greek and their early print exposure to both Greek and Turkish. This variability may have contributed to the absence of correlations and the low percentages of predictor variables. For the monolingual group, literacy impacts spelling, particularly with inflectional and derivational morphemes. Increased exposure to written material boosts spelling in these morphemes. The lack of correlation between literacy and lexical morphemes can be attributed to the complexity and opacity of lexical morphemes in spelling in Greek. Since our participants are young and have limited writing experience, more time may be needed for these correlations to emerge. This issue remains open for further discussion and research.

We acknowledge several limitations in this study. The relatively small sample size restricts the generalizability of our findings, particularly as our bilingual participants were exclusively late sequential bilinguals, limiting the extent to which these outcomes can be generalized. Future studies could benefit from including Greek-Turkish simultaneous or early sequential bilinguals to explore potential differences in performance. Additionally, the limited L2 (Greek) experience of our participants calls for a cautious interpretation of our results, highlighting the need for future research to examine their performance in their non-dominant language for deeper insights into narrative development. Another limitation is our focus on a single retelling task, which may restrict our



understanding of narrative flexibility across different contexts. The typologically distant nature of our language pair may have influenced microstructural aspects; exploring typologically closer language pairs could yield contrasting results. Furthermore, our complexity analysis focused on the main vs. subordinate clause ratio; future research should consider employing the Complexity-Accuracy-Fluency model for a more nuanced analysis. Finally, the teacher's input may have played a role in facilitating the storytelling tasks by providing consistent instructions across both groups. While we controlled for potential bias as much as possible, even minimal facilitation could have impacted performance. Future studies should consider further standardizing instructions or exploring alternative methods to minimize external influence. To achieve a more comprehensive understanding of narrative development in bilingual children, future research should consider all the aforementioned limitations.

7. Conclusion

This study provided valuable insights into the narrative development of Greek-Turkish bilingual children, a less studied language pair, compared to their monolingual Greek peers. While both groups showed similar performance on story-grammar, differences emerged in narrative length, lexical diversity, and more specifically in noun diversity, syntactic complexity and spelling errors in inflectional morphology. Contextual factors, such as exposure to written material and shared book reading, were found to be predictor variables of noun diversity, syntactic complexity, and use of connectives in bilinguals and spelling accuracy in inflectional and derivational morphemes in monolinguals. These findings further verify that macrostructure is language independent, while aspects of microstructure are language dependent and more demanding. Interesting findings include that stressing markers were found to be easy for all participants and punctuation tended to be avoided by all participants. Moreover, spelling accuracy in lexical morphemes was found to be challenging for both groups. The findings enhance our knowledge about written narratives that early and current print exposure is linked with aspects of microstructure for both groups, i.e., vocabulary, syntax and spelling. The present outcomes can be utilized by educators who work with these or similar non-dominant bilinguals with greater typology between their language pairs. Studying bilingual contexts like Greek-Turkish is crucial for understanding less common language pairs. Insights into how bilingual children develop literacy in these contexts can address knowledge gaps and inform educational strategies for diverse bilingual populations.

Declarations and Acknowledgment:

We thank the children who participated in this study, along with their parents or caregivers who provided their consent. We also extend our appreciation to the teachers and directors who facilitated their participation and our data collection. Our sincere thanks go to the two anonymous reviewers whose comments have significantly enhanced the quality of this manuscript. The authors declare no competing interests.



References

- Aksu-Koç, A., & Aktan Erciyes, A. (2018). Narrative discourse: Developmental perspectives. In A. Bar-On & D. Ravid (Eds.), *Handbook of communication disorders* (pp. 329–356). De Gruyter Mouton. <https://doi.org/10.1515/9781614514909-017>
- Andreou, M. (2015). *The effects of bilingualism on verbal and non-verbal cognition: The micro- and macro-structure of narratives in the weak and the dominant language of the bilingual child* [Unpublished PhD Thesis]. Aristotle University of Thessaloniki.
- Andreou M., Dosi, I., Papadopoulou, D. & Tsimpli, I. M. (2020). Heritage and Non-heritage Bilinguals: the Role of Biliteracy and Bilingual Education. In Brehmer, B. & Treffers-Daller, J., *Studies in Bilingualism*, 59, pp. 172–196. Amsterdam: John Benjamins. <https://doi.org/10.1075/sibil.59.07and>
- Andreou, M., & Tsimpli, I. (2020). Bilingualism, biliteracy and syntactic complexity: The role of crosslinguistic influence and cognitive skills. In A. Cardinaletti, C. Branchini, G. Giusti, & F. Volpato (Eds.), *Language acquisition, processing and bilingualism: Selected papers from the Romance Turn VII* (pp. 132–159). Cambridge Scholars Publishing.
- Bitetti, D., Hammer, C. S., & López, L. M. (2020). The Narrative Macrostructure Production of Spanish-English Bilingual Preschoolers: Within-and Cross-Language Relations. *Applied psycholinguistics*, 41(1), 79–106. <https://doi.org/10.1017/s0142716419000419>
- Bitetti, D., Hammer, C. S., & López, L. M. (2019). The narrative macrostructure production of Spanish–English bilingual preschoolers: Within- and cross-language relations. *Applied Psycholinguistics*, 41(1), 79–106. <https://doi.org/10.1017/S0142716419000419>
- Bohnacker, U. & Lindgren, J. & Oztekin, B. (2021). Storytelling in bilingual Turkish-Swedish children: Effects of language, age and exposure on narrative macrostructure. *Linguistic Approaches to Bilingualism*, 12 (4), 479 - 508. <https://doi.org/10.1075/lab.20020.lin>
- Bongartz, C., & Torregrossa, J. (2017). The effects of balanced biliteracy on Greek-German bilingual children’s secondary discourse ability. *International Journal of Bilingual Education and Bilingualism*. <http://dx.doi.org/10.1080/13670050.2017.1355888>
- Bulté, B., & Housen, A. (2018). Syntactic complexity in L2 writing: Individual pathways and emerging group trends. *International Journal of Applied Linguistics*, 28(1), 147-164. <https://doi.org/10.1111/ijal.12196>
- Chan, A., Chen, S., Hamdani, S., Tse, B., & Cheng, K. (2023). Story telling in bilingual Urdu– Cantonese ethnic minority children: Macrostructure and its relation to microstructural linguistic skills. *Frontiers in Psychology*, 14, 924056. <https://doi.org/10.3389/fpsyg.2023.924056>
- Chung, H. Q., Chen, V., & Olson, C. B. (2021). The impact of self-assessment, planning and goal setting, and reflection before and after revision on student self-efficacy and writing performance. *Reading and Writing*, 34, 1885–1913. <https://doi.org/10.1007/s11145-021-10186-x>
- De Houwer, A. (2014). The absolute frequency of maternal input to bilingual and monolingual children: A first comparison. In T. Grüter & J. Paradis (Eds.), *Input and experience in bilingual development* (pp. 37–58). Amsterdam: John Benjamins. <https://doi.org/10.1075/tilar.13.03deh>
- Diakogiorgi, K., Filippatou, D., Ralli, A. M., Chrysochoou, E., Roussos, P., & Dimitropoulou, P. (2021). Writing skills of children with and without dyslexia: similarities and differences. *Psychology: The Journal of the Hellenic Psychological Society*, 26(1), 102–120. https://doi.org/10.12681/psy_hps.26251
- Dosi, I., & Douka, G. (2021). Effects of language proficiency and contextual factors on second language learners’ written narratives: A corpus-based study. *International Journal of Research Studies in Education*, 10(5), 1-18. <https://doi.org/10.5861/ijrse.2021.5076>
- Dosi, I., Papadopoulou, D., & Tsimpli, I. (2016). Linguistic and Cognitive Factors in Elicited Imitation Tasks: A Study with Mono- and Biliterate Greek-Albanian Bilingual Children. In *Proceedings of the annual Boston University Conference on Language Development* (40). Somerville, MA: Cascadilla Press.



- Gagarina, N., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Bohnacker, U., & Walters, J. (2019). MAIN: Multilingual assessment instrument for narratives–Revised. *ZAS Papers in Linguistics*, 63, 20-20. <https://doi.org/10.21248/zaspil.63.2019.516>
- 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, 1–155. <https://doi.org/10.21248/zaspil.56.2019.414>
- Göksel, A., & Kerslake, C. (2005). *Turkish: A Comprehensive Grammar*. Routledge.
- Grosjean, F. (1989). The bilingual as a person. In R. Titone (Ed.), *On the bilingual person*. Ottawa: Canadian Society for Italian Studies.
- Hammett, L. A., Van Kleeck, A., & Huberty, C. J. (2003). Patterns of parents' extratextual interactions during book sharing with preschool children: A cluster analysis study. *Reading Research Quarterly*, 38(4), 442–468. <https://doi.org/10.1598/RRQ.38.4.2>
- Heilmann, J., Miller, J. F., & Nockerts, A. (2010). Sensitivity of narrative organization measures using narrative retells produced by young school-age children. *Language Testing*, 27(4), 603-626. <https://doi.org/10.1177%2F0265532209355669>
- Horrocks, G. (2010). *Greek: A History of the Language and Its Speakers*. John Wiley & Sons.
- Housen, A., Kuiken, F., & Vedder, I. (2012). Complexity, accuracy and fluency. *Dimensions of L2 performance and proficiency: Complexity, accuracy and fluency in SLA*, 32, 1-20. <https://doi.org/10.1075/llt.32>
- 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. <https://doi.org/10.1017/S1366728911000538>
- Joseph, B. D. & Philippaki-Warbuton, I. (1987). *Modern Greek*. (Croom Helm Descriptive Grammars Series.) London / New York: Croom Helm.
- Kapalková, S., Polišíenská, K., Marková, L., & Fenton, J. (2016). Narrative abilities in early successive bilingual Slovak–English children: A cross-language comparison. *Applied Psycholinguistics*, 37(1), 145-164. <https://doi.org/10.1017/S0142716415000454>
- Kapia, E. (2013). Assessing narrative development in bilingual first language acquisition: What can we learn from monolingual norms? In J. Duarte & I. Gogolin (Eds.), *Linguistic superdiversity in urban areas: Research approaches* (pp. 179–190). Amsterdam: John Benjamins.
- Karlsen J., Geva, E., & Lyster, S.-A. (2016). Cognitive, linguistic, and contextual factors in Norwegian second language learner's narrative production. *Applied Psycholinguistics*, 37(5), 1117–1145. Cambridge: Cambridge University Press. <https://doi.org/10.1017/S014271641500051X>
- Keefe, E. B., & Copeland, S. R. (2011). What is Literacy? The Power of a Definition. *Research and Practice for Persons with Severe Disabilities*, 36(3-4), 92-99. <https://doi.org/10.2511/027494811800824507>
- Koizumi, R., & In'nami, Y. (2012). Effects of text length on lexical diversity measures: Using short texts with less than 200 tokens. *System*, 40(4), 554-564. <https://doi.org/10.1016/j.system.2012.10.012>
- Košutar, S., Kramarić, M., & Hržica, G. (2022). The relationship between narrative microstructure and macrostructure: Differences between six-and eight-year-olds. *Psychology of Language and Communication*, 26(1), 126-153. <https://doi.org/10.2478/plc-2022-0007>
- Kupersmitt, J. R., & Armon-Lotem, S. (2019). The linguistic expression of causal relations in picture-based narratives: A comparative study of bilingual and monolingual children with TLD and DLD. *First Language*, 39(3), 319–343.
- Lewis, G. L. (2002). *The Turkish Language Reform: A Catastrophic Success*. Oxford University Press.
- Meisel, J. M. (2009). Second language acquisition in early childhood. *Zeitschrift für Sprachwissenschaft*, 28,5–34. <https://doi.org/10.1515/ZFSW.2009.002>



- Méndez, L. I., Perry, J., Holt, Y., Bian, H., & Fafulas, S. (2018). Same or different: Narrative retells in bilingual Latino kindergarten children. *Bilingual Research Journal*, 41(2), 150-166. <https://doi.org/10.1080/15235882.2018.1456984>
- Motsiou, E. (2014). *Introduction to Language Development* [in Greek]. University Studio Press: Thessaloniki.
- Paspali, A. (2023). The Greek and German narrative micro-structure of heritage speakers: A corpus study. *Journal of Applied Linguistics*, 36, 75-98. <https://doi.org/10.26262/jal.v0i36.9914>
- Protopapas, A., Gerakaki, S., & Alexandri, S. (2007). Sources of information for stress assignment in reading Greek. *Applied Psycholinguistics*, 28(4), 695-720. <https://doi:10.1017/S0142716407070373>
- Purba, R. (2018). Improving the achievement on writing narrative text through discussion starter story technique. *Advances in Language and Literary studies*, 9(1), 27-30. <http://dx.doi.org/10.7575/aiac.all.v.9n.1p.27>
- Ralli, A. (2005). *Μορφολογία* [Morphology]. Athens: Patakis.
- Rodina, Y. (2017). Narrative abilities of preschool bilingual Norwegian-Russian children. *International Journal of Bilingualism*, 21(5), 617-635.
- Rothweiler, M. (2006). The acquisition of V2 and subordinate clauses in early successive acquisition of German. In C. Lleo (Ed.), *Interfaces in multilingualism* (pp. 91-113). Amsterdam: John Benjamins. <https://doi.org/10.1075/hsm.4.05rot>
- Rydland, V., Grøver, V., & Lawrence, J. (2014). The second-language vocabulary trajectories of Turkish Effects of language proficiency and contextual factors on second language learners' written narratives immigrant children in Norway from ages five to ten: The role of preschool talk exposure, maternal education and co-ethnic concentration in the neighborhood. *Journal of Child Language*, 41, 352-381. <https://doi.org/10.1017/S0305000912000712>
- Sánchez Abchi, V., & De Mier, V. (2017). Syntactic complexity in narratives written by Spanish heritage speakers. *Vigo International Journal of Applied Linguistics*, 14, 125-148.
- Squires, K. E., Lugo-Neris, M. J., Peña, E. D., Bedore, L. M., Bohman, T. M., & Gillam, R. B. (2014). Story retelling by bilingual children with language impairments and typically developing controls. *International journal of language & communication disorders*, 49(1), 60-74. <https://doi.org/10.1111/1460-6984.12044>
- Tsimpli, I. M. (2014). Early, late or very late? *Linguistic Approaches to Bilingualism*, 4, 283-313. <https://doi.org/10.1075/lab.4.3.01tsi>
- Tsimpli, I. M., Peristeri, E., & Andreou, M. (2016). Narrative production in monolingual and bilingual children with specific language impairment. *Applied Psycholinguistics*, 37(1), 195-216. <https://doi.org/10.1017/S0142716415000478>
- Ulu, H. (2019). Investigation of Fourth Grade Primary School Students' Creative Writing and Story Elements in Narrative Text Writing Skills. *International Journal of Progressive Education*, 15(5), 273-287. <https://doi.org/10.29329/ijpe.2019.212.18>
- Unsworth, S. (2014). Comparing the role of input in bilingual acquisition across domains. In T. Grüter, & J. Paradis (Eds.), *Input and experience in bilingual development* (pp. 181-201). Amsterdam: John Benjamins. <https://doi.org/10.1075/tilar.13.10uns>
- Vettori, G., Incognito, O., Bigozzi, L. & Pinto, G. (2023). Relationship between lexical, reading and spelling skills in bilingual language minority children and their monolingual peers. *Frontiers in Psychology*, 14:1121505. <https://doi.org/10.3389/fpsyg.2023.1121505>
- Wiese, H., Alexiadou, A., Allen, S., Bunk, O., Gagarina, N., & Iefremenko, K. (2022). Heritage speakers as part of the native language continuum. *Frontiers in Psychology*, 12, 717973. <https://doi.org/10.3389/fpsyg.2021.717973>



Wolters, A.P., & Kim, Ys.G. (2024). Crosslinguistic influence on spelling in written compositions: Evidence from English-Spanish dual language learners in primary grades. *Reading & Writing*, 37, 1059–1078. <https://doi.org/10.1007/s11145-023-10416-4>

About the Authors:

Prof. Dr. Ifigeneia Dosi, Assistant Professor of Applied Linguistics at Democritus University of Thrace, works on bilingual language development. She was awarded an IKY scholarship for her research on word definition strategies in children with language disorders. With a focus on bilingual children's language and cognitive development, she has published in high-impact scientific journals. Additionally, she has provided training for educators working with refugees and heritage speakers. Her research interests center on studying the language development of bilingual children, examining the interplay of cognitive and environmental factors in both typical and atypical development.

Eleni Kouki is a PhD candidate in Applied Linguistics at Democritus University of Thrace and an elementary school teacher. Her research focuses on the interplay of lexical development, working memory and contextual factors in bilingual/multilingual children within minority educational communities. She is also interested in implementing intervention programs aimed at fostering language development, addressing learning challenges, and promoting inclusion.

Anastasia Lada is a PhD candidate and Pedagogical Assistant for the Multilingual Bachelor in Linguistics and Literary studies at the VUB. Her expertise lies within the field of language psychology and pathologies. Currently, she is working on idiom comprehension in monolingual and bilingual (Greek-Dutch, English-Dutch) ageing populations and monolingual patients with Alzheimer's disease.

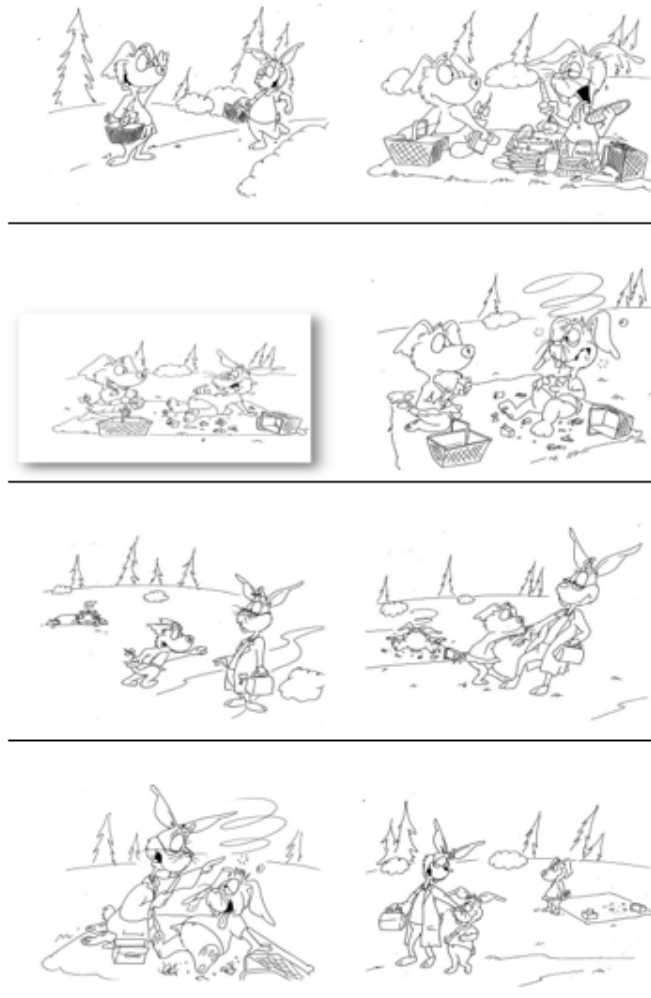
Prof. Dr. Stefanie Keulen is an Assistant Professor in research methodology, psycho- and neurolinguistics at the Vrije Universiteit Brussel since 2019. Her expertise lies within the field of language psychology and pathologies. She has done research and published on various speech and language disorders in children, young adults and elderly alike, in a variety of high-impact scientific journals. Her PhD research on the Foreign Accent Syndrome was awarded the Vanderschueren prize for best PhD in Humanities at the Vrije Universiteit Brussel between 2016-2022. She is also a handling editor at *Frontiers in Communication*.



Appendix 1.

The pictures of the story that were presented to the participants (Andreou, 2015: 354).

B2 story



Appendix 2.

The macrostructure (story-grammar) was measured based on Andreou (2015: 342).

No B2	Story-Grammar Aspect	Picture No.	English	Score
1	Setting-Time	1	e.g. once upon a time, one day etc.	0 1
2	Setting-Place	1	e.g. in a park/ in the forest/ on a path	0 1
3	Character 1 introduction	1	a rabbit boy/boy/rabbit	0 1
4	Character 2 introduction	1	a dog girl/ girl/ dog	0 1
Episode 1				
5	Goal	2	R. and D. want to have a picnic.	0 2
6	Attempt	2/3	R. eats everything as fast as he can.	0 2
7	Outcome	4	R. is finished very fast and has eaten a lot of food	0 2
Episode 2				
8	Character 3 introduction	5	A rabbit doctor walks by/ appears/ passes	0 1
9	Goal	5/6	D. hopes that the doctor will help.	0 2
10	Attempt	7	The doctor examines the rabbit / realizes what the problem is	0 2
11	Outcome	8	The rabbit doctor takes a walk with R.	0 2

