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Expository and Narrative Texts**

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The Development of Productivity and Syntactic Complexity in Modern Greek Expository and Narrative Texts

Vicky Kantzou,¹ National and Kapodistrian University of Athens, Greece

Abstract: Expository discourse, i.e., the use of language to communicate information about a topic, calls upon users' advanced language skills, thus offering a unique opportunity to study later language development. Furthermore, exposition is of enormous importance in education, closely related to academic success. Nevertheless, research examining the developing ability of students to produce expository texts is relatively recent, and for Modern Greek quite limited. Relevant studies have indicated that the development of the linguistic skills necessary for mature expository text production is a process that develops gradually, all through adolescence into adulthood. This cross-sectional study investigates the developmental trajectories of two expository and one narrative text in Modern Greek, and probes into productivity and syntactic complexity at both clausal and subclausal level. Three written texts were elicited from students aged 10, 13, and 16 years, as well as adults aged 25–35 years. Results revealed that the younger participants produced shorter expository than narrative texts. However, with age, expositions became longer and reached the narrative in length. With regard to syntactic complexity, expository writing gave even young learners the opportunity to unfold more advanced language skills than narrative writing. However, age did not lead to an increase in subordinate clause use in either of the expository texts. Subclausal syntactic complexity proved more sensitive in capturing age-related progress in these texts. Overall, it was revealed that the development of mature expository skills is complex, continues into adulthood and has distinct characteristics for each expository text. Finally, in narratives, syntactic complexity increased with age at both the clausal and subclausal level. These results are discussed in terms of the cognitive demands each text type creates on language users, and future research directions are suggested.

Keywords: Language Development, Modern Greek, Expository Discourse, Narrative Discourse

Introduction

Research in the field of language development had initially focused on the first years of life. The fact that preschool children can produce multiclausal, well-formed sentences when interacting with their caregivers, siblings, and friends can give the impression that they have already completed the acquisition of their native language. However, the last decades of research have shown that the development of mature language skills is a process that continues all through childhood and into adolescence (Berman 2004; Nippold 2016; Scott 2004). In order to study the growth of language skills in older children and adolescents, research needs to focus on discourse types that present an opportunity for language users to unfold their full language potential. Expository discourse, namely the use of language to convey information, is a cognitively challenging task that requires learners to express abstract thoughts and use more elaborate and complex language. Therefore, tasks that elicit expositions well suit the purposes of research on later language development. Relevant studies have utilized such tasks in parallel with tasks that require participants to produce narrative or conversational discourse and have shown that expositions elicit longer and syntactically more complex sentences (Nippold 2010).

At the same time, expository texts are of interest in relation to education and academic success. The educational system is based on the comprehension and production of texts that present and analyze information. In the US, for instance, expository texts are introduced from the fourth grade onwards when a curriculum shift takes place, and this genre becomes the primary vehicle for curriculum content. What is more, it has been claimed that the observed fourth-grade

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slump in reading comprehension may be related to the fact that students are finding expository texts difficult to make meaning of (Snyder and Caccamise 2009). In the Greek educational system, the difficulty imposed by the expository genre has been recognized by scholars. Matsagouras (2004, 2007) has suggested that it should be gradually introduced, starting with the school subject of history, given that history includes narratives which are already familiar to the students.

Despite these very strong reasons for studying expository text production, scholars have only recently started to delve into its development (Lundine and McCauley 2016; Nippold 2010). With the aim of contributing to this line of research, this study focuses on the development of written expository discourse in Modern Greek, a language that has not been investigated in this respect. It investigates expository text production in comparison to narrative text production since narratives are a genre with which children are familiarized from an early age (Nelson 1989).

Expository Discourse: Characteristics and the Study of its Development

Grabe (2002) has identified expository discourse as a “macrogenre,” juxtaposing it with narrative discourse. Narratives are agent oriented; they are organized around entities, their actions, and the motives of these actions. They consist of sequences of events temporally and causally related (Berman and Slobin 1994; Hickmann 2003). The prototypical narrative macrostructure includes structural elements like the setting, the initiating events, the internal responses, the attempts, and the direct consequences (Stein and Glenn 1979). Expository texts, on the other hand, represent our knowledge categorized and organized in hierarchical schemes (Grabe 2002; Mosenthal 1985). They present considerable variety with regard to their macrostructure. Lundine and McCauley (2016), in a comprehensive overview of the relevant literature, have identified at least six subtypes: descriptive, procedural, enumerative, cause/effect, compare/contrast, and problem/solution.

Exposition presents certain linguistic characteristics which add to the complexity of the genre (Lundine and McCauley 2016). It involves the use of low-frequency abstract words; it displays great lexical density and diversity in comparison to conversational or narrative discourse; and it contains more complex syntactic structures, like nominalization and extended noun phrases. Extensive use of clause packaging through subordination is considered another key feature of these types of texts. Furthermore, adverbial subordinate clauses often precede the main clause, in an effort to highlight the structure and importance of information (Lundine and McCauley 2016; Scott and Balthazar 2010).

Research in language development has shown that narrative skills are already established in later childhood (Hickmann 2003; Justice et al. 2006; Schneider, Hayward, and Vis Dubé 2006), although they continue to be refined until adulthood (Berman and Slobin 1994; Hickmann 2003). Expository discourse, on the other hand, develops through adolescence into adulthood (Berman and Verhoeven 2002; Berman and Katzenberger 2004; Tolchinsky, Johansson, and Zamora 2002). Productivity, for instance, has been shown to increase greatly between late childhood and early adolescence (Berman and Verhoeven 2002; Nippold and Sun 2010; Ravid, Dromi and Kotler 2010). Moreover, expository text construction at the global level develops more slowly than narrative text construction (Berman and Nir-Sagiv 2007).

Central to the investigation of expository discourse development has been the notion of syntactic complexity, given that it is among the key features of this genre. Focusing on the clausal level, relevant studies have utilized the notion of a T-unit (terminable unit) when examining written text samples. A T-unit consists of the main clause and any attached subordinate clauses (Hunt 1965). On the basis of the T-unit, several indices can be calculated, among which clausal density (CD), i.e., the average number of clauses per T-unit, is the commonest. This measure reflects the extent to which subordination is used by learners (Nippold 2010). It has been found that with increasing age learners pack more information in their T-units.

More specifically, Verhoeven et al. (2002) compared 10-year-old children and adult speakers of five languages, i.e. Dutch, English, French, Spanish, and Hebrew, and found that the children used subordination to a greater extent in their expositions than in their narratives, but they had a long way to go until reaching the level of skills demonstrated by adults as far as packaging information in T-units was concerned. In another study, Nippold et al. (2005) compared the syntactic complexity of conversational and spoken expository discourse in speakers ranging from 7 to 49 years of age. The results indicated that the expository discourse elicited more subordinate clauses per T-unit in all age groups, but no age effect was found on CD, a result that contradicts the findings of the Verhoeven et al. (2002) study. Looking further into this “unexpected” finding, as the researchers describe it (Nippold et al. 2005, 1057), Nippold, Mansfield, and Billow (2007) studied the syntactic development of expository discourse elicited by two different tasks, the peer conflict resolution (PCR) task, in which participants were asked to comment on the broader subject of human relationships, and the favorite game or sport (FGS) task, in which they were expected to explain the rules and best strategies of their favorite game or sport. The researchers’ purpose was to investigate whether syntactic complexity differed in the two tasks. Their sample included participants aged 11 and 17 years old as well as adults aged 20 to 28 years. The results indicated age-related differences only on the PCR task, while CD was greater on the PCR task than the FGS task for all age groups. Therefore, although both tasks proved successful in challenging participants to use complex structures at the clausal level, they presented clear differences in the degree of complexification they elicited.

Deepening the investigation into complexification at a clausal level, it has been claimed that subordination includes at least three distinct processes, which may follow different developmental paths: a) use of nominal clauses as complements; b) adverbial modification of superordinate verbs; and c) noun modification through the use of relative clauses (Lambert and Kormos 2014). Indeed, Verhoeven et al. (2002) found that relative clauses, “that” complements and conditionals were used more often in expositions than in narratives produced by both children and adults. Moreover, the adults used more relative clauses in their texts than the children, although crosslinguistic differences appeared in the frequency of relative clauses. Likewise, Nippold et al. (2005) found that all types of subordinate clauses, i.e., nominal, adverbial, and relative, were used more often in exposition than in narration. However, in exposition, an age-related increase was obtained only for relative clauses. Nippold, Mansfield and Billow (2007) found an increase in relative and nominal clause use with age, but the use of adverbial clauses remained the same across ages. When examining the differences in the expository discourse elicited through the two different tasks, the PCR was found to elicit greater use of nominal clauses than the FGS task.

Subordination, as mentioned, is not the only process of text complexification. At the subclausal level, phrases can be elaborated through modification. Mean clause length (MCL) is a measure capable of capturing developmental differences at the phrasal level (Norris and Ortega 2009, Beers and Nagy 2010). Ravid (2005) compared narrative and expository texts on a variety of topics produced by children, adolescents, and adults at various ages. The picture emerging from the examination of all the subcorpora in her corpus is that expository texts tend to contain longer clauses than narratives as early as grade school. Moreover, MCL remained more or less the same in narratives, especially after adolescence, while it continued to grow into adulthood for expositions. Investigating further into the complexification at a subclausal level, Ravid and Berman (2010) studied noun phrase structure and content. Using a sophisticated method of noun phrase categorization, they concluded that noun phrase complexity increased with age in both genres, but the increase was more prominent in written expositions, especially from high school up.

In this context, the fact that expository texts cover an indefinite number of topics and present many differences in macrostructure raises concerns about whether the findings from one type and topic could be generalized to the expository genre in general (Nippold 2005, 2010). The

differentiations identified in the relevant literature call for careful scrutiny of the impact different topics and macrostructures have on the linguistic choices made by language users. Therefore, relevant investigations need to expand and include multiple types of expository texts. This study probes into monolingual language development and investigates the developmental paths of two written expository texts in comparison to a narrative text in Modern Greek. The focus is on syntactic complexity at both the clausal and subclausal level as well as on productivity, with the aim to identify how they vary as a function of age and topic. In particular, this study addresses the following questions:

1. What are the developmental changes:
 - a. In productivity, as measured by the number of total words per text?
 - b. In syntactic complexity as measured by CD and MCL?
 - c. In the type of subordinate clauses used?
2. How do these indices differ in narrative and expository texts? Are there any differences between the two expository texts and how can they be accounted for?

Method

Participants

A total of sixty-four individuals participated in this study, including three groups of monolingual children and adolescents aged 10, 13, and 16 years, and one group of adults. The children and adolescents were students of public schools in Athens, Greece, i.e., fourth grade of elementary school, first grade of junior high school (Gymnasium), and first grade of senior high school (Lyceum), respectively. The groups of children/adolescents comprised sixteen participants each, eight girls and eight boys. Students with a diagnosed learning difficulty were not included in the sample. The adult group comprised sixteen individuals aged 25 to 35 (mean 27.6) years, who had completed four to five years of formal education after high school. This group consisted of four men and twelve women.

Gender representation in the sample was equal for all the children and adolescent groups. However, it proved particularly difficult to recruit adult male participants in the study, as many of those approached to participate either refused to or completed only one or two of the texts. These participants were not included in the sample. As a result, the adult group was not balanced for gender. Nevertheless, in previous studies gender did not prove to be a significant factor in expository discourse development (Berman and Verhoeven 2002; Nippold et al. 2005). Therefore, it seems unlikely to have influenced this study's results.

Procedure

All participants were asked to produce three written texts as a response to three different topics selected to elicit two expository texts and one narrative. The first topic was "What are the characteristics of a good friend?" and participants were expected to produce an expository text with a descriptive macrostructure. For the second expository text, the following topic was given: "People produce increasingly more garbage. Describe the problem. Are there any solutions to this problem?" This topic aimed at eliciting an expository text with a problem/solution macrostructure. Lastly, the narrative text involved participants' personal experiences and was elicited through the following topic "Have you ever had a quarrel with a friend? What happened? Write the story," which explicitly stated the type of text that was expected from the participants.

Given that knowledge about the topic can impact language production in expository texts (Nippold 2010), the selection of topics took into consideration the school curriculum. All topics were among those students engage with at school. Especially in the case of the 10-year-olds, the

researcher gave students the assignments in consultation with the class teacher, only after students had gone over the relevant school material and discussed the topics in class.

While no time or word limit existed, participants were given a double-sided A4 sheet of paper for every text and were instructed that they could have more paper to write on if they needed it. This worked as an indication of the text length expected from them. All written samples were collected in the spring of the academic year 2017–2018. With regard to the student groups, the procedure took place at school during school hours. The researcher had previously obtained a relevant permission from the Hellenic Ministry of Education, Research and Religious Affairs. The students worked alone, and they were instructed not to refer to any material while writing. Texts were written on different days, so as to avoid the fatigue factor. Moreover, both the students and their legal guardians had been informed of the voluntary nature of the study and the anonymity of responses. Finally, general information about the purpose of the study had been communicated, but the participants did not know what aspects of the texts they produced were of interest to the researcher. The adults wrote the texts at a time and place of their convenience. They were also instructed not to consult any source material before or while writing.

Data Annotation and Analysis

Participants' written productions were digitized and annotated using the tools offered by the CHILDES project (MacWhinney 2000). All texts were divided into T-units, which were afterward annotated with regard to the type of clauses (i.e., main or subordinate) they contained. This annotation allowed us to calculate CD. Additionally, MCL was calculated for all texts and all age groups.

Finally, each instance of a subordinate clause was manually coded with regard to its subtype. To this end, the categorization proposed by Holton, Mackridge, and Filippaki-Warburton (2012) was used. Subsequently, the individual categories were merged into the three basic types of subordinate clauses, i.e., relative, nominal, and adverbial, as shown in Table 1. It should be noted that in Modern Greek complement clauses are all finite, unlike the English language, for example, where an infinitival complement is available. Therefore, the use of nominal clauses was expected to be extensive in all age groups.

Table 1: The Subordinate Clauses' Annotation Scheme

<i>Subordinate clauses</i>	
<i>Relative clauses</i>	Relative clauses
<i>Nominal clauses</i>	Indirect questions Indirect commands Complement clauses
<i>Adverbial clauses</i>	Adversative and concessive clauses Conditional clauses Temporal clauses Clauses of manner Clauses of purpose Clauses of result Causal clauses

Source: Kantzou

With regard to the statistical analysis, all datasets were tested for normality using the Shapiro-Wilk W normality test, since the sample size was $n < 30$. The one-way analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences between the means of the age groups for each variable. Tukey's or Games-Howell post hoc tests were conducted to specify the nature of any main effects. The Games-Howell post hoc test was appropriate when the equal variances assumption was violated, and the Tukey's post

hoc test was appropriate when the equal variances assumption was not violated. In cases where the assumptions of normality were violated, the nonparametric Kruskal-Wallis test was used to determine statistical differences between the four age groups regarding the variables. The Dunn-Bonferroni test was used for further comparison between any two groups. Finally, repeated measures ANOVA were applied to determine the effect of text topic within each age group. All the statistical tests were performed at the statistical significance level of 5 percent.

Results

Productivity

Productivity was calculated in terms of the total number of words produced, a measure that is commonly used in this line of research (Berman and Verhoeven 2002; Nippold and Sun 2010; Scott and Windsor 2000). The results are presented in Table 2. To assist the reader visualize the data, Figure 1 shows the development in text length for all texts across our sample. The Kruskal-Wallis test indicated significant differences between the age groups for both the narrative and the expository text on the garbage problem (the fight $\chi^2 = 30.311$, $p < 0.001$; the garbage problem $\chi^2 = 41.258$, $p < 0.001$). Additionally, ANOVA indicated a main effect of age for the expository text on the qualities of a good friend ($F(3, 60) = 22.073$, $p < 0.001$,). Post hoc comparisons for the narrative revealed that the texts produced by the 10-year-olds were significantly shorter than the ones produced by all other groups (10- vs. 13-year-olds $p = 0.008$; 10- vs. 16-year-olds $p = 0.030$; 10-year-olds vs. adults $p < 0.001$). The post hoc comparisons for both the expository texts indicated that the groups of children, i.e., the 10- and 13-year-olds, differed significantly from each other, the 16-year-olds, and the adults, but no significant difference was obtained between the 16-year-olds and the adults.

Table 2: Means and Standard Deviations of Total Word Production in the Narrative (N) and the Expository Texts (E)

	<i>Age</i>	<i>Mean</i>	<i>Std. Deviation</i>
<i>The fight (N)</i>	10	99.31	40.06
	13	236.31	119.37
	16	261.13	156.61
	Adults	363.63	204.67
<i>A good friend (E)</i>	10	93.75	42.64
	13	134.00	48.36
	16	224.25	61.25
	Adults	314.81	157.74
<i>The garbage problem (E)</i>	10	68.56	29.18
	13	165.25	110.97
	16	257.13	106.10
	Adults	359.25	160.81

Source: Kantzou

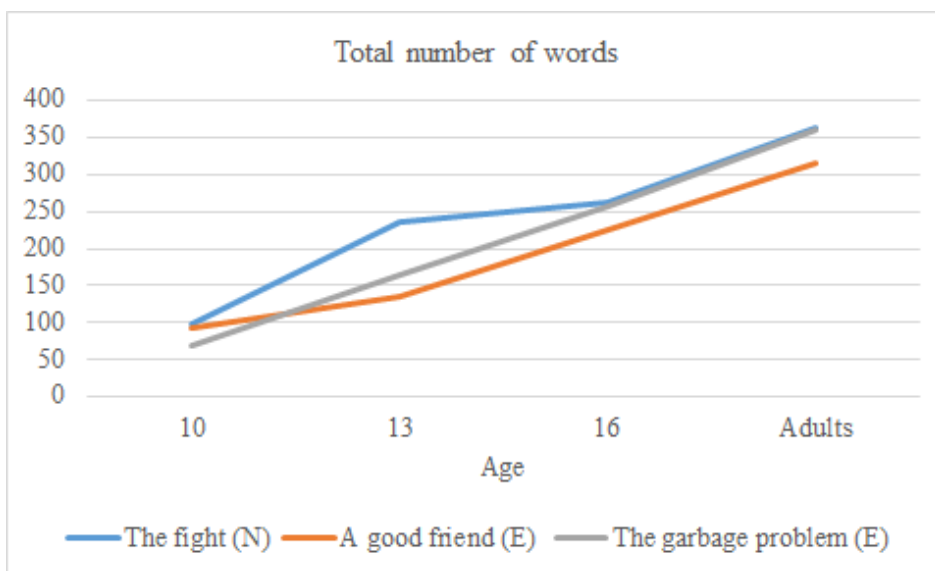


Figure 1: Mean total words per text for narrative (N) and expository texts (E) for each age group
 Source: Kantzou

With regard to the effect of text topic on productivity within each age group, statistical analysis revealed a main effect only for the children's groups, the 10- and the 13-year-olds ($F(2, 30) = 5.242$, $p\text{-value} = 0.011$, $F(2, 30) = 7.527$, $p\text{-value} = 0.002$, respectively). Post hoc analysis for the 10-year-olds indicated that the expository text on the garbage problem was significantly shorter than both the narrative ($p = 0.024$) and the second expository text ($p = 0.037$). In the 13-year-old group, the expository text on the qualities of a good friend was significantly shorter than the narrative ($p = 0.006$). Taken together, these results indicate that the narratives remained more or less the same in length after the age of 13 years. Expository texts, on the other hand, kept increasing in length until adolescence. Moreover, the expository texts of the younger participants lagged behind the narrative in length.

Clausal Density

With regard to syntactic complexity, the first measure calculated was CD and the relevant results are presented in Table 3. Furthermore, Figure 2 visually illustrates the development of CD for each text produced by children and adults across our sample. The Kruskal-Wallis test indicated a main effect of age for the narrative text ($\chi^2 = 28.973$, $p < 0.001$). Post hoc analysis revealed that the 10-year-olds and 13-year-olds did not significantly differ from each other, but they differed significantly from the other two groups, i.e., the 16-year-olds and the adults. With regard to the expository texts, in Figure 2 one can see that the 13-year-olds produced T-units with greater CD in the expository text on the qualities of a good friend than all other age groups. However, statistical analysis using the Kruskal-Wallis test indicated no significant effect of age on CD for both the expository texts.

Table 3: Means and Standard Deviations of Clausal Density (CD) in the Narrative (N) and the Expository Texts (E) (n = 16 per group)

	Age	Mean	Std. Deviation
<i>The fight (N)</i>	10	1.78	.53
	13	1.87	.19
	16	2.26	.38
	Adults	2.50	.34
<i>A good friend (E)</i>	10	3.09	1.20
	13	3.52	2.00
	16	2.83	.81
	Adults	2.90	1.05
<i>The garbage problem (E)</i>	10	2.55	1.04
	13	2.48	.70
	16	2.46	.56
	Adults	2.26	.29

Source: Kantzou

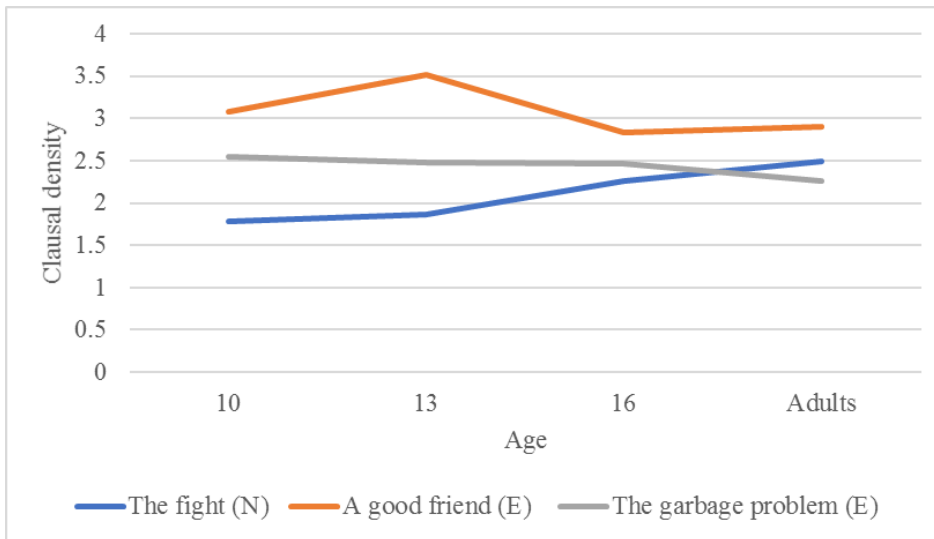


Figure 2: Clausal density for narrative (N) and expository texts (E) for each age group
Source: Kantzou

An effect of text topic on CD was found for all groups of children and adolescents, but not for the adults: 10-year-olds $F(2, 30) = 7.088$, $p\text{-value} = 0.003$; 13-year-olds $F(1.15, 17.25) = 6.561$, $p\text{-value} = 0.017$; 16-year-olds $F(2, 30) = 4.056$, $p\text{-value} = 0.028$. Post hoc analysis for the 10- and 13-year-olds indicated significantly higher CD in the expository texts than the narrative. In the 16-year-old group, only the expository text on the qualities of a good friend had significantly higher CD than the narrative. In other words, these results indicate that exposition elicited more subordinate clauses per T-unit than narration even from the youngest participants in our study. However, our participants made increasing use of subordination in their narratives as age increased, and by adulthood, no significant differences between expository and narrative texts were observed. Moreover, the use of subordination remained more or less the same across age groups for expository texts.

Subordinate Clause Type

Table 4 presents the results regarding the use of nominal, adverbial, and relative clauses as a percentage of total clauses for each text across our sample. The results are visualized in Figures 3, 4, and 5 for each of the three texts. In these figures one can rightly observe that the participants used nominal clauses more than any other type of subordinate clause, a result that was expected given the characteristics of the Modern Greek language. Statistical analysis indicated no significant main effect of age on the use of nominal and adverbial clauses for all three texts. With regard to the use of relative clauses, a significant main effect was obtained for the expository text on the garbage problem ($F(3, 60) = 3.023$, $p\text{-value} = 0.036$), but not for the other two texts. Post hoc comparisons for the garbage problem text indicated that the gradual increase in the use of relative clauses observed in the groups of the 16-year-olds and the adults reached significance only when comparing the adults to the 13-year-olds.

Table 4: Means and Standard Deviations of Subordinate Clause Use as A Percentage of Total Clauses in the Narrative (N) and the Expository Texts (E) (n = 16 per age group)

	<i>Age 10</i>		<i>Age 13</i>		<i>Age 16</i>		<i>Adults</i>	
	<i>Mean</i>	<i>Sd</i>	<i>Mean</i>	<i>Sd</i>	<i>Mean</i>	<i>Sd</i>	<i>Mean</i>	<i>Sd</i>
<i>The fight (N)</i>								
Nominal clauses	21.71	8.61	27.67	11.19	25.41	7.83	29.11	6.04
Adverbial clauses	15.80	9.01	13.18	7.80	14.89	4.26	13.70	3.97
Relative clauses	5.99	5.82	7.27	5.43	10.73	5.36	10.66	7.63
<i>A good friend (E)</i>								
Nominal clauses	46.13	13.61	39.60	13.24	39.93	28.66	37.45	17.17
Adverbial clauses	12.22	9.27	14.96	10.79	17.86	8.84	9.65	5.98
Relative clauses	6.03	7.04	8.89	7.18	8.45	7.29	12.63	9.82
<i>The garbage problem (E)</i>								
Nominal clauses	33.08	13.87	31.63	10.07	29.53	9.76	28.06	9.65
Adverbial clauses	13.42	9.95	10.51	7.16	13.54	10.03	11.45	7.77
Relative clauses	10.71	8.28	9.78	7.70	14.68	6.46	16.72	7.62

Source: Kantzou

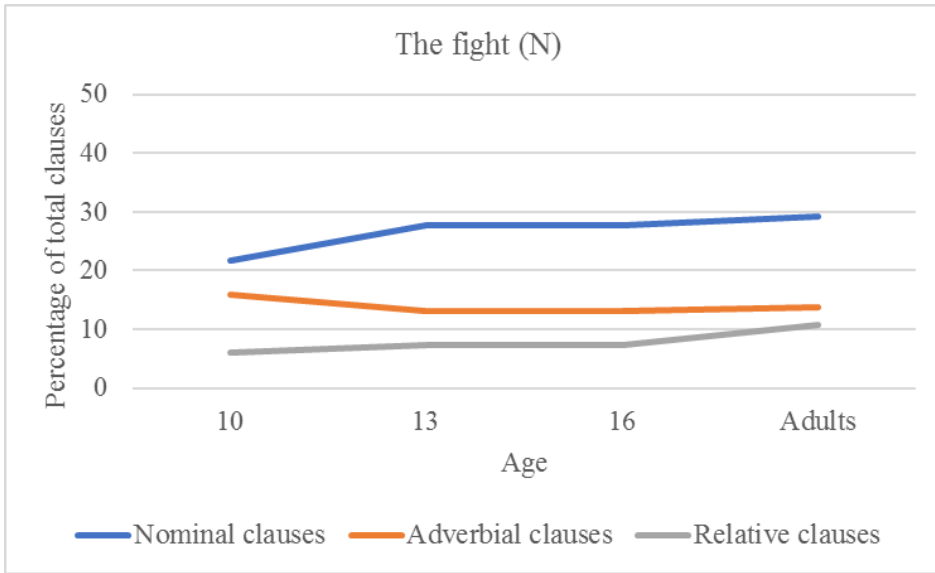


Figure 3: Use of each type of subordinate clause as a percentage of total clauses for the narrative (N) text for each age group
 Source: Kantzou

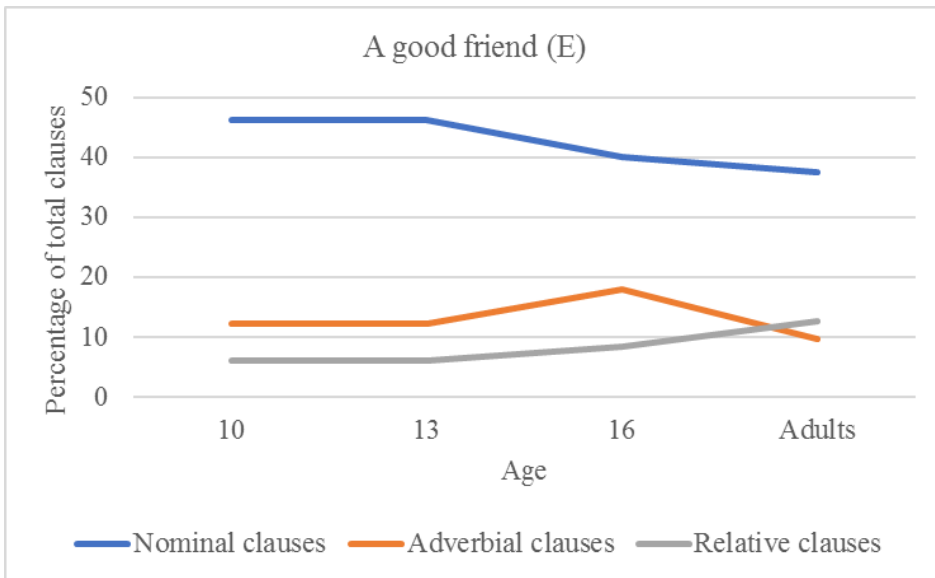


Figure 4: Use of each type of subordinate clause as a percentage of total clauses for the expository (E) text on the qualities of a good friend for each age group
 Source: Kantzou

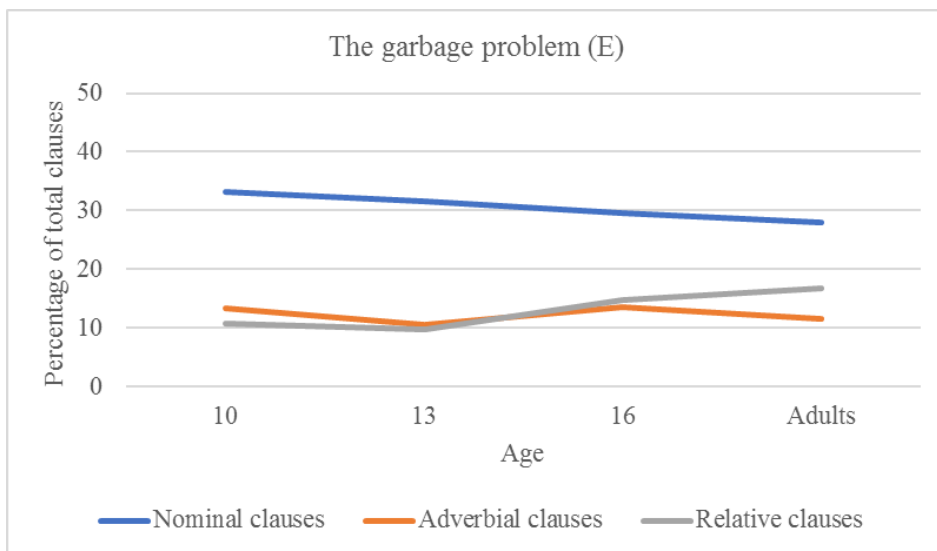


Figure 5: Use of each type of subordinate clause as a percentage of total clauses for the expository (E) text on the garbage problem for each age group

Source: Kantzou

No significant main effect of text topic on the use of adverbial clauses was found for any of the age groups. With regard to nominal clauses, a main effect of text topic on their use was obtained only for the 10-year-olds ($F(2, 30) = 13.905$, p -value < 0.001) and the 13-year-olds ($F(2, 30) = 4.419$, p -value = 0.021). Post hoc comparisons revealed that both groups made significantly greater use of nominal clauses in the expository text on the qualities of a good friend than in their narrative. Finally, the only main effect of topic on the use of relative clauses was found for the 16-year-olds ($F(2, 30) = 4.789$, p -value = 0.026). Post hoc tests indicated that this age group made significantly greater use of relative clauses in the expository text on the garbage problem than in the text on the qualities of a good friend. To summarize, the results regarding the use of subordinate clauses point toward two main findings. Firstly, from adolescence onwards the use of relative clauses increases significantly in the expository text on the garbage problem. Secondly, the younger participants in our study used significantly more nominal clauses in the expository text on the qualities of a good friend than in other texts.

Mean Clause Length

To investigate syntactic complexity at the subclausal level, the MCL was calculated and the results are presented in Table 5 and illustrated in Figure 6. The Kruskal-Wallis test indicated a statistically significant main effect of age for both the narrative and the expository text on the qualities of a good friend (The fight $\chi^2 = 20.267$, $p < 0.001$; A good friend $\chi^2 = 21.219$, $p < 0.001$). Additionally, ANOVA indicated a main effect of age for the expository text on the garbage problem ($F(3, 60) = 21.642$, p -value < 0.001). Post hoc comparisons for the narrative text revealed that the 10-year-olds and 13-year-olds produced significantly shorter clauses than the adults. No other difference was significant. With regard to the descriptive expository text, the 10-year-olds produced significantly shorter clauses than the 16-year-olds and the adults. With regard to the expository text on the garbage problem, all groups of students differed significantly from the adult group, while the 10-year-olds differed from the 16-year-olds too.

Table 5: Means and Standard Deviations of Mean Clause Length (MCL) in the Narrative (N) and the Expository Texts (E)

	Age	Mean	Std. Deviation
<i>MCL: The fight (N)</i>	10	4.92	.67
	13	4.79	.53
	16	5.34	.99
	Adults	5.97	.53
<i>MCL: A good friend (E)</i>	10	4.76	1.33
	13	5.53	.91
	16	6.50	1.60
	Adults	6.35	.67
<i>MCL: The garbage problem (E)</i>	10	5.03	.94
	13	6.14	1.59
	16	6.99	.97
	Adults	8.82	1.84

Source: Kantzou

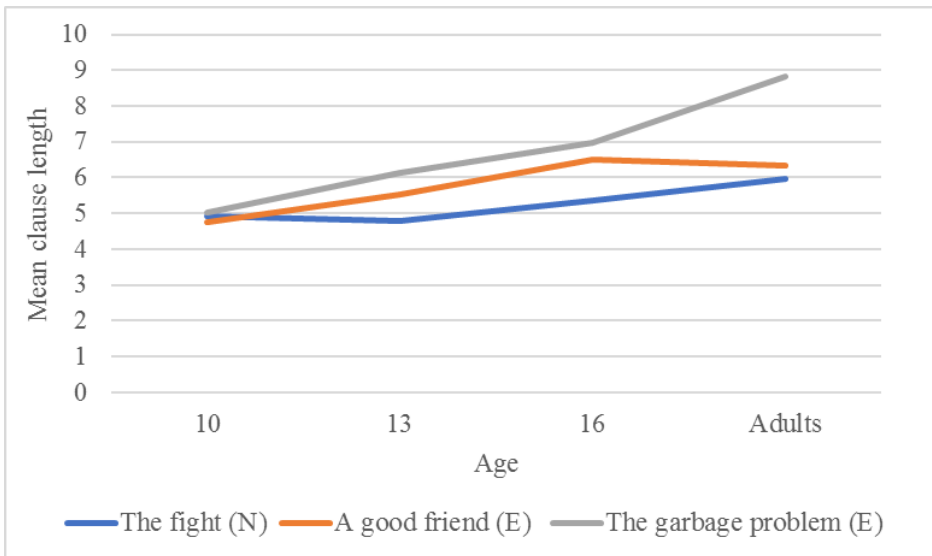


Figure 6: Mean clause length for narrative (N) and expository texts (E) for each age group

Source: Kantzou

Concerning the effect of text topic on MCL, a significant main effect was obtained for all age groups after the age of 10 years: 13-year-olds $F(2, 30) = 6.911$, $p\text{-value} = 0.003$; 16 year-olds $F(1.36, 20.53) = 12.039$, $p\text{-value} = 0.001$; adults $F(1.21, 18.22) = 27.835$, $p\text{-value} < 0.001$. Post hoc analysis for the 13-year-olds indicated significantly higher MCL in both expository texts than in the narrative. The statistical analysis for the 16-year-olds showed that they constructed longer clauses in the expository text on the garbage problem than in their narrative. Finally, the adults produced significantly longer clauses in the expository task on the garbage problem than in both the narrative and the expository task on the qualities of a good friend. Overall, these results indicate that in both the narrative and the expository texts the length of clauses continued to increase up until adulthood, but this increase was slower in the narrative. Moreover, after the age of 13 years, the expository tasks elicited more extended clauses than the narrative task. What is interesting is that one of the expository tasks elicited more extended clauses than the other one, particularly in the adult group.

Illustrative Examples from the Data

It is most informative to take a closer look at what the participants actually produced in their narrative and expository texts. This will allow us to provide some examples that illustrate the above findings. The first excerpt² (Example 1), which consists of a long T-unit explaining the qualities of a good friend, was written by a 13-year-old boy and is representative of the discourse produced by the younger participants in our study. In this T-unit, after an initial main clause, eight complement clauses follow which recite the qualities of a good friend. The complement clauses are of equal syntactic rank and in many cases no coordinator is used between them. This excerpt is also illustrative of the tendency of young learners to use more complement clauses in this type of expository text than in their other texts. The second example was produced by an adult woman. A variety of subordinate clauses are used, i.e., a concessive clause, a causal clause, and four complement clauses. Moreover, greater connectivity depth is observed (Scott 2004), as subordinate clauses (e.g., *oti ton niazesai* “that you care”) function as complements to other subordinate clauses (e.g. *kathos etsi mono dikhnis pragmatika* “since this is the only way to show”).

1. *Iparkhoun [MC] kai alla kharaktiristika enos kalou philou, opos na kanoume [NOM] tilephonikes pharses, na danizomai [NOM] lephta apo ekinon kai na danizetai [NOM] ki ekinos, na kanoume [NOM] vlakies kai na piyainoume [NOM] o enas sto spiti tou allou, na kanoume [NOM] mazi ergasies, na vlepourme [NOM] tainies kai na trelainoume [NOM] oli tin polikatikia* (boy, aged 13, text on the qualities of a good friend)

There are other qualities of a good friend too, such as making phone pranks, borrowing and lending money, doing stupid things and going to each other’s home, doing homework together, watching movies and driving the whole apartment building crazy.

2. *Akoma kai an den isai simphonos [ADV] me tis praxis tou, prepi [MC] na tou to ekphrasis [NOM] me efyeniko panta tropo kai na ton simvoulepsis [NOM] na praxi to sosto kai to dikaio, kathos etsi mono dikhnis [ADV] pragmatika oti ton niazesai [NOM].* (woman, aged 26, text on the qualities of a good friend)

Even if you do not agree with his actions, you must express it in a kindly manner and advise him to do the right and fair thing, since this is the only way to show that you care.

Examples 3 and 4 were produced by a 13-year-old and an adult woman respectively as part of their expository texts on the garbage problem. Example 3 consists of four T-units which contain fifty-three words in seven clauses. The MCL in this excerpt is 7.57. Example 4, on the other hand also consists of four T-units, which contain forty-one words in five clauses. The MCL here is 8.2. Moreover, the adult user employs abstract nouns in her text (i.e. *iperkatanalotismo* “overconsumption”) and almost all noun phrases contain some kind of modifier (i.e. *poli simantiko yia tin anthropini iparxi* “very important for human existence”).

² The following codes are used in the examples: MC = Main clause, NOM = Nominal clause, ADV = Adverbial clause, REL=Relative clause.

3. *To perivallon inai [MC] para poli simantiko yia tin anthropini iparxi yiati tis parekhi [ADV] oxigono kai zoi. Omos kapii tou kanoun [MC] kako me pollous tropous. Allote petane [MC] skoupidia se thalasses kai opou vroun [REL] anti na ta pane [NOM] ston skoupidoteneke kai allote ta kaine [MC] me photia ta vouna kai olon ton idon ta phita.* (girl, aged 13, text on the garbage problem)

The environment is very important for human existence because it provides oxygen and life. But some harm it in many ways. Sometimes they throw rubbish in the sea and anywhere else they find, instead of taking it to the dump and sometimes they burn the mountains and all kinds of plants with fire.

4. *I sinkhroni anthropi ekhoun iperektimisi [MC] tin axia ton agathon kai yinetai [MC] mia asistoli katanalosi perissoteron apo osa tous inai [REL] khrisima. I nea tekhnolyia opos kai i diaphimisi othoun [MC] ton anthropon ston askopo iperkatanalotismo. Etsi, dimiourgountai [MC] skoupidia, perissotera apo ta provlepomena.* (woman, aged 28, text on the garbage problem)

Modern people have overestimated the value of goods and they consume excessively more than what is useful to them. Modern technology along with advertisements drive people into unnecessary overconsumption. Thus, garbage is created, more than foreseen.

Discussion

This study was designed to investigate monolingual later language development in Modern Greek and in particular, language skills that are of utmost importance in education, i.e., the production of written expository discourse. Two expository texts were studied in comparison to a narrative text in terms of productivity and syntactic complexity. In regards to productivity, the younger participants produced shorter expository than narrative texts. However, with age, expositions became longer and reached the narrative in length. This gradual increase, which is in accordance with the findings of previous studies (Berman and Verhoeven 2002; Nippold and Sun 2010; Ravid, Dromi and Kotler 2010), may be a reflection of the learners' accumulating knowledge on the subject. In addition to this, it may have resulted from the increased cognitive demands that exposition imposes on younger children in terms of discourse planning. Research on narrative development has shown that young children have trouble organizing their texts at a global level. Instead, they resort to a text organization at a local level, with an emphasis on the linear ordering of events (Berman and Slobin 1994; Kantzou 2010; Stamouli 2010). It is around the fifth grade that they are able to produce "coherent, goal based, fictional stories" (Hudson and Shapiro 1991, 102), having a thematically motivated global structure. As discussed earlier, expository texts create high demands in terms of discourse planning, since they require the categorization of information, the explicit expression of logical relations between pieces of information at a local level and the hierarchical organization at a global level. It is reasonable to assume that this discourse genre is a late achievement. Therefore, the short length of the expositions produced by the younger participants in this study may reflect their limited ability to control more extended stretches of hierarchically structured discourse. Example 1 in the previous section offers further support to this claim, as it illustrates an organizational strategy employed by many of the 10- and 13-year-olds, i.e., the linear juxtaposition of pieces of information, without hierarchical structure. Previous research in English is in line with our suggestion here, as it has indicated that expository text construction develops more slowly than narrative text construction (Berman and Nir-Sagiv 2007).

Turning to syntactic complexity, the results indicate that the use of expository tasks to elicit discourse suitable for studying this aspect of later language development can be considered a successful choice, as Nippold (2010) has pointed out. These tasks gave learners the opportunity to unfold more advanced language skills. At the clausal level, even the younger groups of

children in our sample made more extensive use of subordination in their expositions than in their narratives. However, as in the study of Nippold et al. (2005) but contrary to the findings of Verhoeven et al. (2002), age did not lead to further clausal complexification in either of the expository texts. With regard to syntactic complexification at the subclausal level, the length of sentences increased with age for both expository texts. Therefore, this measure proved more sensitive in capturing age-related progress in expository texts than complexification at the clausal level, a finding that is compatible with Ravid's (2005).

What was interesting about syntactic complexity is that the two expository texts took divergent developmental paths, especially at the subclausal level. The difference was prominent in the adult group. More specifically, in the mature problem/solution expository text the elaboration of phrases through modification was more extensive than in the other expository text. Interestingly, at the same time, the use of subordination decreased in this text as compared to the text on the qualities of a good friend, although this decrease did not reach statistical significance. In other words, the text on the garbage problem favored elaboration at a phrasal level, while the text on the qualities of a good friend relied more on subordination. Overall, this study indicates that the two expository texts relied on different resources to achieve syntactic complexification. No general conclusion about expository texts can be drawn. Biber, Gray, and Poonpon (2011), who investigated academic writing in English in comparison to conversational discourse, found that subordination was a less prominent feature of academic writing. They argue that academic writing contains many dependent phrases, especially noun phrases, that need to become the focus of attention when examining this text type. Future directions in our research include investigating the length and structure of noun phrases in the corpus to identify more fine-grained developmental changes in the two texts.

With regard to the type of subordinate clauses, no age-related changes were detected for adverbial and nominal clauses for any of the three texts. Only relative clauses proved sensitive to developmental changes, a finding that is in agreement with previous research (Nippold et al. 2005; Nippold, Mansfield and Billow 2007; Verhoeven et al. 2002). However, this age-related increase was observed mainly in the expository text on the garbage problem, and particularly for the adolescent and adult groups. Since relative clauses are used as noun modifiers, this finding seems to be in line with the detected tendency of language users to produce more complex sentences at the subclausal level in this text. Overall, further research is needed to identify more fine-grained developmental changes that might be taking place in terms of subordination, such as the multiple levels of embedding within a T-unit.

The topic impacted on the type of subordinate clauses in one case. The 10- and 13-year-olds overused nominal clauses in the expository text on the qualities of a good friend. In other words, young learners tended to mention what they consider important qualities of a good friend in the form of strings of complement clauses. This can be considered as a direct reflection of the type of discourse organization described earlier, i.e., the lack of hierarchical structure. The descriptive nature of the topic allows for such a structure at the local level, while this is less possible for the other expository text with the problem/solution macrostructure.

With regard to the developmental changes in the narratives, texts became syntactically more complex with age. At the clausal level, subordination increased with age and at the subclausal level, clauses became longer as age increased. The latter finding contradicts that of Ravid (2005), who found that MCL remained more or less the same across age groups for narratives. Our first observations of the data point to the direction of an increasing use of expository passages in the narratives, as our older participants tried to draw conclusions and to generalize from the narrated incident of conflict to human relations in general. Given the increased use of subordination and the production of longer clauses by older users in exposition, it seems plausible to assume that this increase is at least partially due to these passages. Nevertheless, this observation remains to be verified by future research.

A limitation of this study is the relatively small and possibly homogeneous sample, since all student writing samples were collected in Athens. However, the available resources and the time constraints did not allow for the recruitment of a large number of participants. Larger studies with a more representative sample of learners would confirm these results.

Concluding, studies of expository discourse are important in allowing for a better understanding of the characteristics of this genre and the developmental trajectories of its various subtypes. Moreover, research on the development of language skills required for this discourse type in comparison to other discourse types can provide evidence on the gradual recruitment of new language features and new form-function mappings in different genres. Given that many students face considerable challenges in mastering expository discourse (Snyder and Caccamise 2009), this knowledge will allow the design and testing of targeted interventions. Furthermore, a better understanding of the development would contribute to an identification of a language or learning disability.

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