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The rhetorical structure of analytical writing:
a macro and microdevelopmental approach

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Preface

Chapters 2 to 5 present data that were collected within the framework of the project titled *Analytical writing and linguistic diversity: developmental and micro-developmental changes from primary to higher education* (henceforth, EsCan. For a more detailed description of the project see Section 2.8), sponsored by the Spanish Ministry of Economy and Competitiveness (IP: Joan Perera and Liliana Tolchinsky. Ref.: EDU2015-65980-R). In the framework of this project, the author of this doctoral thesis received a grant from the Aid for Pre-doc Contracts for the Training of Doctors Program (Ref. BES-2016-076817). The project aims are (1) to provide a developmental framework about the production of analytical texts to account for the developmental and microdevelopmental changes observed from elementary to higher education, (2) to determine how the implementation of a set of instructional activities affects the quality of the analytical texts, and (3) to examine how the participants' diverse linguistic background has an impact on the features of the texts.

The present doctoral thesis is an integral part of the EsCan project, focusing on the rhetorical structure of analytical writing from a developmental and microdevelopmental perspective, partially covering the aims above mentioned.

Summary

Analytical writing is an academic genre that combines features of expository and argumentative writing, involving a lifelong learning process. Although the ability to write analytically is necessary for academic success and enables writers to participate in academic, research-related fields of activity, the pathway to master this mode of discourse has rarely been explored. Thus, in this doctoral thesis we aim to bridge this gap by characterizing the development and microdevelopment of analytical writing from elementary school to university.

In the review of the literature, we revise the different conceptualizations of writing, particularly focusing on analytical writing. We also examine the approaches to analyze the discourse structure of expository and argumentative writing and the main developmental and microdevelopmental studies on these genres. We continue reviewing previous meta-analyses on writing instruction and the effects of linguistic condition in cognitive- and language-related tasks, and finally describing the EsCan project, of which this doctoral thesis is part of.

Next, this doctoral thesis is organized into two main studies. In Study 1 we conducted a meta-analysis of argumentative writing interventions in Romance languages. The study had two goals: first, to determine the impact of these interventions on text quality. Second, and in relation to the doctoral thesis, to inform the design of the treatment implemented in Study 2. We included 21 studies in the meta-analysis, three implementing text structure instruction and 18 implementing strategy instruction. Our results show that all the implemented treatments had a positive effect in the quality of students' argumentative writing. The average weighted effect size was 0.94, indicating a significant and large effect of the treatments on text quality at posttest. However, there was

significant heterogeneity between the effect sizes and most of the variability was likely to be produced by between-study factors. The meta-regression showed that the type of treatment implemented to the control group significantly moderated the magnitude of the effect, but publication type, treatment duration, grade, and quality indicator scores did not.

In Study 2, we examined the writings of 181 Catalan/Spanish bilingual and 212 Spanish monolingual students from elementary school (Grade 6), high school (grade 10), and university (second year). We focused our analyses on three analytical texts participants produced about different topics: the first at the onset of the writing treatment, the second at the end of it, and the third one month later. We traced changes in rhetorical structure completeness and the argumentative-expository gradation and examined the impact of schooling experience, linguistic profile, and treatment on the rhetorical structures students' developed. The results of the ordinal and linear regressions and of the generalized estimating equations showed that both measures were positively affected by schooling experience and treatment, while linguistic condition only affected the scores in the argumentative-expository gradation, favoring the bilingual participants.

To conclude, the doctoral thesis presents compelling evidence for the effectiveness of argumentative writing treatments in Romance languages to improve the quality of students' texts. In addition, our results shed light on the development and microdevelopment of analytical writing, a key genre in academic success and knowledge construction, and the impact of schooling experience, linguistic condition, and pedagogical scaffolding in these processes.

Resumen

La escritura analítica es un género académico que combina características de los textos expositivos y argumentativos, cuyo dominio requiere de un largo proceso de aprendizaje. Pese a que la habilidad para escribir analíticamente es necesaria para el éxito académico y facilita la producción de los distintos tipos de texto requeridos en el ámbito académico y de la investigación, el camino evolutivo para dominar este género ha sido poco explorado. Por ende, en esta tesis doctoral nos proponemos superar esta limitación caracterizando los cambios evolutivos (con el nivel escolar) y microevolutivos (en sucesivas redacciones de textos analíticos en el contexto de un tratamiento pedagógico en escritura) que se dan en la escritura analítica desde la educación primaria hasta la universidad.

En la revisión de la literatura repasamos las diferentes conceptualizaciones de la escritura, centrándonos en la escritura analítica, y examinamos las aproximaciones al análisis de la estructura discursiva de los textos expositivos y argumentativos, así como los principales estudios del desarrollo evolutivo y microevolutivo en estos géneros. Revisamos también los metaanálisis existentes en escritura, así como los efectos de la condición lingüística en la realización de tareas cognitivas y lingüísticas, y finalmente describimos el proyecto EsCan, del cual esta tesis forma parte.

La investigación que hemos llevado a cabo en esta tesis doctoral comprende dos estudios principales. El Estudio 1 consiste en un metaanálisis de las intervenciones realizadas en escritura argumentativa en lenguas romance. El estudio tenía dos objetivos: primero, determinar el impacto de estas intervenciones en la calidad de los textos. Segundo, fundamentar el diseño del tratamiento pedagógico implementado en el Estudio 2. El metaanálisis incluyó 21 estudios. En tres de estos estudios se aplicó un tratamiento

basado en la instrucción explícita de la estructura requerida en un texto argumentativo y en 18 se aplicó una instrucción sistemática de estrategias de redacción de textos. Los resultados del metaanálisis muestran que todos los tratamientos aplicados tuvieron un efecto positivo en la calidad de los textos argumentativos producidos. El tamaño del efecto medio ponderado fue 0.94, indicando un efecto fuerte y significativo de los tratamientos aplicados en la calidad textual en el posttest. Sin embargo, se encontró una heterogeneidad significativa entre los tamaños del efecto, la mayoría de la cual era probable que fuese producida por diferencias entre los estudios. La metarregresión mostró que el tipo de tratamiento implementado en el grupo control moderó significativamente la magnitud del efecto, pero el tipo de publicación, la duración del tratamiento, el curso escolar y las puntuaciones de los estudios en indicadores de calidad no lo hicieron.

En el Estudio 2 examinamos los textos de 181 estudiantes bilingües en catalán y español y 212 estudiantes monolingües en español de educación primaria (sexto curso), educación secundaria (cuarto curso), y universidad (segundo curso). Nuestros análisis se centraron en tres textos analíticos que los participantes produjeron sobre temas distintos: el primero al inicio del tratamiento en escritura, el segundo al final de este, y el tercero un mes después. Estudiamos los cambios en la completitud de la estructura retórica y en la gradación argumentativa-expositiva y examinamos el impacto de la experiencia educativa, la condición lingüística y el tratamiento en las estructuras retóricas que los alumnos desarrollaron en sus textos. Los resultados de las regresiones ordinales y lineales y de las ecuaciones de estimación generalizadas mostraron que ambas medidas se vieron afectadas positivamente por la experiencia educativa y el tratamiento, mientras que la condición lingüística únicamente afectó la puntuación en la gradación argumentativa-expositiva, a favor de los participantes bilingües.

En conclusión, la tesis doctoral presenta evidencias concluyentes sobre la efectividad de los tratamientos en escritura argumentativa para mejorar la calidad de los textos que los estudiantes producen. Además, nuestros resultados aportan información relevante sobre el desarrollo evolutivo y el microevolutivo de la escritura analítica, un género clave para el éxito académico y la construcción de conocimiento, y sobre el impacto de la experiencia educativa, la condición lingüística y el andamiaje pedagógico en estos procesos.

Resum

L'escriptura analítica és un gènere acadèmic que combina característiques dels textos expositius i argumentatius, el domini del qual requereix un llarg procés d'aprenentatge. Tot i que l'habilitat per escriure analíticament és necessària per a l'èxit acadèmic i facilita la producció dels diferents tipus de text requerits en l'àmbit acadèmic i de la recerca, el camí evolutiu per dominar aquest gènere ha estat poc explorat. Per tant, en aquesta tesi doctoral ens proposem superar aquesta limitació caracteritzant els canvis evolutius (amb el nivell escolar) i microevolutius (en successives redaccions de textos analítics en el context d'un tractament pedagògic en escriptura) que es donen en l'escriptura analítica des de l'educació primària fins a la universitat.

En la revisió de la literatura repassem les diferents conceptualitzacions de l'escriptura, centrant-nos en l'escriptura analítica, i examinem les aproximacions en l'anàlisi de l'estructura discursiva dels textos expositius i argumentatius, així com els principals estudis del desenvolupament evolutiu i microevolutiu en aquests gèneres. Revisem també les metaanàlisis existents en escriptura, així com els efectes de la condició lingüística en la realització de tasques cognitives i lingüístiques, i finalment descrivim el projecte EsCan, del qual aquesta tesi forma part.

La recerca que hem dut a terme en aquesta tesi doctoral comprèn dos estudis principals. L'Estudi 1 consisteix en una metaanàlisi d'intervencions en escriptura argumentativa en llengües romàniques. L'estudi tenia dos objectius: primer, determinar l'impacte d'aquestes intervencions en la qualitat dels textos. Segon, fonamentar el disseny del tractament implementat a l'Estudi 2. La metaanàlisi va incloure 21 estudis. En tres d'aquests estudis s'havia aplicat un tractament basat en la instrucció explícita de l'estructura requerida en un text argumentatiu i en 18 s'havia realitzat una instrucció sistemàtica d'estratègies de redacció de

textos. Els resultats de la metaanàlisi mostren que tots els tractaments aplicats van tenir un efecte positiu en la qualitat dels textos argumentatius produïts. La grandària mitjana ponderada de l'efecte va ser 0.94, indicant un efecte fort i significatiu dels tractaments aplicats en la qualitat textual en el posttest. Tanmateix, es va trobar una heterogeneïtat significativa entre les mides de l'efecte, la majoria de la qual era probable que fos produïda per diferències entre els estudis. La metaregressió va mostrar que el tipus de tractament implementat al grup control va moderar significativament la magnitud de l'efecte, però el tipus de publicació, la durada del tractament, el curs escolar i les puntuacions dels estudis en indicadors de qualitat no ho van fer.

A l'Estudi 2 vam examinar els textos de 181 estudiants bilingües en català i espanyol i 212 estudiants monolingües en espanyol d'educació primària (sisè curs), educació secundària (quart curs), i universitat (segon curs). Les nostres anàlisis es van centrar en tres textos analítics que els participants van produir sobre temes diferents: el primer a l'inici del tractament en escriptura, el segon al final d'aquest, i el tercer un més després. Vam estudiar els canvis en la completesa de l'estructura retòrica i en la gradació argumentativa-expositiva i vam examinar l'impacte de l'experiència educativa, la condició lingüística i el tractament en les estructures retòriques que els alumnes van desenvolupar en els seus textos. Els resultats de les regressions ordinals i lineals i de les equacions d'estimació generalitzades van mostrar que ambdues mesures es van veure afectades positivament per l'experiència educativa i el tractament, mentre que la condició lingüística únicament va afectar la puntuació en la gradació argumentativa-expositiva, a favor dels participants bilingües.

En conclusió, la tesi doctoral presenta evidències concloents sobre l'efectivitat dels tractaments en escriptura argumentativa per millorar la qualitat dels textos que els estudiants produeixen. A més, els nostres resultats aporten informació rellevant sobre el desenvolupament evolutiu i microevolutiu de l'escriptura analítica, un gènere clau per a l'èxit acadèmic i la

construcció del coneixement, i sobre l'impacte de l'experiència educativa, la condició lingüística i la bastida pedagògica en aquests processos.

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Chapter 1. General introduction

This doctoral thesis is about the development of text structure in analytical writing as one of the most protracted attainments of developing literacy. Becoming literate is a requirement to actively participate in most present-day societies. At its basic threshold, that of participation, literacy embraces reading and writing which enable understanding as well as transmitting written information. Beyond lays the threshold of change, where literacy fosters productive, argumentative and creative endeavors (Alves, 2019; Morais & Kolinsky, 2005). While reaching the first threshold is one of the main goals of compulsory education, as it provides functionality and enables becoming an active member of literate societies, mastering literacy and reaching the second threshold allows going further, analyzing and critically evaluating what is read, crucial abilities to fully participate in democratic societies (Morais, 2018).

Acquiring literacy is part of the so called *later language development*, linguistic progress from school-age to adulthood (Berman, 2007; Nippold, 1998). When children enter school, around the age of five, they have acquired most syntactic and morphological structures, the *core grammar* of their first language(s) (Berman, 1997, 2004b; Slobin, 1992). At this point, children are already able to combine clauses and employ a wealth of complex syntactic structures (Berman, 1997), and their lexicon repertoire can include over 15.000 words (Nippold, 2006). Despite that, children are yet to become proficient users of the language.

After the age of five, considered "a frontier age psycholinguistically" (Karmiloff-Smith, 1986, p. 455), children's linguistic development does not only entail gains in lexical and syntactic forms; rather, it involves the reconfiguration of extant linguistic knowledge: already acquired forms are employed to perform new functions and, at the same time, old functions are expressed through an ever-expanding repertoire of linguistic forms (Berman & Slobin, 1994). In addition, their route to become proficient language users also implies developing the ability

to flexibly use their available linguistic resources to meet an ever-growing variety of communicative goals and contexts (Berman, 2000; Ravid & Tolchinsky, 2002; Uccelli et al., 2013). These developmental achievements of later language development are fostered by social, familiar, and school practices and are required to become literate members of a speech community (Berman, 2007).

Text production is a crucial component of literacy's second threshold as it not only conveys knowledge but also plays a role in constructing knowledge in the mind of both writer and reader. Thus, learning to produce communicatively adequate coherent texts, adequate for different purposes, lies at the core of later language development. Moreover, writing has become an essential skill needed to succeed in many aspects of today's society. At school, writing is used not only to foster and support the learning process (Newell, 2006) but also to assess it, as students' are expected to develop the necessary writing skills to demonstrate the knowledge they have acquired (Graham, 2006; Graham et al., 2013). At work, writing is relevant for job success (National Commission on Writing, 2006), as professionals of all levels are supposed to communicative effectively through e-mails and web messages, to fill forms and reports, and to prepare presentations for clients and other co-workers. On top of that, writing skills are often used in the selection processes of white-collar jobs (Babalola, 2012). The prevalence of writing has even extended to our personal lives due to the widespread use of online communication and social media platforms (Graham & Harris, 2014; Hillocks, 2006).

Given writing's epistemic effect and its current relevance, it is crucial that students adequately develop their writing abilities. In the process of writing development, genre has shown to play a crucial role. Genres are modes of discourse with specific communicative goals that shape the rhetorical structures of the texts, while also determining linguistic use and constraining choices of content, register, and style (Alamargot & Chanquoy, 2001; Hickmann,

2003; Swales, 1990). However, evidence suggests that the ability to produce well-formed texts is reached in some genres before others. While nine-year-old have already mastered the text structure of a narrative, mastering the organization of analytical writing, an academic genre that combines exposition and argumentation, is a far more protracted achievement (Berman & Nir-Sagiv, 2007). Even though the ability to write analytical texts is crucial to succeed at school and beyond (Lai, 2011), the pathway to master this discourse mode has rarely been explored. Thus, in this doctoral thesis we aim to bridge this gap by characterizing the development of analytical writing from elementary school to university and determining the impact of age/school level[1] in analytical text production (Chapter 5).

The participants of the project[2] of which this doctoral thesis is part of were engaged in an identical set of classroom activities designed to increase their awareness of the features of analytical writing. This control of pedagogical input allowed differentiating changes that were developmental in nature from those that may occur as a result of the pedagogical activities implemented and/or repeated text production. In addition, controlling for input also helped tracking the relative malleability of participants' ability to structure analytical texts along a writing treatment that included the production of various texts of same and different topics.

We also aim to determine the impact of the students' linguistic condition on both changes that occur across age/school level (developmental) and those that emerge across repeated text writing and pedagogical work (microdevelopmental). Numerous studies have examined how monolinguals and bilinguals perform tasks related with cognition, visual

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[1] In the context of this doctoral thesis and of the research reviewed, age and school level are indistinguishable as during compulsory education, students gain schooling experience and advance through school levels with age. Thus, age and school level will be used interchangeably.

[2] This doctoral thesis is part of the project named *Analytical writing and linguistic diversity: developmental and micro-developmental changes from primary to higher education*, sponsored by the Spanish Ministry of Economy and Competitiveness (Grant EDU2015-65980-R).

memory, and spatial processing, and the effects of linguistic condition in text production. Although mixed findings have been reported, evidence suggests that bilinguals may have stronger perspective-taking skills, which play a crucial role in argumentation (Hsin & Snow, 2017), a key component in analytical writing. However, as far as we know, no study has explored how the students' linguistic condition affects the development of analytical writing.

In order to inform the design of the writing treatment, we explored the literature to detect those teaching practices that are more effective in enhancing students' writing abilities. Given that analytical writing combines exposition and argumentation, we explored those studies that examined expository and argumentative writing. Meta-analyses are particularly useful in this endeavor, as they synthesize the results of multiple interventional studies and provide a summary effect size that reflects the overall effectiveness of the interventions implemented on the target outcome (Lipsey & Wilson, 2001). However, most of the meta-analyses that have been conducted included primary studies focusing on narrative writing and a smaller percentage on expository writing, while studies on argumentative writing were almost non-existent. Furthermore, most primary studies were conducted in English-speaking countries, primarily in the United States. Thus, it is uncertain whether the results obtained in these meta-analyses can be applied to other genres (e.g., argumentative writing) and in other languages (e.g., Catalan and Spanish). In order to fill this gap in the literature, we conducted a meta-analysis on argumentative writing in Romance languages (Chapter 4), as this group of related languages share similarities in terms of vocabulary, grammatical forms, rhetorical tradition, and cultural traits, and provided a wider array of studies to include, thus providing more statistical power to our analyses (Borenstein et al., 2009).

The doctoral thesis is organized as follows: first, we will review the different conceptualizations of writing and the perspectives adopted to study it while we will advance

control over linguistic variation as the defining feature of linguistic literacy (Section 2.1). Next, we will characterize analytical writing, the mode of discourse on which this doctoral thesis is based (Section 2.2) and examine the different approaches to analyze the discourse structure of expository and argumentative texts (Section 2.3). Then, we will review the developmental studies carried on expository and argumentative texts (Section 2.4), as well as the changes observed in previous intervention studies that focused on expository and argumentative writing (Section 2.5). Next, we will review the previous meta-analyses of writing instruction (Section 2.6) and examine the effects of linguistic condition in performing cognitive- and language-related tasks (Section 2.7). Finally, we will describe the EsCan project, of which this doctoral thesis is part of (Section 2.8).

In Chapter 3 we present the objectives and hypotheses of the doctoral thesis and how the two main studies meet them. Chapter 4 presents the first study, a meta-analysis of argumentative writing interventions in Romance languages, and Chapter 5 the second one, a characterization of the rhetorical structure of analytical writing from a developmental and microdevelopmental approach. In Chapter 6 we discuss our findings, their research and educational implications, the caveats and limitations we have faced, and some concluding remarks. Finally, the bibliography and the appendixes.

Chapter 2. Review of the literature

2.1. Writing

Writing is a key component of literacy with the capability of restructuring and shaping our knowledge and is essential to academic and professional success as well as in our personal life. However, *writing* is a polysemic term (Tolchinsky, 2008) that has been conceptualized from different theoretical orientations and fields of activity (Berninger & Chanquoy, 2012). First, writing can refer to the symbol systems constituted by a limited set of graphic elements employed to represent language (Tolchinsky & Jisa, 2018). These symbol systems are conventional and arbitrary representations of language, that is, the symbols and the objects, ideas, or events they refer to hold no iconic or direct relation. The different symbol systems are operated in each language following language-specific rules that establish the relations between the graphic symbols and the linguistic units they represent. As one of the first steps in literacy development, individuals need to master writing in reference to this meaning, as a notational system (Berman, 2007).

Second, writing can refer to the mode of production, that is, to the process of encoding language, either manually producing the symbols on a surface–what we term *handwriting*–or through the use of technological devices to type these symbols (e.g., keyboards). Whatever the instrument, writers must learn to skillfully use it so they can focus on their intended message. The biomechanical aspect of writing is particularly relevant when transcription skills have not yet been automatized, as they constrain text generation (Graham et al., 1997; Juel et al., 1986). Traditionally, when learning to write unequivocally referred to the pen-and-paper production of symbols, students developed their transcription skills during the first stages of their writing development. However, due to the invention of new technological devices to type these

symbols and the widespread use of computers and digital devices, writers may need to adapt their transcription skills to these new devices at later stages.

Even though the spoken and the written modality are closely related, several aspects set them apart: speaking is temporarily organized while writing is spatially organized. Speaking is also generally considered to be time-constrained while writing is not, although these limitations are in interaction with the genre of production: while speech in spontaneous conversation needs to be quickly delivered, an oral formal presentation is not under the same time limitations. Similarly, a written conversation and a research paper have very different time constraints. Also, while speech is ephemeral and can only be retained by means of recording devices, writing, in contrast, lasts. The permanence of writing allows going back to the written text produced to cyclically revise and edit it. These aspects of writing as a mode of production have been captured by most models of the writing process (e.g., Berninger et al., 1996; Hayes, 1996; Hayes & Flower, 1980), which aim to describe the mental processes and situational constraints that account for written products. The writing process is conceived as embracing three main recursive stages: *planning*, *translating*, and *reviewing*. The process of planning involves the generation of ideas, anticipating and creating the structure of the text to organize them, and setting goals that relate the text with the intended audience and the task environment. In the translating process, the writer has to mobilize all the knowledge related with written language in order to encode the ideas generated. Finally, the process of reviewing involves reading the text and editing it, which can be spontaneous or planned. These three processes are overseen by the *monitor*, a cognitive device in charge of controlling the transitions from one process to the next and to decide which process is necessary at any given point of the writing task. Writing as a mode of production has been extensively studied, as it is crucial to determine the cognitive processes that take place during writing in order to understand how writing is developed and how it can be scaffolded through pedagogical interventions.

Writing can also refer to a discourse mode, or rather to a set of discourse styles or genres (Ravid & Tolchinsky, 2002). This use of the term implies that the language deployed in writing differs from the one used in speech due to the context of production: while in the spoken modality one can take advantage of the interlocutor's presence and the online feedback received, in the written modality the text produced has to be interpretable in the absence of the writer (Tolchinsky & Jisa, 2018). Therefore, while in speech one can depend on the interlocutor's feedback to reformulate or provide further information, in writing it is mandatory to anticipate the audience's needs and construct the text accordingly. In addition, writing as discourse style requires identifying the text genre to be produced and its communicative goal as part of the communicative setting. In this doctoral thesis, we will focus on this conceptualization of writing, that is, as a discourse mode.

While research on writing as a mode of production focuses on the process, that is, on the cognitive processes that take place during text production, research on writing as a discourse mode focuses on the product. However, the composing process and the resulting product are linked. As Bereiter and Scardamalia (1987) wrote, "one could keep piling up sticks at random until one accidentally produced a structure that stood up" (p. 41). However, this is far less likely to happen if we pile up words at random on paper during the composing process. When we recognize a group of words as a text, there is always someone taking decisions as to what words are to be written and how. Consequently, the text produced can be utilized as a window to explore the role of the process in text production.

2.1.1. Perspectives in the study of writing

Given its relevance, writing has been studied from many different perspectives and fields of activity, each focusing on a certain aspect of it. The historical perspective of the study of writing examines the development of expressing language through the usage of letters or other symbols

(Daniels & Bright, 1996). This perspective focuses on writing as a notational system, the first meaning aforementioned, and traces its development from *proto-writing*, the use of ideographic or mnemonic symbols to convey information without the use of grammatical forms and affixes, to *lexigraphic writing* (Powell, 2012), in which the symbols are used to encode language. Research from this perspective also explores how writing was used at different points in time and its relevance in each civilization (Powell, 2012).

Writing has also been an interesting topic of scrutiny for anthropologists given that it was invented by humans, it is passed on culturally (Barton & Papen, 2010; Hymes, 1999), and that it can be considered the most important technological development in human history (H. Rogers, 2005). Anthropology, a science interested in the study of humans, human behavior, and societies, turns its attention to writing due to its relevance in the textually mediated world we live in (D. E. Smith, 1999). From this perspective, writing is conceived as an activity located within a certain cultural and social context (Barton & Papen, 2010) that at the same time is based on and generates social relations in specific cultural contexts (Agha, 2007). As texts are used with social purposes (Wortham, 2008), the focus of scrutiny shifts towards what these social purposes are and how they are shaped by the contexts they are in. In addition, writing, a cultural practice and a product of culture at the same time, is analyzed from this perspective as a mean to understand people's morals and beliefs (Barton & Papen, 2010).

However, in the two studies in this doctoral thesis (see Chapter 4 and Chapter 5) we will examine writing through two different lenses: the psycholinguistic and the educational. The psycholinguistic perspective on the study of writing converges psychology, interested in the different mental processes of language comprehension and production, and linguistics, which examines how language is structured (Karmiloff & Karmiloff-Smith, 2001). In particular, our focus is developmental, as we are concerned with how a specific text-genre,

analytical writing, is gradually acquired throughout age/school level. Historically, developmental psycholinguistics has mainly focused on early acquisition, based on the Chomskyan perspective on language acquisition as a rapid an efficient process occurring before the age of 5 (Berman, 2007). However, in Chapters 4 and 5 we focus on writing as part and parcel of later language development.

From the educational perspective, writing is viewed and examined in terms of how it is learned and taught, with special attention to the dynamics between the different agents typically involved in the process: teachers, students, and content, and the environment in which these take place (Ball & Forzani, 2007; D. K. Cohen et al., 2003). Research on writing from an educational perspective has the ultimate goal of supporting the students' development of their writing skills (De Smedt & Van Keer, 2014; Finlayson & McCrudden, 2020).

The educational perspective of the study of writing is heavily intertwined with the psycholinguistic one, as it is crucial to understand what occurs during the writing process and how writing develops in order to appropriately scaffold writers' learning (Zamel, 1987). Moreover, theory on writing development and educational practice complement each other (Schunk, 2012). Many contemporary educational practices have been developed based on sound theoretical underpinnings and, at the same time, educational practices can provide grounds to confirm theoretical predictions or modify them according to the evidence gathered.

2.1.2. Linguistic literacy and linguistic variation

Linguistic literacy is "a constituent of language knowledge characterized by the availability of multiple linguistic resources and by the ability to consciously access one's own linguistic knowledge and to view language from various perspectives" (Ravid & Tolchinsky, 2002, pp. 419–420). Thus, on the one hand, developing linguistic literacy entails expanding one's repertoire of linguistic forms and gaining control over it and, on the other hand, being

increasingly aware of one's written and spoken language systems (D. R. Olson, 1994). The key property of linguistic literacy is rhetorical flexibility, the ability to flexibly use one's linguistic repertoire, adapting it to an ever-growing set of communicative contexts and addressees (Ravid & Tolchinsky, 2002). Skilled writers and speakers are those who can select the adequate combination of linguistic forms and functions to effectively convey meaning (Uccelli et al., 2013).

The defining feature of linguistic literacy is control over linguistic variation, which involves both the written and the spoken modality and all linguistic domains (Tolchinsky, 2004). Linguistic variation occurs at two different but related levels: that of the language user, and that of the linguistic context. At the language user level, linguistic variation can be observed in dialects, regional variations in language, in sociolects, forms of language associated to a specific social group or community, as well as in genderlects, the differences in language use associated to gender (Tannen, 1990) Literacy plays a key role in the ability to perceive linguistic variation, and linguistically literate individuals are not only able to perceive that there are differences in speech and writing between two varieties, but also to identify the nature of these differences.

Linguistic variation at the contextual level involves variation in terms of register, modality and genre (Berman, 2000; Halliday & Hasan, 1989), dimensions that interact with each other. Differences due to register are commonly thought to be determined by the formality of the communicative setting. However, they can also express other social dimensions and the relationship between addresser and the addressee in terms of authority, power, politeness, and familiarity (Ravid & Tolchinsky, 2002). Children as young as four are already able to linguistically express their recognition of multiple social relations (Andersen, 1996), but being

able to access items and constructions appropriate to formal contexts is a far more protracted achievement (Berman, 2000).

Modality refers to the medium through which a discourse is delivered. Traditionally, the distinction has been between oral and written discourse, although technological advances have allowed combining aspects of both in a relatively new modality termed e-discourse[3]. The oral and the written modality differ in terms of processing constraints: while most speech production is constrained by time, writing is usually not, thus allowing the producer to plan, revise, and monitor the process (Ravid & Berman, 2006). This offers a potentially higher control of the linguistic output, allowing the writer for more accurate and precise semantic and syntactic choices and for the construction of a clearer text structure (Drijbooms, 2016). On top of that, these constraints interact with the communicative setting. In the oral modality, the audience is present when speech is produced, and both parts share a physical context that may allow the speaker to receive immediate feedback and to make use of nonverbal communication and prosody on top of linguistic means. In the written modality, however, the writer and the audience are distanced in time and space, which forces the writer to convey all information through linguistic means. Consequently, the written modality tends to be characterized for providing all the contextual information that in speech would be shared, and by language that is precise and explicit (Kantor & Rubin, 1981). Learning to distinguish between the oral and the written modality and to control and adapt one's own resources to the potentialities of each modality is a feature of linguistic literacy with a long developmental course.

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[3] Even though computers and other technological devices can be used to produce e-discourse, in the context of this doctoral thesis computers were used as a writing tool to produce texts with the characteristics of written language.

Finally, genres are modes of discourse characterized by specific communicative goals and functions (Grimshaw, 2003). They are conventionalized responses to recurring communicative situations influenced by historical, social, cultural, and communicative factors that provide consistency and recognizability to discourse. Genre knowledge, essentially textual in nature (Ravid & Tolchinsky, 2002), allows individuals to respond more rapidly and appropriately to a communicative situation (Devitt, 1993) while also creating a horizon of expectations for the reader (Zwaan, 1994). Thus, writers' awareness of genre is crucial for efficient writing. The objectives of a genre shape its rhetorical structure, while also constraining choices of content, register and style (Alamargot & Chanquoy, 2001; Swales, 1990). Accordingly, the linguistic resources deployed are structured into recognizable patterns and function as text components that serve specific communicative goals such as exposition, narration, and argumentation (Martin, 2009). In the present doctoral thesis, we will focus on a specific genre, analytical writing, that will be described in more detail in the following section.

2.2. Analytical writing

Analytical writing is an academic genre involving a lifelong learning process. Proficiency in the genre is necessary for academic success (Lai, 2011), and this enables writers to participate in school, academic, and research-related fields of activity. As any other genre of discourse, analytical writing is a goal-oriented communicative event. It has two major communicative goals: first, to introduce the topic at hand to the readers so as to establish a common frame of reference and two, to persuade the readers of the writer's point of view by means of the soundness of the evidence that is presented. Readers must be persuaded by the evidence provided and the reasoning developed in the text rather than by the authority of its author (Tolchinsky et al., 2017). This in turn requires unambiguous expression of ideas and a clear-cut rhetorical structure of the text as a whole.

Skills and propensities involved in critical thinking play a crucial role in writing analytically (Driver et al., 2000). The writer must have curiosity and the desire to be well-informed about the topic addressed, in order to amass sufficient evidence to formulate a well-based standpoint while putting personal biases aside (Facione, 1990; Willingham, 2008). In analytical writing, as in critical thinking, one needs to evaluate and interpret arguments, make inferences based on the existing information, and present data and evidence in a plausible rhetorical structure so as to support the conclusions that are drawn (Ennis, 1985; Lai, 2011; Levy, 1996).

Analytical texts tend to involve the transmission of information that is difficult and that may be unknown to the reader (Hall, 2004; Peterson et al., 2021). The reader is usually required to have background information in order to make sense of the new information provided and to understand the interrelationships established between the ideas presented (Beck et al., 1991; Otero et al., 2002). Analytical texts use syntactic constructions in order to express the interrelationships between pieces of information that are more sophisticated and less frequently found in narrative texts or everyday discourse (Berman & Nir-Sagiv, 2007; Biber, Gray, et al., 2011). In addition, analytical writing is characterized by a vocabulary often described as precise and formal (Maamuujav et al., 2021). Analytical texts tend to be informationally dense and present nominalizations and noun modifications that compact ideas in a single unit (Chafe, 1994), while also including sets of morphologically complex words common across academic disciplines and also technical words characteristic of specific fields of activity (Nagy & Townsend, 2012; Scarcella, 2003). Overall, the cognitive, linguistic, communicative, and textual demands of analytical writing present a challenge that even mature writers with extensive schooling experience have troubles to overcome.

In order to fulfill its communicative goals, analytical writing combines both exposition and argumentation. The expository component, characterized by features of the expository

genre, meets the first goal of analytical writing: explaining and describing the topic at hand to the audience in order to build a common understanding between the writer and the reader of what is being discussed in the text. It provides information about a particular topic and explains it, updating the readers' knowledge about it (Spiro, 1980). To attain this goal, the writer's ideas must be encoded in such a way as to lead to a single, unambiguous interpretation (Bruner, 1985). Expository texts are topic oriented, focusing on concepts and issues and pointing to interrelationships between different pieces of information while providing evidence from relevant sources (Berman & Nir-Sagiv, 2007; Britton, 1994; Mosenthal, 1985).

This mode of discourse is characterized by a hierarchical structure that emanates from a central superordinate proposition, and a stance that is considered as "universally true" (Graesser & Goodman, 1985; Meyer, 1984; Nippold & Scott, 2010). School textbooks exemplify this mode of discourse, which is often also referred to as academic or informational. However, expository texts are also crucial in social functioning, as they are utilized when telling someone how to perform a new task or how to play a game (Lundine & McCauley, 2016).

In analytical writing, the expository component is realized primarily in the form of facts, statistics, reasons, or empirical proof, but it can also take the shape of reflection on the topic, definition of terms used in the text, or rhetorical questions as to what the topic involves. In the context of this doctoral thesis, we use the term *data* when the information informs about the topic and *evidence* when it supports the writer's standpoint.

The argumentative component of analytical writing is characterized by features of the argumentative genre and addresses the second goal: persuading a reasonable audience of the validity of the writer's standpoint by presenting propositions that justify it (Van Eemeren & Grootendorst, 2004). The ability to write texts with a reasoned standpoint defended with

evidence is one of the most important goals in 21st century education (Goldman et al., 2016). Its relevance has been recognized by the European Parliament, being an integral part of three of the eight fundamental competences that students have to develop (S-TEAM, 2010), and in the Common Core State Standards of the United States, where elementary and high school students are expected to be proficient at reading and writing arguments (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

Debatable or controversial topics tend to elicit an argumentative style, since both the writer and his or her audience are inclined to solve such conflicts through language (Andriessen et al., 1999). This means that writers need not only to take a standpoint and support it with evidence, but also to attribute certain value to the opposite site's standpoint, leaving room for negotiation (Golder, 1992), while also restricting and attacking the audience's standpoint by means of counter-argumentation. As a result, the audience functions both as the target of persuasion and as the potential provider of opposing views. Based on their knowledge of the audience, writers need to select those arguments that are more likely to persuade them (Perelman & Olbrechts-Tyteca, 1989). Therefore, written argumentation requires the writer to have a mental representation of his/her own standpoint and to form a mental representation of the audience and their possible standpoints to interact with them (Gárate & Melero, 2005). In addition, each one of these cognitive operations has to be linguistically translated and controlled at a local and overall level (Cuenca, 1995).

2.3. Analysis of the discourse structure of expository and argumentative texts

The discourse structure of a text illustrates the relationships between the different pieces of information developed and shows how the writer has organized his or her ideas to fulfill the communicative goal of the text (Meyer, 1975). Thus, the ability of a writer to build a discourse

structure that fully reflects the communicative goals of a genre is a major indicator of writing performance (Allen et al., 2019).

Two major types of corpus-based approaches have been followed to examine the discourse structure of expository and argumentative texts: bottom-up and top-down. Bottom-up approaches start by automatically segmenting the texts into discourse units based on their linguistic features. These units are then grouped according to their similarities to ultimately identify their communicative goals. The goal of this approach is to provide a detailed linguistic description of the identified discourse units as well as to describe the organization of discourse within texts (Csomay et al., 2007). Biber et al. (2004) take as their unit of analysis the Vocabulary-based Discourse Unit (VBDU), "a topically coherent stretch of discourse identified on a linguistic basis" (p. 54). These units are identified assuming that a set of words is used repeatedly within a given VBDU. Subsequently, the communicative goal of each unit is described in qualitative terms.

Top-down approaches reverse the order: the discourse units are determined prior to analyzing the texts based on the communicative goals of the genre. Subsequently, each unit is linguistically analyzed (Upton & Cohen, 2009). This approach allows differentiating between those move types that are expected in a certain genre in order to fulfill its communicative goals and those that can be considered optional, as well as describing the typical move structure patterns for a specific genre and the linguistic characteristics of each type of move (Kanoksilapatham, 2007). In Upton and Cohen's (2009) research on birthmother letters, a letter written by potential adoptive parents to an expectant mother that is considering adoption, they started by established discourse units such as *introduction* or *profile of the couple* based on the rhetorical purpose of the genre and the communicative goal of each text segment in their context. Afterwards, they linguistically analyzed each discourse unit.

Britton's (1994) analysis of expository discourse focuses on the set of rules that govern the structure of exposition. These rules are assumed to be followed by the writer to construct the text and by the audience to parse it and, when followed appropriately, they serve to build the writer's intended structure in the reader's mind. These rules are performed in the text as *moves* which instruct the reader how to treat a specific move in relation to previous ones. Britton (1994) suggests five types of moves: *expand* is the basic move and introduces the topic of the text to develop it; *enlarge-on* is used to provide new information about the different subtopics; *move-on* signals a transition to a different subtopic; *unitize* is used to summarize the information previously presented; and *stop* signals the end of the discourse.

Swales (1981) also used the rhetorical move as his unit of analysis. However, while Britton (1994) focused on how moves are related to each other in expository texts, Swales focused on the communicative goal of each text fragment and how these fragments shape the rhetorical structure of the introduction section in research articles. According to his model, the introduction should first present the topic of research, then identify the areas requiring further scrutiny, and conclude by presenting the writer's research in the context of the previous moves. Swales' (1981) model has been applied to analyze the discourse structure of academic and professional genres in corpus based analyses (Upton & Cohen, 2009). To apply Swales' (1981) model to other genres, an analytical framework is developed where the different types of rhetorical moves associated with that genre first need to be identified and described. Subsequently, each text is segmented in rhetorical moves and labeled in keeping with the analytical framework, and then the overall rhetorical structure of the text is analyzed according to its moves, concluding with a characterization of the general patterns of discourse. In Chapter 5 we adopted a top-down approach following Swales' (1981) model, as it allows for a clearer characterization of the rhetorical patterns typical of given genre and how these unfold in a text,

first developing an analytical framework identifying the different types of rhetorical moves expected in the genre and afterwards analyzing the rhetorical structures that emerge.

As for argumentative texts, Toulmin's (2003) model is considered the precursor of research on this mode of discourse. It is concerned with identifying the different elements of an argument and the roles played by each. The two indispensable elements of an argument are the *claim*, an assertion that the writer makes on the topic, and the *grounds* that are explicitly appealed to as the foundation for said claim. The speaker's degree of certainty in the claim is expressed through a *qualifier*. *Warrants* are used to express the connection between the grounds and the claim. *Backings* certify the statement of the warrant and are introduced when the warrant itself is not convincing enough for the audience. Finally, *rebuttals* indicate the restrictions that may be applied to the claim. Toulmin's (2003) model provides a solid basis to analyze rhetorical arguments but it is difficult to apply to free text argumentation (Palau & Moens, 2009; Peldszus & Stede, 2013) and does not capture the dialogical dimension that Toulmin attributes to argumentation at a conceptual level (Leitão, 2001).

In comparison, Pragma-Dialectics (van Eemeren & Grootendorst, 1999) focus on the structure and the dialogical dimension underlying argumentation. Their model aims to provide rules that participants in a critical discussion should respect in order to reach a reasonable resolution for a difference of opinion between them, and it serves as an instrument to analyze argumentation and to evaluate it (van Eemeren & Grootendorst, 1992). Despite its relevance in argumentative instruction, Pragma-Dialectics are more suitable for dialogical rather than monological written argumentation.

Walton et al. (2008) developed the Argumentation Scheme Approach with the aim of resolving the foundations, validity, and setting of arguments. Their argumentation schemes are based on arguments empirically found in everyday discourse as well as in scientific and legal

argumentation. These schemes also have associated critical questions that can ask for missing premises, further information, justification or even question the justifications provided to evaluate the argument. However, their approach is inherently dialogical and does not help to determine the function an argument is fulfilling (Lumer, 2016).

In contrast, Kuhn et al.'s (2016; Kuhn & Crowell, 2011) approach focuses on the writer's ability to recognize and address other possible standpoints. According to their approach, idea units, which are formed by a claim and any reason and/or evidence supporting it, are categorized according to their function: support the writer's standpoint, weaken the opponent's standpoint, supporting the opponent's standpoint, or weakening the writer's standpoint. This approach has been used to analyze the development of argumentative writing, especially in adolescents that usually fail to consider alternative perspectives (Ferretti & Fan, 2016; Mason & Scirica, 2006), the so-called my-side bias (Stanovich & West, 2007).

In Chapter 5 we adopted Toulmin's (2003) model to identify the different elements of an argument, focusing on the claim and the grounds, the two indispensable elements of any argument (Van Dijk, 2019). Amongst the four approaches presented, Toulmin's model was the best option for monological written argumentation, only considering the two core elements of an argument simplified its application to a large corpus and it allowed focusing on the structure of arguments rather than on evaluating them or determining their function in relation to the writer's standpoint.

2.4. Developmental studies of expository and argumentative texts

Children have a precocious ability to recognize and distinguish between different modes of discourse (Ferreiro & Teberosky, 1982; Hudson & Shapiro, 1991). Grade 1 children are not only able to understand that expository and narratives texts are different, but they can also adapt

their writing, drawing and speech to the features of these genres (Chapman, 1995; Donovan & Smolkin, 2002; Duke & Kays, 1998). Argumentative skills also start developing early on. Two-year-old toddlers use sentences to argue with their parents and siblings (Perlman & Ross, 2005), and by the age of three children can understand and produce all elements of an argument (Stein & Bernas, 1999). Inter-genre distinctions are very precocious, children are sensitive to the differences in linguistic features and content, but the production of expository and argumentative texts involves a lifelong learning process.

Development in mastering types of texts moves progressively from: (1) personal genres, like narratives and accounts; to (2) factual genres, such as procedures and reports; to (3) analytical genres, such as exposition and argumentation (Martin, 1989; Schleppegrell, 2004). Five and six-year-olds are already able to produce a narrative text with an adequate structure, and at the age of nine they have mastered the organization of written narratives (Ravid, 2005). In contrast, mastering the adequate text structure in analytical genres constitutes one of the most protracted accomplishments in text production (Berman, 2008). According to Bereiter and Scardamalia (1987), the different rates of development between genres can be explained by the strategies writers employ when producing them. Young writers produce their texts using a knowledge-telling strategy, writing down ideas as they come to their minds, but more experienced writers use a knowledge-transforming strategy, which involves developing a representation of the communicative goal of their text and setting goals derived from it to guide the generation and evaluation of content. While the knowledge-telling strategy is sufficient to produce the adequate structure of a narrative text, where events are ordered chronologically or through causality, in expository and argumentative texts the writer is required to plan his ideas and elaborate communicative goals (Boscolo, 1990; Britton, 1994). Moreover, the writer must organize the ideas hierarchically and cohesively around a clear introductory opening,

developing the topic and reaching a reasoned conclusion derived from the contents presented (Berman & Katzenberger, 2004; Tolchinsky et al., 2002).

Many details on the development of expository writing come from a large-scale cross-linguistic study coordinated by Ruth A. Berman aimed at describing how children, adolescents, and adults construct oral and written narrative and expository texts, with 20 participants per age group (Grades 4, 7, 11, and adults) in eight languages (English, Hebrew, Dutch, Swedish, Icelandic, French, Spanish, and Catalan). Berman and Nir-Sagiv (2007) compared the expository and narrative texts of the English-speaking participants in terms of their vocabulary and grammar and their global discourse structure and content. Genre distinction proved to play a key role in local linguistic expression and in global text construction: expository texts were more difficult to structure and triggered more advanced vocabulary and grammar. Their results also show that although inter-genre distinctiveness is established early on, only more experienced writers (adolescents and mainly adults) tend to diverge from genre-typical content, including a narrative component in expository texts and an expository component in narratives in the form of generalizations.

Using the same corpus, Aparici and Perera (2001) examined the Spanish students' expository texts applying Britton's (1994) model to identify the developmental pattern of the global structure of texts in terms of diversity and distribution of rhetorical moves. They identified three types of moves: *advance*, to present a topic; *expansion*, to extend it; and *unification*, to summarize what has been previously presented. Although the total number of rhetorical moves increased with age, only the number of expansion and unification moves increased in all four groups. Thus, rather than extending the number of subtopics discussed in a text, older students provided more details about each subtopic and summarized more frequently the information they had previously presented. Perera et al. (2004) examined the

Spanish and Catalan expository texts following the same approach with similar findings, although they reported an increase in all three types of moves. they also found that younger students supported their claims through deontic statements, that is, in the form of obligations and/or prohibitions, while older students provided explanations and justifications. These findings suggest that with an increase in age-schooling level, texts become more elaborated and better structured, as young students focus on listing specific situations without further elaboration while older students provide more details on the topic and tend to summarize them. However, these studies did not examine how the different rhetorical moves were combined within a text and what structures emerged from them.

Finally, Reilly et al. (2002) examined the written narratives and expositions in English, French, and Hebrew with a focus on propositional attitudes, that is, how writers convey their attitudes and feelings on the ideas expressed in the text. In line with Perera et al. (2004), they observed an age-related developmental shift from judgmental and prescriptive attitudes to more reasoned standpoints that considered possible causes and consequences, pointing towards increased critical thinking skills.

Most developmental studies on argumentative writing have applied Toulmin's (2003) model to depict what characteristics change as a function of age-schooling experience. Coirier and Golder (1993) studied the argumentative texts of 273 students from Grade 2 to university and found that most second graders already produced the basic argumentative structure: a claim presenting the writer's standpoint and evidence to ground it. Crammond (1998) analyzed the texts produced by participants of Grade 6, 8, and 10 and seven expert writers and also found that most students produced at least a claim supported by evidence. In addition, both studies found that the amount of evidence supporting the writer's standpoint increased with age-schooling experience.

Other studies have applied Toulmin's model to trace the qualitative development of the elements of an argument. McCann (1989) analyzed the argumentative texts of 95 students from Grade 6, 9, and 12 to evaluate the quality of their argument elements based on clarity and their relation to the writer's main claim. The overall quality of arguments improved with age, but not all elements showed the same developmental trajectory: while the quality of claims and warrants improved with age, the quality of grounds remained stable. Moreover, ninth graders produced better qualifiers and rebuttals than their younger and older counterparts. Knudson (1992a) also applied McCann's (1989) criteria to the argumentative texts of 202 students from Grade 4, 6, 10, and 12 with similar findings, as the quality of the elements improved with age. Grade 4 students were already competent at producing the different elements of an argument, but there were no developmental differences in terms of the elements used, and all students showed difficulties in tying them together. Knudson further contends that differences using refutations, counterarguments, and concluding generalizations are linked to students' prior knowledge of the topic and to the topic itself rather than to schooling experience (Coirier et al., 1990; Coirier & Golder, 1993; Knudson, 1992b).

Another focus of research on argumentative texts has been the writers' concern for audience. Craig (1986) analyzed the texts produced by 109 students in Grade 6 and 11 and found that texts directed to a higher status audience (a teacher) were more objective and impersonal, while those directed to a same status audience (a friend) showed conversational and personal traits, effects that were the clearest in the older group. Thus, even though the communicative goal of both texts was the same, writers were adapting their style and register to the audience they were addressing. Crammond (1998) also pointed out that the use of modals and reservations to limit the claims increased with age, indicating a higher concern for the audience in older writers.

Finally, Crowhurst (1990), based on over 1200 texts from previous studies of her own, concluded that there is a substantial improvement in argumentative text production between elementary and high school students: texts become longer, better organized, and they begin to include concluding statements. However, even older students produce texts with inadequate overall structures. Moreover, performance on argumentative writing is poorer than in narratives. Crowhurst contends, as did Berman and Nir-Sagiv (2007) when comparing expository and narrative writing, that narratives are associated with interactive conversations and everyday linguistic usage, more accessible to young writers, whereas expository and argumentative writing are genres associated with academic contexts and use linguistic features characteristic of school-related activities: nominalizations, logical connectives, low-frequency vocabulary, and more complex syntactic constructions.

In sum, developmental research on expository writing shows that with an increase in age-schooling level, texts become more elaborated and better structured. Students recruit a wider range of resources at the level of both sentence and overall text structure, manifesting an increased concern for their potential audience. Inter-genre distinctiveness is established early on, but older writers tend to go beyond genre typicality to achieve more general communicative goals. Finally, there is a developmental shift from deontic to epistemic attitudes. Regarding argumentative writing, students in elementary school are already able to produce a text that expresses their standpoint on a topic and to ground it with evidence. However, the structure of their texts, the quality of their arguments, and the amount of evidence grounding their standpoint improve with schooling experience. Concern for potential audience also increases with age. Despite these findings, it is not clear from prior research how these developmental trends are realized in analytical writing and how the unique features of the expository and argumentative genres are combined to construct the special mode of discourse we term *analytical writing*.

2.5. Microdevelopmental studies after expository and argumentative writing interventions

Given the relevance of expository and argumentative writing for academic success (Graham & Harris, 2005; Graham & Perin, 2007) and the fact that most students do not attain the required proficiency levels in writing (Henkens, 2010; NAEP, 2011; Persky et al., 2003), many researchers have focused on implementing evidence- and theory-based treatments to help improve students' writing. In the context of this doctoral thesis, we understand *treatments* as the intentional application of several instructional activities in a target domain for a defined period of time with the purpose of modifying some of its aspects.

Regarding expository writing, most studies have evaluated the effectiveness of the treatment implemented with a measure of text quality. Some studies were scored based on the general impression of the evaluator and with the aid of anchor papers for each point value in the scale used (e.g., Duin & Graves, 1987; M. C. Olson & DiStefano, 1980; Zellermayer et al., 1991). However, most studies employed a holistic scoring system that simultaneously considered aspects such as idea development, their elaboration, text structure, coherence, syntax, clarity, vocabulary, and use of language (e.g., Cihak & Castle, 2011; De La Paz, 1999; Torrance et al., 2007), sometimes also complemented by analytical measures that individually assessed specific aspects related to text quality such as coherence, cohesion, and idea development (e.g., Zellermayer et al., 1991).

Overall, the quality of the expository texts students produce has proven to be susceptible of improvement by many different instructional approaches and practices. Several studies have implemented interventions focused on teaching strategies to plan, produce, revise, and/or edit the text following the Self-Regulated Strategy development model (henceforth, SRSD). SRSD interventions teach strategies aimed at a specific process in a particular genre. Instruction is

structured in six stages, moving from background knowledge to describing, modeling, memorizing and finally independently using the strategies being taught (Harris & Graham, 1996). Burke et al. (2017) found that SRSD instruction to students in Grades 7 and 8 increased the quality of their texts, measured following an analytical rubric focusing on focus development, organization, fluency, and correctness. Similarly, De La Paz (1999) and De La Paz and Graham (2002), found that an SRSD intervention successfully increased the quality of students' texts, evaluated based on a holistic scale and with the aid of anchor papers.

Other studies have also been successful in significantly increasing the quality of students' writing by explicitly teaching strategies targeted at the processes that take place during writing. Sixth-grade students in Torrance et al. (2007) wrote texts more coherent, better structured and of higher quality, which was assessed based on clearness, structure, word choice, sentence structure, and correctness, after being taught cognitive strategies for planning and revising their texts. Moreover, these effects were also observed 12 weeks after the intervention was implemented. Cihak and Castle (2011) also found that eighth graders wrote texts of higher quality, evaluated following a holistic rubric that considered aspects such as organization, coherence, clearness, syntactic variety, and correctness after being taught strategies targeted at structural elements of expository writing. Similarly, Zellermayer et al. (1991) found that enhancing metacognition and the use of strategies during the writing process effectively increased the overall quality of the students' texts as well as their number of ideas and their development, coherence, cohesion, and connectedness in Grades 9, 10, and 11.

Teachers' training in following the process writing approach also proved successful in significantly increasing text quality, assessed following a holistic rubric and with the aid of anchor papers, in Grades 11 and 12 in Olson and DiStefano (1980) and in Grade 11 but not in Grade 12 in Pritchard (1987). In Raphael and Kirschner (1985) and Raphael et al. (1986),

students wrote better structured texts after an intervention following the process writing approach, although solely focused on text structure instruction.

Finally, other more specific approaches have also proven successful in increasing text quality in expository writing. Duin and Graves (1987) focused on intensive vocabulary instruction in Grade 7 and found an improvement after the intervention in the overall quality of the texts and in aspects such as organization, correctness, vocabulary, content, and coherence. The effects were more pronounced when instruction also included activities to manipulate and flexibly use the targeted vocabulary in different contexts. In contrast, participants in Fearn and Farnan (2007) received functional grammar instruction that featured what is the role in a sentence of each part of speech and how this knowledge can be applied to writing. Texts were more grammatically correct after the intervention and exhibited higher quality, assessed based on descriptive detail, focus, organization, and texture.

Another text product measure commonly used to assess the effectiveness of interventions in expository writing is text structure or organization. Raphael and Kirschner (1985) and Raphael et al. (1986) found that students wrote better structured compare and contrast essays after instruction on text structure following the process writing approach. Torrance et al. (2007) assessed text structure following a four point scale that considered the clear organization of ideas, the use of cues to indicate the organization of ideas, and a clear introduction and conclusion stating the purpose of the written production. Students were able to write texts with better structure both immediately after and 12 weeks after the intervention. Reimer (2001) applied a similar rubric to evaluate text structure in Grade 11 and 12 students, but compared two different interventions: a process writing approach and a "talking and writing" approach, involving small and whole class discussions organized by the students themselves where teachers acted as facilitators. While the process writing approach had a

negative non-significant effect in text structure, the students following the talking and writing approach wrote texts that were better structured.

Besides text structure, text length is another measure that correlates with other text features and with the evaluation of text quality, especially in the earlier grades. De La Paz (1999) and De La Paz and Graham (2002) found that students wrote longer texts, measured by the number of words, after the intervention. Similarly, Torrance et al. (2007) found that immediately after and 12 weeks after the intervention students wrote texts that had a higher number of paragraphs. However, when text length was measured by number of words, the increase only was significant in the delayed posttest.

As for argumentative writing, text quality is also the most common measure to examine the effectiveness of writing interventions. Limpo and Alves (2013, 2014) and Salas et al. (2020) found that SRSD instruction significantly increased the quality of students argumentative texts in elementary school. Other studies have added instructional components to the SRSD with the objective of increasing its effectiveness. Ninth-grade students in Prata et al. (2019) wrote texts of significantly higher quality after an SRSD intervention that was implemented in a cooperative setting where students had to work on a text in small groups. Similarly, Araújo et al. (2017) implemented SRSD instruction in a group and SRSD with the use of ICT tools in another. The fourth-grade students in both groups wrote better texts after instruction, although the second group outperformed the first. Malpique and Simão (2019) followed the SRSD model with one group and added the use of visual mnemonics to another one. In contrast to the previous results, only the second group wrote texts of significantly higher quality after instruction. Finally, Palermo and Thomson (2018) developed an automated writing evaluation system designed to provide immediate feedback to students in Grades 6, 7, and 8. After using

the system, there was a moderate significant increase in text quality. However, when it was combined with SRSD instruction, the effects increased.

Torrance et al. (2015) examined the impact of strategy-focused training in both setting product goals and in writing procedures and only in setting product goals in sixth-grade writers. After the intervention, both groups made significant improvements in the holistic quality of their written productions, and there were no significant differences between the two approaches. Similarly, López et al. (2017) compared the effectiveness of planning and drafting strategy instruction, either directly taught or modelled, to students in Grades 5 and 6. After instruction, students in both groups wrote argumentative texts of higher quality, evaluated based on the richness, diversity, and appropriateness of the ideas, vocabulary, informational detail, sentence structure, punctuation, and spelling.

Given the dialogical dimension of argumentation, other studies have also examined the impact on text quality of implementing debates, oral group argumentation, and collaborative writing as pre individual writing activities. Gárate et al. (2007) found that the addition of group debates to foster argumentative speech resulted in a significant increase in argumentative quality, measured through the inclusion of a clear standpoint and the presence and elaboration of the arguments and counterarguments included. Similarly, Crasnich and Lumbelli (2005) found an increase in the amount of texts that included a claim, grounds supporting it, and at least a counterargument. Similar results were obtained by Matos (2021), who used collaborative writing with sixth graders to ease the transition from dialogical argumentation to argumentative writing, also resulting in texts that included more evidence-based arguments after instruction.

Regarding text structure, some of the studies previously presented evaluated the quality in the organization of the texts based on an assessment rubric that described the different levels

in the chosen scale (Gárate et al., 2007; López et al., 2017; Luna et al., 2020; Malpique & Simão, 2019; Torrance et al., 2015). In all cases, the interventions resulted in a significant improvement in text structure quality. Other studies focused on the structural elements characteristic of argumentative texts (e.g., thesis, reasons, explanations, counterarguments, conclusion), either counting them, assessing their individual quality, or considering how they were integrated and related to the thesis of the text (Araújo et al., 2017; Festas et al., 2015; Palermo & Thomson, 2018; Prata et al., 2019; Salas et al., 2020). All studies successfully improved the quality and/or quantity of the structural elements included in the students' texts after instruction.

Finally, text length was also assessed in most of these studies, although with mixed results. On one side, several studies found an increase in text length measured by the number of words in the text (Limpo & Alves, 2013, 2014; López et al., 2017; Palermo & Thomson, 2018; Salas et al., 2020). On the other, there were studies that found no significant effect of the intervention in text length (Araújo et al., 2017; Festas et al., 2015; Malpique & Simão, 2019; Prata et al., 2019; Torrance et al., 2015) or even a significant decrease (Luna et al., 2020). There seems to be a strong relation between the impact of these interventions on text length and the age of the participants, as most of the studies that found a significant increase in text length at posttest had participants in elementary school, while those that found no significant differences or a significant decrease had participants in high school or university.

Overall, interventional research on expository and argumentative writing shows that text quality is susceptible of improvement across a wide range of contexts and populations through different treatments, from teaching strategies to gain control and self-regulate the writing process, to increasing their knowledge of text structure or enhancing the students' ability to plan and revise their texts. Text structure and the overall organization of texts also

tended to be positively impacted by these interventions, both in expository and argumentative writing. However, text length, at least in argumentative writing, presents mixed results, with significant increases in elementary school participants to no significant changes or a significant decrease in high school and university students.

2.6. Meta-analyses of writing instruction

Writing is essential to academic and professional success, as well as in our personal life. Thus, students who do not meet grade-level standards are at a disadvantage (Greenwald et al., 1999; L. A. Rogers & Graham, 2008), and several studies have shown that most students are below the expected proficiency levels in writing (Henkens, 2010; NAEP, 2011; Persky et al., 2003). Two common recommendations to reverse this situation involve increasing the time students spend writing and improving teachers' preparation to teach writing (National Commission on Writing, 2003). To appropriately implement these recommendations, it is crucial that teachers are provided with evidence-based treatments that are effective at improving the quality of students' writing (Graham et al., 2012). As recalled, in the context of this doctoral thesis, we understand *treatments* as the intentional application of several instructional activities in a target domain for a defined period of time with the purpose of modifying some of its aspects.

The growth in the number of studies analyzing writing treatments' effectiveness during the last decades makes increasingly difficult to adequately read and process their results (Viechtbauer, 2007). Meta-analyses, the statistical synthesis of results from primary studies (Borenstein et al., 2009), are particularly useful to overcome such difficulty. Meta-analyses combine the results of multiple primary studies on a certain topic (in this case, writing interventions), providing a summary effect size (henceforth, ES), a value that reflects the overall effectiveness of the treatments implemented on a certain outcome (Lipsey & Wilson, 2001). Meta-analyses also allow comparing treatments to see which ones are more effective

and determine if there are any variables (e.g., grade, genre, study quality) that could be moderating the magnitude of the effect. Moreover, meta-analyses focus on the magnitude and the direction of the effect, that is, on its size and whether it positively or negatively impacts the outcome variable, rather than on significance testing.

Consequently, several meta-analyses have been conducted to study the effect of writing treatments. Some have focused on a single type of treatment like word-processing (Bangert-Drowns, 1993; Gersten & Baker, 2001; Little et al., 2018), strategy instruction (Graham, 2006), feedback (Biber, Nekrasova, et al., 2011; Graham, Hebert, et al., 2015), or the process writing approach (Graham & Sandmel, 2011). Others have studied writing interventions more broadly, analyzing the effect of multiple writing treatments (Graham et al., 2012; Graham, Hebert, et al., 2015; Graham & Perin, 2007; Hillocks, 1986; Koster et al., 2015; L. A. Rogers & Graham, 2008).

All studied writing treatments have proven to be effective in improving the quality of students' texts. The unique exception is grammar instruction, which involves the explicit and systematic teaching of grammar, that was implemented in Grades 4 to 11 and had a negative impact on text quality (Graham et al., 2012; Graham & Perin, 2007). However, these results should be interpreted with caution, as grammar instruction was the treatment received by the control condition in most studies and it was also compared with a wide variety of treatments.

It is also important to consider that there is a varying amount of evidence amongst treatments. While some treatments have only been implemented by a few studies, others have been implemented by over thirty studies, in different contexts and with different populations. As in any statistical analysis, results are more reliable when there is a large number of observations, especially considering the number of variables that can affect the outcome in any educational research.

Some treatments focused on explicitly teaching skills, processes, or knowledge to enhance students' writing. Amongst these, strategy instruction, the explicit teaching of strategies to plan, produce, revise, and/or edit the text (Graham, 2006), was the most common. This treatment was implemented in Grades 4 to 10 and obtained some of the largest ESs, ranging from 0.82 in Graham and Perin (2007) to 1.47 in Graham and Harris (2003), although most studies in this last meta-analysis involved students with learning disabilities. In comparison, other treatments have focused on specific aspects of the text. Text structure instruction focuses on explicitly teaching students knowledge about the canonical structure of a specific genre. In previous meta-analyses, it obtained average ESs between 0.41 (Graham, Harris, et al., 2015) and 0.76 (Koster et al., 2015) in Grades 2 to 10. Less frequent was explicitly teaching students how to summarize (Grades 5 to 12), the specific vocabulary of a genre (Grades 3 to 8), transcription skills (Grades 1 to 3), or how to combine sentences into more complex ones (Grades 4 to 9). These treatments obtained medium to large average ESs: 0.82 for summarization (Graham & Perin, 2007), 0.78 for vocabulary (Graham, Harris, et al., 2015), 0.55 for transcription skills (Graham et al., 2012), and 0.56 for sentence combining (Graham, Harris, et al., 2015).

Other studies opted for scaffolding students' writing, providing some support during one or more of the writing processes. Amongst them, making students work together to plan, produce, and revise their productions (peer assistance or collaborative writing) and providing students with feedback on their texts (feedback or assessing writing) have been the two most researched and successful treatments. Peer assistance obtained ESs between 0.59 (Koster et al., 2015) and 0.89 (Graham et al., 2012), and was implemented in Grades 2 to 10. Similarly, feedback obtained ESs from 0.42 (Graham et al., 2012) to 0.88 (Koster et al., 2015) in Grades 1 to 12. Other studies included prewriting activities to help students think about the content of

their composition and how to organize it (Grades 2 to 9). ESs were slightly lower, between 0.32 (Graham & Perin, 2007) and 0.54 (Graham et al., 2012).

Other studies involved students setting goals for their written productions (Grades 4 to 8). Average ESs were generally large, from 0.70 (Graham & Perin, 2007) to 2.03 (Koster et al., 2015), although Koster et al.'s (2015) average ES was based in only two experiments (Schunk & Swartz, 1993). Other treatments included teaching students to be more creative in Grades 3 to 6 with an average ES of 0.70 (Graham et al., 2012), studying models in Grades 4 to 12 with average ESs of 0.25 (Graham & Perin, 2007) and 0.40 (Graham, Harris, et al., 2015), and involving students in activities aimed at discussing about content from different sources in Grades 7 to 12 with an average ES of 0.32 (Graham & Perin, 2007).

Many studies since the 80's have also examined the impact on text quality of using word processing computer programs (Grades 4 to 12). Average ESs obtained in previous meta-analyses ranged from 0.27 (Bangert-Drowns, 1993) and 0.28 (Little et al., 2018) to 0.55 (Graham & Perin, 2007). Finally, other studies examined the effect of comprehensive writing programs, the most popular being the process writing approach, characterized by engaging students in cycles of planning, transcribing, and revising, writing for real audiences, and involving students in high levels of interaction. This treatment was implemented in Grades 1 to 12 with small but significant average ESs between 0.32 (Graham & Perin, 2007) and 0.42 (Graham et al., 2012). Some studies analyzed the effect of students spending additional time writing in Grades 2 to 8, resulting in average ESs between 0.24 (Graham, Harris, et al., 2015) and 0.30 (Graham et al., 2012).

Several recommendations to improve the quality of students' writing can be drawn from these results. First, teach students strategies to plan, revise, and/or edit their texts. Start explaining the goal and rationale of the strategy, model how to use it, and provide students

support to apply the strategy so they can ultimately use it independently and effectively. Second, set goals that students must accomplish with their texts, such as identifying the communicative goal of the text (e.g., to persuade) or establishing characteristics of their composition (e.g., include two reasons to support your standpoint). Third, organize activities where students have to work together during the writing process and provide them directions regarding how they should collaborate. Fourth, teach students the prototypic structure of a genre, its core elements, and how to organize them in their texts. Fifth, provide students with feedback regarding their compositions and have students evaluate their texts and their classmates' texts. Sixth, teach them handwriting, typing, and/or spelling skills so they can devote more of their attention to other writing processes. Similarly, teach them sentence-construction skills that help them verbalize their ideas into the syntactic structures that best convey their intended message. Eighth, engage students in activities that help them generate and organize their ideas before writing. Ninth, allow them to use word processors to write their texts and teach them how to effectively use them. Tenth, provide students with good models of the genre they are required to write and ask them to emulate these texts and their characteristics. Eleventh, develop and implement comprehensive writing programs that provide students with multiple opportunities for writing to real audiences, encourage their interactions, self-reflection, and evaluation and engage them in cycles of planning, translating, and reviewing their texts. Some of these recommendations can guide the design of a whole treatment, but they can also be combined in order to target different aspects of writing.

Overall, a wide variety of approaches have proven to be effective in enhancing the quality of students' written productions, from explicitly teaching them skills, processes, and/or knowledge applicable during text production, scaffolding their writing, or even using word processors to produce their texts. However, two limitations of the previously presented meta-analyses have motived the one in Chapter 4. First, most meta-analyses only included studies

published in English and conducted in English-speaking countries, primarily in the United States. This might be biasing their sample and results, which might reduce the generalizability of their findings. Also, texts are linguistic products developed in specific cultural environments, and differences in cultural traits (Deutscher, 2010; Oyserman & Lee, 2008) and rhetorical traditions (Clyne, 1987) may impact the relative effectiveness of the implemented treatments. Besides, anglocentricity has proven to be detrimental in other literacy domains such as reading (Share, 2008), where the current state of knowledge is largely confined to English speakers reading in their native tongue. The idiosyncrasies of English, a language with a highly inconsistent orthographic system, have led several theorists to question the applicability of anglophone findings to other languages. Similarly for text production, if we pursue a universal understanding of writing processes, our research cannot be informed by a unique language.

Second, primary studies were included irrespectively of the genre they taught. Some meta-analyses coded genre as a study feature and performed subgroup analyses to determine if there were differences in the magnitude of the effect due to genre (e.g., Graham & Perin, 2007; Little et al., 2018), but only Koster et al. (2015) found such differences in the assessing writing treatment, with significantly smaller ESs for expository writing. However, genre categorization was dissimilar and most meta-analyses including multiple treatments only did such analyses with some of the treatments. Also, most primary studies focused on narrative and/or expository writing, and argumentative writing only made up a small percentage of the studies included. However, different genres require different cognitive and linguistic abilities that may influence the treatments' effectiveness (Badger & White, 2000). Thus, it is crucial to examine treatment's effects in specific genres, especially in argumentative writing.

2.7. Effects of linguistic condition

Numerous studies have compared the way monolingual and bilingual children (Calvo & Bialystok, 2014; Kapa & Colombo, 2013; Kovács & Mehler, 2009), young adults (Vega-Mendoza et al., 2015), and older adults (Bak et al., 2014; Kavé et al., 2008) solve tasks related with cognition, visual memory, and spatial processing (Kerrigan et al., 2017). Before the 1960s, the most commonly held position was that speaking two languages would not only lead to confusion and intellectual overwhelm, but also delay language acquisition in children and negatively affect the wellbeing of immigrants (Petitto et al., 2001). Afterwards, bilingualism started to be perceived more positively for several reasons: first, it was observed that in prior testing bilinguals obtained lower scores than their monolingual counterparts because most tests were administered in English, often the weaker language of the bilingual participants (Valdés & Figueroa, 1994); second, it was demonstrated that socio-economic status was producing a confounding effect, as bilinguals often presented lower SES than the monolinguals they were compared with (Cummins, 1981).

Nowadays, it is widely accepted that bilingualism has both gains and losses (Sorace, 2011). Regarding the losses, bilinguals have shown to have a smaller vocabulary in each language (Oller & Eilers, 2002; Perani et al., 2003; Portocarrero et al., 2007) and slower lexical access and verbal fluency (Bialystok et al., 2008; Bialystok & Feng, 2009; Ivanova & Costa, 2008), especially when skills are assessed in only one language.

In contrast, bilinguals exhibit enhanced executive control functions in tasks that require inhibiting conflicting information, task-switching, or retaining information while performing a task (e.g., Bialystok & Craik, 2010; see Costa & Sebastián-Gallés, 2014 for an overview; Luk et al., 2010), although some of these advantages have been recently challenged (Duñabeitia et al., 2014; Paap & Greenberg, 2013). Bilinguals have also shown greater metalinguistic

awareness in tasks that require controlled attention and inhibition (Adesope et al., 2010; Bialystok et al., 2003; Ransdell et al., 2006; Vorstman et al., 2009), but not when tasks were dependent on knowledge of grammar (Bialystok, 1986). Greater phonological awareness was also found in biliterate bilinguals with two alphabetic languages and with two typologically different languages (Bialystok et al., 2003, 2005; Leikin et al., 2010).

Bilinguals that are proficient in both languages have also shown higher cognitive empathy. Dewaele and Wei (2012) found through an online questionnaire that while knowledge of more languages, bilingual upbringing, and the experience of having lived abroad were not linked to cognitive empathy, female and graduate participants obtained higher empathy scores. They also found a small but significant correlation between multilingualism, understood as high levels of proficiency and high frequency of use of multiple languages, and cognitive empathy.

Bilingualism has shown to have an impact in individuals as young as three years old. Goetz (2003) found that three- and four-years-old Mandarin-English bilinguals obtained higher theory of mind scores than English and Mandarin monolinguals. Similarly, Genesee et al. (1975) found that students in kindergarten, Grade 1 and 2 enrolled in an immersion school were more aware of their audience and showed a higher sensitivity in interpersonal communication when explaining how to play a game by mentioning more details about the physical pieces of the game when their addressee was blindfolded.

Other studies report that individuals that speak two languages show increased density of grey matter in a region of the parietal cortex, and that the increase is more dramatic in early bilinguals and in individuals proficient in both languages (Mechelli et al., 2004). Neuroimaging studies also found that bilinguals have more resources available when performing tasks based on nonverbal conflict due to the activation of other brain areas and that these areas are also

more efficient (Bialystok, 2009). Additionally, some studies found that the neurological consequences of bilingualism result in cognitive reserve, a protective effect against cognitive decline with aging or caused by dementias (Bialystok, 2009; Kim et al., 2019), although this finding has recently been challenged by Papageorgiou et al. (2019), who saw no bilingual advantage.

Evidence suggests that at least part of the differences between bilinguals and monolinguals is caused by the interaction with the other language. Bilinguals that use the two languages on a regular basis have both active no matter which one is being used. This situation creates a problem of attentional control: the individual needs not only to select a form that meets the linguistic criteria, but also one that is in the adequate language (Bialystok, 2009; Emmorey et al., 2008).

A major concern of bilingualism is related with language acquisition and the development of young children, as it was initially thought that learning two languages at the same time would delay the acquisition of both and cause cognitive overload (Petitto et al., 2001). Overall, there is no evidence supporting the idea that bilingual education hinders language acquisition. Moreover, it has the added benefit, in comparison with monolingual education, to promote some degree of bilingualism by supporting the development of language and literacy skills in both languages (Bialystok, 2018 for a review; D. J. Francis et al., 2006; Montanari, 2014; Padilla et al., 2013; Schwartz, 2014; Schwartz & Shaul, 2013). Some studies also show that bilingual programs may not only have no academic cost in other areas of knowledge such as mathematics (Padilla et al., 2013), but also promote academic achievement (Genesee & Fortune, 2014; Han, 2012; Umansky & Reardon, 2014).

As for the impact of bilingualism on text production, the focus of this doctoral thesis, mixed results have been reported. Sun et al. (2018) compared the narratives of 390 English-

Chinese bilingual and 190 Chinese monolingual students in Grade 3. They evaluated the quality of the texts based on six aspects: ideas and development; organization, unity, and coherence; word choice; sentences and paragraphs; grammar and usage; and writing mechanics. Bilinguals obtained significantly lower scores in text quality. However, there was a cross-linguistic association between English and Chinese in the bilingual group which supported, in association, their writing competence in both languages. In contrast, Danzak (2020) compared the argumentative written productions[4] of 65 students in Grades 4 to 8 in gifted and talented programs, 32 of whom were identified as English-Spanish bilinguals. The assessment of the texts included word- and sentence-level measures, lexical diversity, sentence and phrase complexity, and fluency. Text quality was assessed based on content, structural elements, and spelling. There were no significant differences between the two groups in any measure but, again, bilinguals were able to transfer their text-level academic knowledge from English, the language of instruction, to Spanish.

Different results were obtained by Poorebrahim et al. (2019), who studied the argumentative written productions of 91 Turkish-Persian bilingual and 85 Persian monolingual undergraduate language students. Their texts were evaluated following an analytical prompt on content, organization, discourse, syntax, vocabulary, and mechanics. Results show that bilinguals wrote significantly better texts than their monolingual peers, and they also used more positive affective strategies (e.g., anxiety alleviation and calming or "self-relation" techniques such as deep breathing and meditation). Also, correlational analyses showed that bilingualism and the frequency of use of socio-affective strategies were highly correlated with text quality.

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[4] Even though the author identifies the genre as expository writing, the students write a text as a response to the prompt "If you could change anything about your school, what would you change and why? Explain.", which is eliciting their personal opinion and, therefore, would be considered in the context of this doctoral thesis a type of argumentative text.

Similarly, Galindo (2012) compared the argumentative texts of university students, 26 in an English-Spanish bilingual program and 47 in a Spanish monolingual program. Their texts were assessed based on genre appropriateness, their thesis, the arguments included, the overall conclusion, and the connectors deployed. Bilinguals obtained significantly better results in all measures. However, bilingual participants were enrolled in a language graduate program, while the monolinguals came from programs in mathematics, Spanish and literature, biology, and environmental education. Researchers reported that students were matched in age, language ability, and writing experience, but there are no details nor further information about how these aspects were assessed.

Finally, Hsin and Snow (2017) investigated the written arguments of students in Grades 4 to 6, 41 from language-minority homes and 39 English-only students, focusing on the social perspective-taking acts deployed in students' written productions. Their results show that, despite the limited exposure to English written materials that the students from language-minority homes had received, they obtained similar or better results after text length was controlled on two measures of perspective taking: perspective acknowledgment and perspective articulation. This study proposes a new dimension of the bilingual advantage, not only relevant to argumentative writing but also to the academic development of bilingual students.

Overall, linguistic condition has proven to have an impact on language and cognitive functioning. There is concurrent evidence that bilinguals have a smaller vocabulary in each language and slower lexical access and verbal fluency. In contrast, bilinguals exhibit greater metalinguistic awareness in tasks that involve inhibition and controlled attention and greater phonological awareness, as well as increased density of grey matter and additional activation in certain areas of the brain, that have also shown to be more efficient. Bilingualism also

enhances the development of theory of mind and audience awareness in kindergarten students, and bilinguals that are proficient and frequently use both languages also show higher cognitive empathy. In contrast, there is conflicting evidence regarding the effect of bilingualism in executive control functions and cognitive reserve, that is, the protective effect against cognitive decline. Finally, while some studies have reported that elementary school bilinguals write texts of lower quality than their monolingual counterparts, studies with older participants have found similar results or even a bilingual advantage.

2.7.1. Assessment of linguistic condition

In the studies previously reported, students' linguistic condition was usually portrayed through questionnaires that combined questions related to language use, instruction received, and language proficiency. The last domain is commonly addressed through self-assessment, as it is more time-efficient than language proficiency tests. The evidence is mixed regarding the validity of self-assessment (Ross, 2006), but its reliability increases if students have previous experience with this approach and understand what is being evaluated (Shrauger & Osberg, 1981). Despite combining questions related to different aspects that may describe participants' linguistic condition, most studies have typically used a dichotomous characterization (monolingual versus bilingual) of this condition for testing its effects on cognitive and linguistic tasks. Yet this dichotomous distinction is of little value for assessing its effect in bilingual communities, as there are marked internal differences between individuals considered, in general terms, as bilingual (Danzak, 2011; N. Francis, 1999).

Moreover, many studies do not provide a clear description nor definition of the linguistic profile of the participants they characterize as bilingual. Defining bilingualism is a complex endeavor, affected by factors such as the age of acquisition of both languages, the proficiency level, the degree of exposure, and the context in which each language was learnt

(Gottardo & Grant, 2008). As previously mentioned, it is common to consider bilingualism as a dichotomous condition: individuals that have either acquired two languages or not (Brutt-Griffler & Varghese, 2004). However, bilingualism should be conceived as a continuum (Gottardo & Grant, 2008), in which *true* bilinguals, those who have native-like proficiency in the two languages, stand in the middle. However, true bilingualism is rare (Cutler et al., 1992), and most bilinguals have varying degrees of proficiency in both languages.

2.7.2. Linguistic conditions in Catalonia and Spain

Given the implication of language and cognitive functioning in the ability to write analytical texts, one of the goals of the EsCan project and of this doctoral thesis is to determine the impact of students' linguistic condition in the development and microdevelopmental of analytical writing. Thus, participants were selected from regions with contrasting linguistic situations: Catalonia, on the one hand, and Castille-La Mancha and Castile and León, on the other.

Catalonia has high levels of bilingualism. Catalan and Spanish are co-official languages, and although Catalan is the main language of instruction, there is a widespread use of both languages with a massive presence of Spanish in the media. The last data gathered by the Catalan Institute of Statistics (Institut Català d'Estadística, 2018; see Table 2.1) shows that people tend to use Catalan or Spanish depending on the context. At home, most people either always use Catalan or Spanish. Only around a quarter of the population uses both languages at home. With friends, the use of both languages is more common, and almost half of the population does so. A 13.4% always uses Catalan and a 28.9% always uses Spanish. At school and/or work, the pattern is similar: almost half of the population uses both languages, a 16.8% always uses Catalan, and a 23% always uses Spanish. In other contexts, the use of only one of the two languages is, again, more common: over half of the population always uses one or the

other, and only over a third uses both. Finally, other languages are not very common in any of these contexts.

Table 2.1

Language use across contexts, in percentages

Context	Always Cat	Cat > Spa	Cat = Spa	Spa > Cat	Always Spa	Other
Home	27.2	5.6	7.8	10.1	37.7	11.6
Friends	13.4	16.5	18.3	13.1	28.9	9.8
School/work	16.8	16.6	19.7	13.1	23	11
Other*	23.6	13.7	15.1	8.6	32.2	6.9

Note. Population 15 years of age or more. For language use, Cat = Catalan, Spa = Spanish. The category *other* includes information originally reported separately regarding communicating to clients, in small and big shops, banks, the administration, medical staff, and when writing message on the phone.

In addition, since 2004 foreign language learning begins in Grade 1 and during the first decade of 2000, a substantial number of immigrants from around the world settled in Catalonia, bringing their languages and cultures to schools and turning Catalonia into a more multilingual region (Escobar Urmeneta & Unamuno, 2008).

Table 2.2

Number of languages excluding L1 people are proficient, in percentages

Language	None	One	Two	Three or more
Castille-La Mancha	63.3	27.8	7.2	1.7
Castile and León	45.4	38.8	12.1	3.7
Catalonia	25.2	44	22.1	8.8

As mentioned, the EsCan project also included participants from Ciudad Real, in Castille-La Mancha, and León, in Castile and León. The most recent data regarding language

competence (Instituto Nacional de Estadística, 2011) shows in how many languages inhabitants of each autonomous community feel competent in, excluding their L1 (see Table 2.2).

In Castille-La Mancha, around two thirds of the population only feel competent in their L1, while around a quarter also feels competent in another language. Less than a 10% speak two or more languages on top of their L1. In Castile and León there is more people that feel competent in other languages than their L1. Under half of the population only speak their L1, a 38.8% also feel competent in another language and almost a 15.8% in two or more languages on top of their L1. As for Catalonia, only a quarter of the population reported only feeling competent in their L1, while a 44% also feel competent in another language. Finally, almost a 30% feel competent in two or more languages on top of their L1. However, some people in Catalonia consider Catalan and Spanish their L1. Therefore, some percentage in the first column for Catalonia also includes bilingual individuals. Overall, these data indicate that Catalonia, in comparison with Castille-La Mancha and Castile and León, is a more multilingual region.

2.8. The EsCan project

The data that were collected for the present doctoral thesis were obtained within the framework of the project named *Analytical writing and linguistic diversity: developmental and micro-developmental changes from primary to higher education*, sponsored by the Spanish Ministry of Economy and Competitiveness (Grant EDU2015-65980-R). The project aimed (1) to provide a descriptive framework about the production of analytical texts to account for the developmental and microdevelopmental changes observed from elementary to higher education, (2) to determine how the implementation of a writing treatment affects the quality of analytical texts, and (3) to examine how the participants' linguistic background impacts the features of the texts. The data presented in the following section was gathered in the first

session of the writing treatment. A detailed description of the treatment can be found in Section 5.3.2.

2.8.1. Participants

637 participants from three levels of schooling took part in the study: 191 from Grade 6 of elementary school, 226 from Grade 10 of high school, and 220 from second year of university. The three age groups were chosen based on previous crosslinguistic research on developing text construction abilities, which found major developmental differences between upper elementary school and high school adolescents (Berman, 2004a, 2007). This pattern was consistent across genres (expository and narrative), mode of production (oral and written), and across the domains analyzed, from local-level linguistic expression (lexicon and syntax) to global-level text quality and thematic content (Berman, 2017). Adolescence is, thus, a major developmental cut-off point. Nonetheless, writing skills continue developing beyond adolescence, especially in genres that require more advanced cognitive and linguistic abilities like expository and argumentative writing (Berman & Nir-Sagiv, 2009; Boscolo, 1990). It is thus reasonable to also expect finding developmental differences between high school and university students, more experienced in the academic genres.

A total of 305 participants were bilingual Catalan/Spanish speakers schooled in Catalan, from the province of Barcelona, and 342 were monolingual Spanish speakers from Ciudad Real and León. Catalan participants attended three classes in two different elementary schools, six classes in four high schools, and two classes in one university. Spanish participants attended four classes in two elementary schools, three classes in three high schools, and three classes in one university. All university participants were studying the bachelor's degree on elementary education teaching. The schools were selected on the following basis: they had more than one class per grade, the teachers were willing to participate in the project, and students mainly had

a middle-class SES background. We obtained approval by the Ethics Committee of the University of Barcelona and elementary and high school parents signed consent forms. None of the participants had any speech, cognitive or hearing disability that would hinder them from completing the tasks.

All participants filled a detailed sociolinguistic questionnaire that included questions related to their personal information, the activities they perform out of school, L1, language use across contexts, language proficiency, and language used to think and calculate. The questionnaire also included questions about their parents' education and occupation and two perspective-taking tasks. There were several reasons that supported gathering this information: first, sociodemographic variables have proven to be relevant in children's literacy achievements (Bialystok, 2018); second, it allowed confirming that participants in the Catalan sample were bilingual, and those in the Spanish sample were monolingual; third, for verifying that both samples are comparable in terms of these variables legitimizes discarding that the results obtained are a result of sociodemographic differences.

Table 2.3 displays participants' sociodemographic information. Students that did not participate in all sessions were excluded from the sample. The bilingual sample was comprised of 53 (22 female) elementary school students ($M = 11.52$ years), 72 (34 female) high school students ($M = 15.85$ years), and 56 (43 female) university students ($M = 20.08$ years). 124 participants of this group were excluded from the analyses due to incomplete data. The monolingual sample was comprised of 65 (34 female) elementary school students ($M = 11.62$ years), 78 (45 female) high school students ($M = 15.86$ years), and 69 (42 female) university students ($M = 20.87$ years). 173 participants of this group were excluded from the analyses due to incomplete data.

Table 2.3

Participants' sociodemographic information and parental education and occupation

School level	n (n female)	Age (SD)	Parental education (SD)	Parental occupation (SD)
		Bilingual group		
Elementary school	53 (22)	11.52 (0.25)	2.51 (0.58)	46.19 (20.68)
High school	72 (34)	15.85 (0.58)	2.17 (0.52)	53.66 (23.27)
University	56 (43)	20.08 (1.05)	2.17 (0.69)	48.02 (17.98)
		Monolingual group		
Elementary school	65 (34)	11.62 (0.28)	2.73 (0.47)	40.98 (22.47)
High school	78 (45)	15.86 (0.67)	2.39 (0.57)	53.11 (25.61)
University	69 (42)	20.87 (2.31)	2.04 (0.66)	60.42 (23.83)

Parental education was scored from one to three, one representing elementary school graduates, two high school graduates, and three university graduates. In the bilingual group, elementary school students present the highest scores ($M = 2.51$ years, $SD = 0.58$), as most parents were either high school or university graduates. The mean score in high school and university was the same, 2.17, as there was a higher percentage of parents that were high school graduates. A similar pattern was found in the monolingual group, with elementary school students presenting the highest scores at 2.73. High school students had a mean score of 2.39, with most parents being either high school or university graduates. University participants presented the lowest scores, 2.04, as there was a similar percentage of parents across the three levels of schooling. Overall, parental education was higher in the monolingual group in elementary and high school and slightly lower in university.

Level of parental occupation was scaled on the Spanish National Classification of Occupation (Instituto Nacional de Estadística, 2010) based on occupational requirements and SES factors, with higher values corresponding to lower training requirements and SES. According to data from 2020, the average score in Spain is 48.52. Amongst the bilingual group,

the parents of elementary school students had the lowest scores ($M = 46.19$), indicating jobs with higher training requirements and SES, closely followed by the university group ($M = 48.02$) and, lastly, by the high school group ($M = 53.66$). Only this last group presented scores above the national mean. The monolingual group presented the same pattern than for education, as elementary school presented the lowest scores ($M = 40.98$), followed by high school ($M = 53.11$) and university ($M = 60.42$). Only parents of elementary school students presented scores below the mean. Overall, parental occupation scores were higher in elementary school in the bilingual group, similar in high school, and higher in university in the monolingual group.

We also collected information regarding participants' first language[5]. In order to compare both groups, we coded languages as local (Catalan and Spanish for the bilingual group and Spanish for the monolingual group) or non-local (languages other than Catalan and Spanish for the bilingual group and other than Spanish for the monolingual group). Thus, student responses were divided in three groups: (1) participants with only local languages as their first language, (2) participants with local and non-local languages as their first language, and (3) participants with only non-local languages as their first language. The percentage of participants in each group by school level and language can be found in Table 2.4.

In the bilingual group, the first language of most participants was Catalan, Spanish, or both. Only a 7.5% of the participants in elementary school, a 12.5% in high school and a 3.6% at university had another language on top of Catalan and/or Spanish as their first language. Only a single participant from the university group did not have Catalan nor Spanish as a first language. Regarding the monolingual group, the results are very similar: most of the participants had Spanish as their first language. Only a 7.7% in elementary school, a 2.6% in

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[5] We asked university students what was their first language(s), and elementary and high school participants what language(s) they speak at home.

high school, and a 1.4% at university had another language on top of Spanish as their first language. Only in elementary school there was a 6.2% of participants that did not have Spanish as a first language. Overall, most participants in both groups had a local language as their first language.

Table 2.4

Participants' first language, in percentages

School level	Local language	Local and non-local language	Non-local language
Bilingual group			
Elementary school (*n* = 53)	92.5	7.5	0
High school (*n* = 72)	87.5	12.5	0
University (*n* = 56)	94.6	3.6	1.8
Monolingual group			
Elementary school (*n* = 65)	86.2	7.6	6.2
High school (*n* = 78)	97.4	2.6	0
University (*n* = 69)	98.6	1.4	0

Given that most of the participants in the Catalan group could be considered bilingual and that both Catalan and Spanish are frequently used in most contexts, the questionnaire administered to the Catalan participants included further questions about their language competence in the two languages, their language use in different contexts, and their language use when performing mental operations.

Regarding language competence, the participants were asked to self-evaluate their language competence in Catalan and Spanish in the four domains: speaking, listening, reading, and writing from 1, *poor*, to 4, *very good*. Descriptive results by school level and linguistic domain can be found in Table 2.5. In elementary school, listening scores were the highest, with almost three quarters of the students evaluating their listening competence as very good. Next, most participants perceived their speaking and reading competence as either good or very good,

with mean scores of 3.3 and 3.23, respectively. Writing scores were the lowest, with a mean score of 2.85, indicating that, on average, most students evaluated their writing competence below good. Very few participants evaluated their competence in any of the domains as poor.

Table 2.5

Self-reported language competence in Catalan, in percentages

Domain	Poor	Average	Good	Very good	Mean (*SD*)
Elementary school (*n* = 53)					
Speaking	1.9	5.7	52.8	39.6	3.3 (0.67)
Listening	1.9	0	24.5	73.6	3.7 (0.58)
Reading	3.8	9.4	47.2	39.6	3.23 (0.78)
Writing	3.8	30.2	43.4	22.6	2.85 (0.82)
High school (*n* = 72)					
Speaking	0	4.2	61.1	34.7	3.31 (0.55)
Listening	0	0	13.9	86.1	3.86 (0.35)
Reading	0	4.2	45.8	50	3.46 (0.58)
Writing	2.8	27.8	56.9	12.5	2.79 (0.69)
University (*n* = 56)					
Speaking	1.8	0	37.5	60.7	3.57 (0.6)
Listening	1.8	0	1.8	96.4	3.93 (0.42)
Reading	1.8	0	23.2	75	3.71 (0.56)
Writing	1.8	3.6	46.2	48.2	3.41 (0.65)

The same pattern emerged in the high school group: the highest evaluated domain was listening, with most participants evaluating their competence as very good. Next were reading, with a mean score of 3.46, and speaking, with 3.31. No participants evaluated their competence in any of these domains as poor, and very few as average. Writing was, again, the domain evaluated the lowest, with a mean score of 2.79. Most participants evaluated their competence as good, over a quarter as average, and only a 12.5% as very good. Two participants also evaluated their writing competence as poor.

University students also evaluated their listening competence the highest, with almost all of them considering it as very good. Speaking and reading also presented similar results, with mean scores of 3.57 and 3.71, respectively. Most participants evaluated their competence in these domains as very good, and none of them as average. Once more, writing results were the lowest, although only slightly below speaking, with a mean of 3.41. Almost half of the participants evaluated their competence as good, and the other half as very good. Two participants evaluated it as average. Only a single participant evaluated his/her language competence in all domains as poor, the single participant that reported not having neither Catalan nor Spanish as a first language.

Participants were also asked to self-report their linguistic competence in Spanish (see Table 2.6). Elementary school students evaluated their listening competence the highest, with most of them scoring it as very good and only around a third as good. Next was speaking, with a mean score of 3.3 and most students scoring it as either good or very good. Only a 13.2% perceived their speaking competence as average. Reading scores were slightly lower with a mean of 3.13. Over half of the participants evaluated their reading skills as good and a 13.2% as average. There was also one participant that considered it poor. Last, writing scores were the lowest, with a mean score of 2.92, just below good.

Similar results were obtained in high school: the highest evaluated skill was listening, with almost all participants perceiving their competence in this domain as very good. Speaking and reading obtained very similar results, with mean scores of 3.65 and 3.67, respectively. Over 70% of the participants evaluated their competence in these skills as very good, around a quarter as good and very little as average. Writing scores were, again, the lowest, with a mean of 3.18. Over half of the participants perceived their writing skills as good and only an 11.1% as average. A single participant evaluated his competence in this domain as poor.

Table 2.6

Self-reported language competence in Spanish, in percentages

Domain	Poor	Average	Good	Very good	Mean (*SD*)
Elementary school (*n* = 53)					
Speaking	0	13.2	43.4	43.4	3.3 (0.7)
Listening	0	3.8	32.1	64.2	3.6 (0.57)
Reading	1.9	13.2	54.7	30.2	3.13 (0.71)
Writing	0	22.6	62.3	15.1	2.92 (0.62)
High school (*n* = 72)					
Speaking	0	5.6	23.6	70.8	3.65 (0.59)
Listening	0	0	11.1	88.9	3.89 (0.32)
Reading	0	4.2	25	70.8	3.67 (0.56)
Writing	1.4	11.1	55.6	31.9	3.18 (0.68)
University (*n* = 56)					
Speaking	0	5.4	26.8	67.9	3.63 (0.59)
Listening	1.8	0	5.4	92.9	3.89 (0.45)
Reading	1.8	0	12.5	85.7	3.82 (0.51)
Writing	1.8	3.6	37.5	57.1	3.5 (0.66)

University participants also scored their listening skills the highest with a mean score of 3.89. Reading was next, with a mean score of 3.82. Only a 12.5% of the participants considered their reading skills as good rather than very good. Scores for speaking were slightly lower, with a mean of 3.63. Again, writing was the skill with the lowest score, with a mean of 3.5. Still, over half of the students evaluated their writing competence as very good. Finally, there was only one participant that evaluated her competence in listening, reading, and writing as poor.

Overall, scores were very similar comparing participants' self-evaluated language competence between Catalan and Spanish. Elementary school students presented the same scores across languages for speaking, slightly higher for listening and reading in Catalan, but slightly lower for writing. High school participants had slightly higher scores in Spanish for

speaking, reading, and writing, and very similar in listening. At university, results across languages were also very similar, although also slightly higher in Spanish for speaking, reading, and writing.

Participants were also asked about their language use and preference when performing different activities and in different contexts (see Table 2.7). In elementary school, almost all participants reported mainly using Catalan at school, either always or more often than Spanish. Only a few participants used Spanish over Catalan. Out of school results were very similar, although there were more participants that used Spanish as often as Catalan, and also a few more that always used Spanish. When reading, over a third of the participants used Catalan as much as Spanish, around a quarter used Catalan more than Spanish, and only a 20.8% always used Catalan. There were also a few participants that read in Spanish more often than in Catalan or that always read in Spanish. The results were very different when asked about watching TV: around a third of the participants always did so in Spanish, around the same number did so in Spanish more often than in Catalan, and only a quarter watched it in Catalan as much as in Spanish. Very little participants watched TV always in Catalan or more often than in Spanish.

In high school, Spanish was more commonly employed: at school, around a third of the participants always used Spanish, and around a 20% either used both languages similarly or one more often than the other. Only an 11.1% always used Catalan and the same percentage used a different language more often than Catalan and Spanish. Out of school, the use of Spanish was even higher: almost half of the participants always used Spanish, and a 19.4% used Spanish more often than Catalan. Around a 30% used both languages similarly, used Catalan more often than Spanish or always used Catalan. A single participant reported using another language more often. Spanish was also used more often than Catalan when reading. A third of the participants reported using Spanish more often than Catalan and around a quarter

reported always using Spanish. A 27.8% used both languages similarly, and only a few used Catalan more often or always. Also, a single participant reported using a different language more often than Catalan and Spanish and two reported always using another language. As for watching TV, the results are similar, although Spanish was even more common. Only two participants reported always or usually watching TV in Catalan. Also, a 6.9% of the participants reported watching TV in another language more often than in Catalan or Spanish, and the same percentage always watching it in another language.

Table 2.7

Language use and preference per context, in percentages

Context	Always Cat	Cat > Spa	Cat = Spa	Spa > Cat	Always Spa	Other > Spa/Cat	Always Other
Elementary school (*n* = 53)							
At school	49.1	28.3	17	1.9	3.8	0	0
Out of school	45.3	20.8	22.6	3.8	7.5	0	0
Reading	20.8	24.5	37.7	9.4	5.7	1.9	0
Watching TV	1.9	3.8	26.4	34	32.1	1.9	0
High school (*n* = 72)							
At school	11.1	20.8	16.7	19.4	31.9	11.1	0
Out of school	8.3	12.5	9.7	19.4	48.6	1.4	0
Reading	8.3	2.8	27.8	34.7	22.2	1.4	2.8
Watching TV	1.4	1.4	18.1	31.9	33.3	6.9	6.9
University (*n* = 56)							
At school	26.8	32.1	14.3	23.2	3.6	0	0
Out of school	17.9	26.8	14.3	21.4	19.6	0	0
Reading	1.8	17.9	37.5	32.1	8.9	0	1.8
Watching TV	3.7	24.1	33.3	24.1	3.7	11.1	0

As for university students, around a third of them reported using Catalan more often than Spanish at school. Around a quarter always used Catalan and also around a quarter used Spanish more often than Catalan. Only a 14.3% reported using Catalan as much as Spanish, and just two participants always using Spanish. Results were slightly different regarding out of

school usage. Participants' responses were more evenly spread amongst all the options and around half of them either used Catalan more often than Spanish or the other way around. Around a 20% reported always using one or the other, and only a 14.3% using one as much as the other. When reading, most of the participants used both languages: a 37.5% used both languages similarly, a 32.1% used Spanish more often than Catalan, and a 17.9% read in Catalan more often than in Spanish. Only a few participants reported reading only in one of the languages, and a single one always reading in another language. Finally, a third of the participants reported watching TV in Catalan as much as in Spanish and around half of them watching it more often in one of the two languages. Only a few participants reported always watching it in either Catalan or Spanish. Also, an 11.1% reported watching it more often in a different language.

Overall, elementary school students used Catalan more often at school, out of school, and when reading, while Spanish was more common when watching TV. High school students showed a preference for Spanish, being more often used in all contexts and activities. University students used Catalan more often than Spanish at school, both similarly out of school and when watching TV and Spanish slightly more often when reading. Using other languages was rare in all school levels, although slightly more common in high school at school and when watching TV and in university also when watching TV.

The questionnaire also included questions regarding the language they usually used when performing mental operations; more precisely, when thinking and when performing mental calculations (see Table 2.8). When thinking, most elementary school participants reported always using Catalan, around a quarter reported often thinking in Catalan, and just a few not often or never thinking in Catalan. Spanish was employed to think less often: a quarter reported always thinking in Spanish, a third to often do so, a third to not often do so, and only

a 7.8% never thinking in Spanish. Finally, even less common was thinking in another language, as a single participant reported always thinking in a language other than Catalan and Spanish, two participants often doing so, and the vast majority either not often or never using a different language when thinking.

Table 2.8

Language use when performing mental operations, in percentages

Language	Never	Not often	Often	Always
Elementary school ($n = 53$)				
Thinking				
Catalan	2	8	26	64
Spanish	7.8	33.3	33.3	25.5
Other	40.4	53.2	4.3	2.1
Calculating				
Catalan	1.9	3.8	28.3	66
Spanish	13.7	45.1	29.4	11.8
Other	69.4	26.5	4.1	0
High school ($n = 72$)				
Thinking				
Catalan	11.3	38	31	19.7
Spanish	2.8	19.4	20.8	56.9
Other	50	30.6	14.5	4.8
Calculating				
Catalan	12.7	26.8	25.4	35.2
Spanish	11.3	14.1	19.7	54.9
Other	69	24.1	5.2	1.7
University ($n = 56$)				
Thinking				
Catalan	1.9	16.7	31.5	50
Spanish	5.6	20.4	33.3	40.7
Other	38	46	16	0
Calculating				
Catalan	5.5	25.5	20	49.1
Spanish	9.3	22.2	27.8	40.7
Other	85.4	10.4	4.2	0

Very similar results were obtained when performing mental calculations, although in this case even less participants used languages other than Catalan: only an 11.8% reported

always calculating in Spanish and a 29.4% often doing so, and only a 4.1% reported often calculating in another language and a 26.5% not often calculating in a language different than Catalan and Spanish.

In high school, the use of Spanish when performing mental operations was more common than in elementary school. As for thinking, most of the participants reported either often or not often thinking in Catalan, while over half of them reported always thinking in Spanish and a 20.8% often doing so. A 4.8% reported always thinking in a different language and a 14.5% often doing so. The vast majority, however, reported never thinking in a language other than Catalan and Spanish. As for calculating, Catalan was slightly more used than for thinking, as around a third of the participants reported always calculating in Catalan, a quarter often calculating in that language, and over another quarter not often doing so. Spanish use when calculating was similar than when thinking, as over half of the participants reported always calculating in Spanish and a 19.7% often doing so. Calculating in another language was, again, not common, as only a few participants reported always or often doing so, while the vast majority reported never calculating in a language other than Catalan and Spanish.

University participants showed a similar use of Catalan and Spanish when performing mental operations. Regarding thinking, half of them reported always thinking in Catalan, around a third often doing so, and the majority of the rest not often thinking in Catalan. A 40.7% reported always thinking in Spanish and a third often doing so. Other languages were rarely used when thinking, as only a 16.7% reported often thinking in a different language. Similar results were observed when asked about performing mental calculations: around half of the participants reported always calculating in Catalan, a 20% often doing so, and around a quarter not often doing so. As for Spanish, a 40.7% reported always calculating in Spanish and over a quarter often doing so. Also, a 22.2% reported not often calculating in Spanish, and a 9.3% never

doing so. Finally, just 4.2% of the participants reported often calculating in a different language, a 10.4% not often doing so, and the rest never using a different language when calculating.

In conclusion, elementary school students self-reported language competence was either good or very good, and Catalan received slightly higher scores than Spanish. Out of the four domains, listening always obtained the highest scores and writing the lowest. Regarding language use, Catalan was more common out of school, when reading, and specially, at school, while Spanish was usually the language used when watching TV. As for mental operations, Catalan was the main language both to think and to calculate and other languages were rarely employed. Different results were obtained in high school: students reported a higher perceived level of competence in Spanish in the four domains, although most scores in both languages were above the good mark. Again, listening was the domain with the highest average scores, and writing the one with the lowest. Spanish was used more often than Catalan across contexts, although results were more balanced at school than for the rest. Students also reported thinking and calculating in Spanish more often than in Catalan, and very infrequently doing so in other languages. Finally, university students reported high levels of competence across domains and only slightly higher for Spanish. Once more, listening was the highest rated skill and writing was the lowest, although with more moderate differences. They also exhibited a more balanced use of both languages across contexts, with Catalan being more common at school, both languages being employed similarly out of school, and Spanish dominating when reading and watching TV. Both languages were also employed when thinking and calculating, although Catalan slightly more often than Spanish.

Chapter 3. Objectives and hypotheses

The main goal of this doctoral thesis is to characterize the development and microdevelopment of the rhetorical structure of analytical writing. More specifically, our aim is to determine the impact of age/school level and students' linguistic condition on these processes. First, examining the analytical texts of students from elementary school to university allows providing a broad developmental framework, from an age/school level in which students are already familiar with the language of schooling but far from mastering it, to adolescence, a major developmental cut-off point in expository and argumentative writing, and to university, where students have a wider experience in the academic genres. Based on the literature reviewed, we expect age/school level to have a positive impact in the students' ability to write analytical texts.

In addition, we aim to determine the impact of students' linguistic condition in these processes. The participants in the EsCan project were from Catalonia, on one side, and Castille-La Mancha and Castile and León, on the other. The latest data on linguistic use and language competence in these areas shows that Catalonia is a more multilingual region. Furthermore, the results obtained by the questionnaire administered to all participants indicate that we can consider the first group mainly bilingual and the second mainly monolingual. Thus, comparing the development and microdevelopment of analytical writing in these two groups allows determining the effect of participants' linguistic condition in their texts. Based on previous results comparing the argumentative texts of monolingual and bilingual students, we expect the bilingual participants to outperform their monolingual counterparts. These goals will be met in Study 2 (Chapter 5).

In contrast, the goal of Study 1 (Chapter 4) is twofold. First, and in relation to the meta-analysis per se, to determine the effectiveness of argumentative writing interventions in

Romance languages on text quality. Most previous meta-analyses on writing have mainly included primary studies conducted in English-speaking countries focused on narrative and/or expository writing. Thus, it is unclear whether their results can be generalized to other genres and languages. Second, and in relation to the developmental and microdevelopmental study conducted in the present doctoral thesis (Study 2, Chapter 5), to inform the design of the writing treatment implemented in the EsCan project.

Overall, our main goal of characterizing the development and microdevelopment of analytical writing will be realized by four specific objectives:

(1) to determine the effectiveness of argumentative writing interventions implemented in Romance languages on the quality of the texts students produced.

(2) to inform the design of the writing treatment implemented in the EsCan project.

(3) to determine the impact of age/school level and students' linguistic condition in the development of the rhetorical structure of analytical writing.

(4) to determine the impact of age/school level and students' linguistic condition in the microdevelopment of the rhetorical structure of analytical writing.

With regards to specific objective (1), we expected to find an overall significant positive effect of the argumentative writing interventions implemented. Previous meta-analyses showed that all studied writing treatments except for grammar instruction had a positive effect in text quality (e.g., Graham & Perin, 2007; Koster et al., 2015; Little et al., 2018). To test this hypothesis, we performed a meta-analysis including interventional studies implemented in a Romance language with argumentative writing as the focus of instruction. The meta-analysis also aimed to fulfill the specific objective (2), identifying the writing treatments that had a

positive impact in argumentative writing in a Romance language to inform the design of the writing treatment of the EsCan project.

Regarding the specific objective (3), we expected that with increased age-school level, students would produce rhetorical structures that better attained the communicative goals of analytical writing. Specifically, the communicative goals of the genre would be met through the combination of differentiated units of discourse that exhibited features of exposition and argumentation. As for students' linguistic condition, given that bilinguals have shown an enhanced development of audience awareness, higher cognitive empathy, and, with older participants, the ability to produce texts of higher quality, we expected it to have a positive impact on their writing performance.

As for the specific objective (3), we predicted that older students would produce texts with rhetorical structures that better attained the communicative goals of the genre in all the texts they wrote. Similarly, we expected bilingual students to outperform their monolingual peers in terms of the rhetorical structures they developed. Finally, we expected all students to produce better rhetorical structures after the writing treatment and to sustain this improvement in the last text.

Chapter 4. Teaching of argumentative writing in Romance languages: a meta-analysis

4.1. Introduction

This chapter aims to determine the effectiveness of argumentative writing interventions implemented in Romance languages on the quality of the texts students produced. As we have previously mentioned, writing is an indispensable skill for academic development, for career advancement, and for socially interacting with others through online communication and social media platforms. Given the importance that writing has in present-day societies, students that do not adequately develop their writing skills are at a disadvantage (Greenwald et al., 1999; L. A. Rogers & Graham, 2008), and several studies have shown that to be the case for a high percentage of students (Henkens, 2010; NAEP, 2011; Persky et al., 2003). In order to reverse this situation, teachers must have at their disposal evidence-based treatments that effectively impact students' writing abilities.

Many studies have examined the effectiveness of writing treatments during the last decades, and meta-analyses are especially useful to synthesize their results. They provide a summary effect size (ES), a value that reflects the overall effectiveness of the treatments implemented on an outcome (Lipsey & Wilson, 2001), and allow comparing different treatments to determine which ones are more effective and examine whether any variables are moderating the magnitude of the effect. In addition, meta-analyses focus on the magnitude and the direction of the effect rather than on significance testing, that is, on the size of the effect and whether it positively or negatively impacts the outcome.

Consequently, several meta-analyses have been conducted to study the effect of writing treatments (e.g., Bangert-Drowns, 1993; Biber, Nekrasova, et al., 2011; Gersten & Baker,

2001; Graham & Perin, 2007; Graham & Sandmel, 2011; Little et al., 2018). All studied writing treatments have proven to be effective in improving text quality with the exception of grammar instruction, that had a negative impact in two meta-analyses (Graham et al., 2012; Graham & Perin, 2007). Amongst the most studied treatments, product goals and strategy instruction have obtained the largest ESs, usually over 0.80. Peer assistance, feedback, and text structure instruction have resulted in medium ESs, generally between 0.50 and 0.80. Finally, prewriting activities, word processing, and the process writing approach have produced small but significant ESs, between 0.30 and 0.50 (see Section 2.6 for a more detailed description of the different treatments).

However, two limitations of these meta-analyses have motivated this study, as they do not allow generalizing their results to the goals of this doctoral thesis. First, most of them only included studies conducted in English in English-speaking countries, primarily in the United States, which might be biasing their sample and results and might reduce the generalizability of their findings to other languages and countries. Second, genre was not part of their selection criteria, and even though some of them coded genre as a study feature and performed subgroup analyses to determine the impact of this variable in the magnitude of the effect, genre categorization was dissimilar and most meta-analyses including multiple treatments only did such analyses with some treatments. In addition, most primary studies focused on narrative and/or expository writing, and argumentative writing was heavily underrepresented.

Our meta-analysis aims to overcome the mentioned limitations and fill this gap in the literature by, on the one hand, only including studies carried out in Romance languages. These are a great alternative to explore the effectiveness of writing interventions in languages other than English. The major and most spoken languages of this family are Spanish, Portuguese, French, Italian, Romanian, and Catalan. Romance language-speaking countries host over a

billion speakers and extend throughout America, Europe, Africa, and Asia. Although differing in the transparency of their orthographic system (French highly opaque, Spanish highly transparent), Romance languages show important typological differences at a syntactic and morphological level with English. Also, Romance language-speaking countries share commonalities regarding their language, rhetorical tradition, and cultural traits, contrasting from those found in English-speaking countries. Even though we focus on linguistic differences, texts are linguistic products developed in specific cultural environments, thus differences in cultural traits and rhetorical traditions may also impact the relative effectiveness of the implemented treatments. In addition, and in the context of the EsCan project and this doctoral thesis, only including studies developed in a Romance language allows informing the design of the writing treatment of the EsCan project, implemented in Catalan and Spanish.

On the other hand, our meta-analysis focuses strictly on argumentative writing, the writing of schooling. This writing mode is crucial for every student's development as it fosters critical thinking skills. It is a key component in the scientific discourse as a tool for developing, discussing, and producing knowledge a has been the focus of attention in the United States and England in the last decade (Newell et al., 2011). However, in Romance language-speaking countries, attention to this genre is more diverse: in Colombia (Decree 230/2002), France (Article D.311-5/2018), Italy (Ministerial Decree 254/2012), and Spain (Royal Decree 126/2014, 1105/2014), the curriculum highlights the importance of learning to write argumentative texts, while countries like Argentina (Law 26.206/2006), Chile (Law 20.370/2009), Mexico (Law DOF30.09/2019), or Venezuela (Organic Law 5.929/2009) only point out the need to develop oral argumentation skills. However, even if argumentative texts are supposed to be taught in elementary and high school, they are rarely brought to the classroom and they tend to be left aside in favor of genres like narrative and expository writing (Abchi et al., 2012). To overcome these limitations, we performed a meta-analysis on writing

treatments only including primary studies conducted in Romance languages teaching argumentative writing.

4.2. Purpose of the study

The specific purpose of this meta-analysis was to determine the effectiveness of argumentative writing interventions implemented in Romance languages on the quality of students' writing. We focus on a particular genre in a set of languages other than English in order to check whether the evidence gathered in other text genres and in other languages is also applicable in this context and, consequently, in the context of the EsCan project and this doctoral thesis. The following questions were addressed: (1) Do argumentative writing interventions in Romance languages have a significant positive effect on text quality? (2) Is the effectiveness of argumentative writing interventions in Romance languages moderated by variables related to participants, methodologies, and treatments implemented in the studies?

4.3. Method

4.3.1. Inclusion and exclusion criteria

To be included in the meta-analysis, studies had to meet six criteria related to language, genre, study design, grade, type of student, and data.

Language. studies had to be conducted in one of the six main Romance languages: Spanish, Portuguese, French, Italian, Romanian, or Catalan. Also, studies had to be conducted with native speakers of the language.

Genre. studies had to teach argumentative writing. If the genre was taught together with other genres, it needed to provide data to calculate an ES for argumentative writing separately of the other genres. Inclusion was decided based on the defining characteristics of the

argumentative genre, irrespective of the denomination used in the study. We understood argumentative writing as a text that presents a standpoint grounded on evidence that aims at convincing the audience of the acceptability of a standpoint (see Section 2.2 for more details).

Study design. we only included experimental or quasi-experimental studies that comprised at least a treatment group exposed to the intervention and a comparison group. As a result, we did not examine qualitative, correlational, single-case studies or studies where students acted as their own control. We included interventional studies independently of the type of treatment they implemented (e.g., strategy instruction, the process writing approach, word-processing).

Grade. we included studies with participants from Grade 1 to university.

Type of student. studies had to be conducted with students attending regular schools or universities. Consequently, writing interventions implemented solely with students with learning disabilities were excluded.

Data. we only included studies that provided data to calculate an ES of the treatment on a measure of text quality at pretest and posttest. We consider text quality as the reader's evaluation of the overall merit of a text (Diederich, 1966), considering aspects of linguistic competence, in particular syntax, lexical, and orthography, and discursive competence, such as structure, coherence, and genre appropriateness (Grabowski et al., 2014; Van Esch et al., 2006).

4.3.2. Search procedure

Figure 4.1 represents the method to include studies in our meta-analysis. We searched as broadly as possible to find studies that could meet our criteria. We conducted forward and backward searches in several databases including ERIC, ProQuest, Taylor & Francis, DOAJ, SciELO, Persée, and Google Scholar as well as other platforms such as ResearchGate and

Academia.edu. We ran multiple searches with different combinations of the following terms: *writing, argumentative text, argumentative writing, intervention, program, action research,* and *instruction.* These searches were performed in English as well as in Spanish, Portuguese, French, Italian, Romanian, and Catalan. When the searches were performed in English, we also added, each time, the name of one of the Romance languages included in the meta-analysis. When a study met our criteria, we subsequently investigated its references and other publications of the author. We also manually reviewed the references in previous meta-analyses on writing interventions. Moreover, we contacted experts in the area looking for studies susceptible of being included, who provided eight references, six of which were finally included in this study[6].

For each search we read all the titles and abstracts and selected those that could be included in our meta-analysis. Then, we read the full document to verify that it met all the inclusion criteria, and it was finally added to our corpus. This process was systematically performed for each language. This procedure yielded a high number of potential studies when conducted in English, Spanish, and Portuguese, but not in French, Italian, Romanian, and Catalan[7].

Peer-reviewed, nonreviewed and unpublished studies were susceptible of being included in the meta-analysis. It is unadvised to use publication status as a proxy for research quality as studies with positive significant results are more likely to be published and not all quality research is likely to be submitted for publication in a journal (Borenstein et al., 2009). Also, there is empirical evidence that published studies yield larger ESs than unpublished ones

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[6] Pietro Boscolo provided one reference in Italian and Steve Graham provided five references from his ongoing meta-analysis on argumentative writing.

[7] Three of the four studies included in our meta-analysis in French, Italian, and Catalan were obtained thanks to Pietro Boscolo, Steve Graham, and Naymé Salas.

(Polanin et al., 2016). Consequently, only including peer-reviewed studies has the risk of introducing publication bias into a meta-analysis, resulting in misinformed researchers, professionals, and policymakers (Mlinarić et al., 2017).

Figure 4.1

Diagram of study identification, selection, and evaluation for inclusion
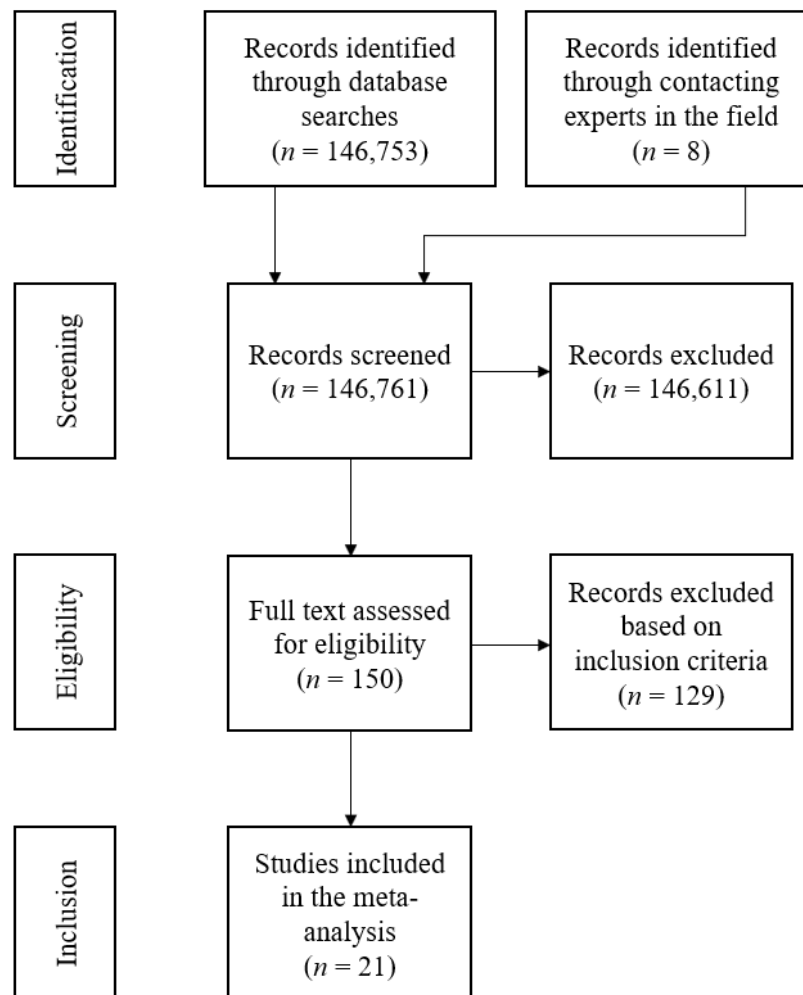
Of 150 studies collected after reading their title and abstract, only 21 met the inclusion criteria. The most common reasons of exclusion were related to study design ($k = 70$), not implementing an intervention ($k = 26$), and teaching a genre that was not argumentative writing ($k = 19$). Other reasons were not providing a measure of text quality ($k = 5$), not providing data

to calculate an ES ($k = 4$)[8], reporting data presented in another study already included in the meta-analysis ($k = 3$), providing results of oral but not written texts ($k = 1$), and implementing a different intervention than the one presented ($k = 1$).

4.3.3. Coding of study features

To characterize the studies included in our meta-analysis, we coded each one for grade, schooling level, number of participants, language, type of publication, treatment, control treatment and treatment duration (see Table 4.1). We also coded each study for nine quality indicators (Gersten et al., 2005), described in Table 4.1, because the reliability of the results obtained in a meta-analysis depends on the quality of the primary studies from which the data is retrieved (Ahn et al., 2012). Despite the lack of consensus on how to evaluate the quality of primary studies (Ahn & Becker, 2011), we used these indicators as they had been used in most previous meta-analyses on writing interventions, which provided a solid base for comparison.

Table 4.1

Definitions for study characteristics and quality indicators

Study characteristic	Definition
Grade	Grade of the participants.
School level	Elementary school for Grades 1 to 6, high school for Grades 7 to 12, and university onwards.
Number of participants	Total number of students included in the study (treatment plus control).
Language	Language used in the classroom during the intervention.
Type of publication	Publications were categorized as peer-reviewed article and non-reviewed publication, which included non-reviewed articles, thesis, book chapters, and conference papers.
Treatment	The treatment implemented on the experimental group.
Control's treatment	The treatment implemented on the control group.
Treatment duration	Number of hours that the treatment was implemented.

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[8] When studies did not provide data to calculate an ES but met all other criteria, we contacted the authors to obtain the data needed. These studies were only excluded if it was not possible to obtain such data, sometimes because the data was no longer available, some others because we did not receive a reply from the authors.

Study quality indicators	
Assignment of participants	Studies were classified as randomly assigning participants to conditions, assigning matching participants to conditions, or assigning participants to conditions without matching.
Mortality equivalence	Mortality equivalence was met if over 90% of the participants in both conditions completed the study.
No ceiling or floor effects	There were no ceiling or floor effects when the mean at posttest in all text quality measures in both conditions was at least one standard deviation away from the highest and lowest possible score.
Pretest equivalence	Pretest equivalence was met if the study provided evidence that students in both conditions were matched in text quality measures.
Instructor training	Instructor training was met when the study provided evidence that the person in charge of implementing the experimental treatment had received specific training.
Control condition	Control condition was met when the study provided detailed information of the treatment implemented on the control group.
Treatment fidelity	Treatment fidelity was met when the study provided evidence that the experimental treatment was administered as intended (over 80% fidelity).
Control of teacher effects	Teacher effects were controlled when instructors were randomly assigned to conditions or when they taught both conditions.
Text quality scored reliably	Text quality was scored reliably when the study provided evidence that the measures of writing quality were scored reliably (interrater reliability over .60).

Eight of these indicators had been used in previous meta-analyses (e.g., Graham & Perin, 2007). The last quality indicator, *text quality scored reliably,* was part of the inclusion criteria in Graham and Perin (2007), but not in the rest. We decided to include it as a quality indicator rather than as an inclusion criterion for several reasons: first, around a third of the studies in our meta-analysis did not report any evidence of reliably scoring text quality measures and excluding these studies would have hindered the statistical power of our analyses. Second, most of the studies that did not meet this indicator were published in languages other than English and were less likely to be included in future meta-analyses. Nonetheless, we acknowledged that studies providing evidence of scoring text quality reliably are more

trustworthy and including this as a quality indicator allowed to consider it when evaluating the results obtained.

For each quality indicator we assigned a score of 1 if the publication provided evidence that it was met. The only exception to this was the indicator *assignment of participants*. In this case, a score of 1 was assigned if participants were randomly assigned to each condition, and a score of 0.5 if participants were not randomly assigned but the study provided evidence that participants in the different conditions were comparable. Scores were summed for each study to assess their overall quality and to test if study quality was moderating the ESs obtained. All studies were initially coded by the PhD candidate and subsequently coded by a trained researcher in the field to assess inter-coder reliability, which ranged from 0.85 to 1 for all coded variables.

Regarding treatment, all included studies were read to find the defining characteristics of the treatment they implemented to the experimental and the control group. We decided to use the treatment categories proposed by Graham and Perin (2007) as they fit the studies included in our meta-analysis. Moreover, these categories had also been used in other subsequent meta-analyses and using them would ease comparing the results.

4.3.4. Calculation of effect sizes and statistical analyses

We calculated ESs through the standardized mean difference, which allows creating an index that is comparable across studies even if they use different scales to measure the outcome variable (Borenstein et al., 2009). When conditions were matched at pretest on text quality measures, we subtracted the mean score at posttest of the control group from the mean score of the experimental group and divided the result by the pooled standard deviation of the two groups. When they were not, we calculated the ESs from gained scores, that is, subtracting the pretest scores from the posttest scores for each group. Some studies provided a posttest and a

delayed posttest score, but we only used the first one as it was available for all studies. We applied Hedge's *g* correction to all ESs to avoid small sample size bias (Borenstein et al., 2009).

We calculated ESs only for text quality measures. When the study reported an overall text quality measure, we used it to calculate the ES. When there were several separate measures related to text quality but no overall text quality measure, we calculated an ES for each separate measure and then averaged them to obtain an overall ES.

Finally, we examined all ESs to determine whether any of them was exerting excessive influence on the average weighted ES. ESs over three interquartile ranges above or below the mean were identified as outliers following Tukey's (1977) method. The ES of Ortega de Hocevar (2016) was winsorized, that is, set to three interquartile ranges above the mean, to not exceed the maximum value established following Tukey's method.

Independence of ESs. Four studies included two experimental groups but only one control group for comparison and therefore each provided two ESs to the meta-analysis. We could not consider each ES to be independent, as this would lead to incorrect estimates of the variance for the overall effect (Borenstein et al., 2009). Given that our goal was not to compare the effect of different treatments within the same study, we computed a combined ES for each one with a variance that took account of the correlation between the data provided by the two ESs of each study (Borenstein et al., 2009). These combined ESs were used for the analyses, but we present the individual ESs in Table 4.4.

Statistical analyses. We used a random-effects model as we assumed that the true ES could vary between studies due to differences in their characteristics. The weight of each study was calculated by multiplying each ES by the inverse of its variance plus τ^2, the parameter that represents the variability across the population of studies (Borenstein et al., 2009; Lipsey &

Wilson, 2001). We calculated an average weighted ES and the standard error of the mean (SE) for all studies together and for each treatment separately. Confidence and prediction intervals are provided, as the first addresses the precision of the mean and the second the distribution of true ESs (Borenstein et al., 2009). We calculated two measures of heterogeneity, Cochran's Q and I^2. While the Q statistic indicates whether the variability between ESs exceeds what would be expected due to sampling error alone, the I^2 statistic describes the percentage of variation across studies that is due to heterogeneity rather than chance (Higgins & Thompson, 2002).

Subgroup and moderator analyses. We only conducted subgroup analyses based on treatment to explore possible differences in the magnitude of ESs and to explain excess variability. We decided to conduct these analyses even if heterogeneity was non-significant, as Q tests are often underpowered and fail to capture real heterogeneity in the sample (Oxman & Guyatt, 1992; Thompson & Higgins, 2002).

Regarding moderator analyses, we performed a mixed-effects meta-regression (Borenstein & Higgins, 2013) following the restricted maximum likelihood estimators' method (REML). We choose the REML method over the DerSimonian-Laird or the maximum likelihood method as it has proven to be less biased and it provides more robust estimations (Hartung et al., 2008; Thompson & Higgins, 2002).

Publication bias. We applied different methods to assess the existence of publication bias in our meta-analysis. We performed a visual analysis of the funnel plot and combined it with an Egger regression to assess the degree of its asymmetry (Egger et al., 1997). We did not conduct Begg and Mazumdar's (1994) rank correlation test as it has lower power than Egger's regression and it would have not provided any additional information (Higgins et al., 2019). We also used the Trim and Fill procedure (Duval & Tweedie, 2000) to estimate possible missing studies based on the funnel plot asymmetry. Finally, we performed the Rosenthal

failsafe test (Rosenthal, 1979) to estimate how many null ESs would be necessary for the average weighted ES to be non-significant.

Software. All statistical analyses were carried out using *Meta-Essentials* (Suurmond et al., 2017) except for the meta-regression, where we used Wilson's SPSS macros (Lipsey & Wilson, 2001; Wilson, 2006).

4.4. Results

4.4.1. Treatments

We only found studies applying two different treatments to the experimental group (see Table 4.2). In the treatment *explicit teaching of text structure*, only implemented by three studies, teaching focused on the prototypic structure of argumentative writing and arguments as well as on thematic progression. The second treatment, *explicit teaching of strategies*, was implemented by most studies ($k = 18$), and instruction focused on explicitly teaching strategies to plan, produce, revise, and/or edit the text (Graham, 2006) as well as on the knowledge and skills to properly develop these processes (Graham & Perin, 2007). Seven studies implemented the SRSD model, which is structured in six stages of instruction, moving from background knowledge to describing, modeling, memorizing, and finally independently using the strategies taught (Harris & Graham, 1996). 11 studies explicitly taught strategies that focused on one or more of the writing processes without following the SRSD model.

As for the control group, in most cases the treatment was implemented in the language classroom and followed the standard writing curriculum. Two studies were developed in other subjects[9]: Campaner and De Longhi (2007), in Language and Environmental Science, and Ossa

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[9] (Luna et al., 2020) was implemented in the subject "Psychology of Learning" in the Degrees of Education and Psychology. However, it was part of a set of activities focused on learning to write better argumentative texts.

et al. (2016), in a course on critical thinking in the degree of Psychology. The control groups of these two studies were instructed following the corresponding subject curriculum, which included writing instruction. All these studies were coded as *standard writing and/or subject content instruction*, as most studies did not provide enough information to properly characterize them. Two studies included control groups with SRSD instruction, as they were evaluating the effect of variations of the SRSD model (Araújo et al., 2017; Prata et al., 2019). Finally, four studies did not provide any information of the treatment administered to the control group.

Table 4.2

Definitions for instructional treatments

Treatment	Definition
Explicit teaching of text structure	Teaching focuses on the prototypic structure of the genre as well as on thematic progression and the elements of an argument.
Explicit teaching of strategies	
SRSD	The SRSD model is structured in six stages of instruction, moving from background knowledge to describing, modeling, memorizing and finally independently using the strategies being taught (Harris & Graham, 1996).
Non-SRSD	Explicit teaching of strategies to plan, produce, revise, and/or edit the text (Graham, 2006).
Standard writing and/or subject content instruction	Instruction time primarily devoted to grammar instruction and independent writing with little to no support.

Table 4.3 presents all studies included in the meta-analysis and reports the following information about them: publication type, control's treatment, grade, number of participants, language of instruction, quality indicator score, treatment duration, unbiased ES, and a description of the treatment implemented. Four studies are reported twice as they provided two different ESs[10]. In total, there were 25 ESs from 21 different studies. As far as we know, only

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[10] In those studies with two ESs, the number of participants only includes the participants in the control group and in the experimental group of that treatment.

one of the studies presented, (Fidalgo et al., 2015), has been included in any previous meta-analyses.

4.4.2. Quality scores

Table 4.4 presents the average total quality indicator score for studies in each treatment and overall. Each study's total score was obtained by summing the score of each individual indicator. We also calculated the percentage of studies meeting each individual indicator in each treatment and overall. The average quality score was 5.36 ($SD = 2.58$), ranging from an average of 4.55 ($SD = 2.52$) in the studies implemented non-SRSD strategy instruction, to 6.93 ($SD = 1.79$) in those following the SRSD model of strategy instruction.

In most studies there were no ceiling or floor effects at posttest and presented evidence that the treatment and the control conditions were equivalent at pretest in terms of the quality of their texts. Around two thirds of the studies conducted procedures to train the instructor to implement the treatment appropriately, described the treatment implemented in the control condition, and presented evidence that the different text quality measures were scored reliably. Over half of the studies randomly assigned instructors to conditions or instructors taught both conditions to control possible teacher effects. Four studies randomly assigned participants to conditions, and 13 did not but provided evidence that participants in all conditions were comparable. Less than half of the studies provided evidence that the experimental treatment was implemented as intended. Finally, less than a third of the studies had groups with equivalent mortality, as in most cases it was either not reported or more than a 10% of students did not complete the whole treatment.

4.4.3. Effect sizes

We calculated a total of 25 ESs from 21 studies involving 2,868 participants from Grade 2 to university (see Table 4.3). Studies were conducted in five languages: Spanish (k = 11), Portuguese (k = 6), Italian (k = 2), French (k = 1), and Catalan (k = 1). Four studies included two different treatment groups that were compared with the same control group. The ESs for each treatment are presented separately in Table 4.4 but were combined for the analyses as explained previously to assure that all ESs were independent.

All ESs were positive and resulted in an average weighted ES of 0.94 (*SE* = .12; 95% *CI*: 0.70 and 1.19; τ^2 = .18), significantly greater than no effect (see Table 4.5). The test for heterogeneity revealed that there was more variability than would be expected due to sampling error alone (Q = 126.92, p = .000), and the I^2 statistic indicated that 84.24% of the variability was likely to be produced by between-study factors. We then proceeded to explore each treatment individually with subgroup analyses with two goals: to determine if ESs were significantly different based on the treatment implemented, and if treatment accounted for excess variability between ESs.

Text structure. We calculated three ESs from three studies involving 177 participants that explicitly taught text structure. This treatment was implemented twice in Spanish with university students and once in French in Grade 6. The average weighted ES was 0.82 (*SE* =.15; 95% *CI*: 0.19 and 1.45), significantly greater than no effect. The Q test was non-significant (Q = 2.04, p = .361) and an I^2 statistic of 1.93% indicated that there was a small amount of variability between ESs.

Table 4.3

Study characteristics, quality indicator score, and ES

Study	Publication type	Control's treatment	Grade	N	Language	Quality indicator score	Treatment duration	Effect size	Treatment
					Explicit teaching of text structure and text features				
Dolz & Pasquier (1994)	PA	NI	6	80	F	1	10	1.08	Explicit teaching of argumentative texts' structure and main features.
Luna et al. (2020)	PA	SI	U	68	S	8	3.5	0.68	Virtual training. Explicit instruction to write integrative and well-structured arguments.
Suárez (2006)	NA	SI	U	29	S	5	8	0.60	Focus on explicit knowledge of genre characteristics and study of models.
					Explicit teaching of strategies: non-SRSD				
Bolívar & Montenegro (2012)	NA	NI	10	52	S	1.5	6	0.56	Strategy-focused training in planning and revising with self and co-evaluation.
Campaner & de Longhi (2007)	PA	SI	12	60	S	4	18	0.96	Strategy instruction through role-playing.
Crasnich & Lumbelli (2004)	PA	SI	11, 12	60	I	2	10	1.26	Focus on strategies to plan the text considering the addressee's viewpoint.
Fidalgo et al. (2015)	PA	SI	6	62	S	7.5	2	1.07	Observation and group reflection of a model, direct declarative instruction, peer feedback, and solo practice.
Gárate et al. (2014)	PA	SI	10	42	S	4.5	15	1.09	Strategies to plan and structure a text plus explicit knowledge of the genre.
Del Longo (2013)	T	SI	11, 12	124	I	5.5	10	0.83	Strategies for notetaking, drafting, mapping, and summarizing.
López et al. (2017): direct instruction	PA	SI	5, 6	88	S	7.5	2	1.07	Direct instruction of strategies to plan and draft, use of mnemonics and graphic organizers.

Study	Pub	Control	Grade	N	Lang			ES	Description
López et al. (2017): modeling	PA	SI	5, 6	87	S	7.5	2	1.05	Modeling of strategies to plan and draft a text through a semi-scripted think-aloud.
Ortega de Hocevar (2016a)	PA	NI	6	94	S	2.5	35	2.89	Teaching and modeling of strategies to plan, write, and revise a text.
Ortega de Hocevar (2016b)	CP	NI	3	107	S	1.5	35	0.86	Teaching and modeling of strategies to plan, write, and revise a text.
Ossa et al. (2016)	NA	SI	U	39	S	5	2	0.69	Teaching of metacognitive strategies and the usage of decision diagrams.
Torrance et al. (2015): process & product	PA	SI	6	69	S	8.5	10	2.37	Strategy-focused training in setting product goals and in writing procedures to plan and revise.
Torrance et al. (2015): product only	PA	SI	6	45	S	8.5	10	2.22	Strategy-focused training in setting product goals.

Explicit teaching of strategies: SRSD

Study	Pub	Control	Grade	N	Lang			ES	Description
Araújo et al. (2017)	PA	SRSD	4	178	P	4	18	0.38	SRSD. Instruction on multimodal writing.
Festas et al. (2014)	PA	SI	8	380	P	7.5	12	0.72	SRSD and teachers practice-based professional development.
Limpo & Alves (2013): planning	PA	SI	5, 6	87	P	8.5	18	1.05	SRSD. Focus on a strategy to plan opinion essays.
Limpo & Alves (2013): sentence-combining	PA	SI	5, 6	78	P	8.5	18	0.72	SRSD. Focus on sentence-combining.
Limpo & Alves (2014)	PA	SI	5, 6	192	P	8.5	5	0.60	SRSD. Focus on planning.
Malpique (2014): dual coding	T	SI	9	45	P	8.5	18	1.53	SRSD with verbal and visual mnemonics.
Malpique (2014): verbal coding	T	SI	9	45	P	8.5	18	0.57	SRSD with verbal mnemonics.
Prata et al. (2018)	PA	SRSD	9	230	P	6	11	0.23	SRSD in a cooperative setting.
Salas et al. (2020)	PA	SI	2, 4	645	C	5.5	11	0.77	SRSD.

Note. For type of control condition, NI = no information, SI = standard writing and/or subject content instruction and SRSD = self-regulated strategy development. For publication type, PA = peer-reviewed article, T = thesis, NA = non-reviewed article, and CP = conference paper. For grade, U = university. For language, F = French, S = Spanish, P = Portuguese, C = Catalan, and I = Italian.

Table 4.4

Total quality score and percentage of studies in which quality indicator was met per treatment type

Treatment	*N*	*M (SD)*	Assignment	Mortality	Ceiling or floor	Pretest equivalence	Instructor training	Control type	Treatment fidelity	Teacher effects	Assessment of TQ
All studies	21	5.36 (2.58)	50	29	81	71	67	67	48	57	67
Text structure	3	4.67 (2.52)	33	33	100	33	67	33	33	67	67
Strategy instruction	18	5.47 (2.51)	53	28	78	78	67	72	50	56	67
SRSD	7	6.93 (1.79)	50	43	86	71	100	100	86	71	86
Non-SRSD	11	4.55 (2.52)	55	18	73	82	45	55	27	45	55

Table 4.5

Average weighted ESs and confidence intervals for writing treatments

Treatment	N	ES	SE	Confidence interval	Heterogeneity Q	I^2	Prediction interval
All	21	0.94*	.12	[0.70, 1.19]	126.92*	84.24	[0.02, 1.87]
Text structure	3	0.82*	.15	[0.19, 1.45]	2.04	1.93	[0.17, 1.47]
Strategy instruction	18	0.97*	.14	[0.68, 1.25]	124.88*	86.39	[-0.03, 1.96]
SRSD	7	0.63*	.1	[0.39, 0.88]	19.23*	68.79	[0.08, 1.18]
Non-SRSD	11	1.20*	.19	[0.78, 1.63]	66.32*	84.92	[-0.16, 2.57]

* $p < .05$.

We would normally not conduct any analyses with this group of studies as there were only three ESs and the number of ESs has a substantial impact on the power of a meta-analysis. Also, a low number of ESs reduces the precision of the analyses, resulting in wide confidence and prediction intervals (Borenstein et al., 2009; Lipsey & Wilson, 2001), as can be observed in Table 4.5. However, we decided to still conduct these analyses as this was the only treatment besides strategy instruction and it included the only study in French. Nonetheless, it is necessary to interpret these results with caution given the mentioned methodological limitations.

Strategy instruction. We calculated 22 ESs from 18 studies involving 2,691 participants that explicitly taught writing strategies. This treatment was implemented from Grade 2 to university (nine in elementary school, eight in high school, and one in university). Nine of the studies were developed in Spanish, six in Portuguese, two in Italian, and one in Catalan. All ESs were positive, ranging from 0.23 (Prata et al., 2018) to 2.89 (Ortega de Hocevar, 2016a), resulting in an average weighted ES of 0.97 (*SE* = .14; 95% *CI*: 0.68 and 1.25), significantly greater than no effect. However, the amount of variability in ESs exceeded what would be expected due to sampling error alone (*Q* = 124.88, *p* = .000), and the I^2 statistic indicated that 86.39% of the variability was likely to be produced by between-study factors. We conducted a *Q* test to determine if there were

differences between the ESs obtained by the studies applying the two treatments, text structure and strategy instruction, and it revealed no significant differences ($Q_{between}$ = 0.53, p = .465).

We subsequently divided the strategy instruction studies between studies that followed the SRSD model and studies that did not, as in previous meta-analyses SRSD instruction yielded higher ESs than any other mode of strategy instruction. Moreover, this division could also help to explain excess variability as it did in Graham and Perin (2007). The average weighted ES for SRSD instruction was 0.63 (p = .000, SE = .1, 95% CI: 0.39 and 0.88), with a significant test of heterogeneity (Q = 19.23, p = .004) and an I^2 statistic of 68.79%. As for non-SRSD strategy instruction, the average weighted ES was 1.2 (p = .000, SE = .19, 95% CI: 0.78 and 1.63). The test of heterogeneity was also significant (Q = 66.32, p = .000) and the I^2 statistic indicated that 84.92% of the variability was produced by between-study factors. However, this subgroup analysis did help to explain excess variability ($Q_{between}$ = 6.99, p = .008) and showed that ESs were significantly smaller in the studies following the SRSD model. However, it did not result in homogenous subgroups as both tests of heterogeneity were significant and had high I^2 statistic values.

4.4.4. Moderator analysis

Our second research question concerns whether the effectiveness of the interventions is moderated by variables related to participants, methodologies, and treatments implemented in the studies. Given that the number of ESs in our meta-analysis was small, we decided to conduct the moderator analysis considering all studies together instead of dividing them by treatment. This decision was also backed by the fact that there were only two studies that did not implement a strategy instruction treatment and that there

were no significant differences between the two treatments, text structure and strategy instruction.

We only included in the meta-regression model those variables that we hypothesized beforehand could affect the outcome instead of including all study variables, as it would have highly increased the probability of obtaining a statistically significant effect through the accumulation of Type I error probabilities (Cafri et al., 2010; Thompson & Higgins, 2002; Viechtbauer, 2007). Thus, we only included in our model publication type, control treatment, grade, quality indicator scores, and treatment duration.

Publication type was included in the meta-regression as studies with positive significant results are more likely to be published (Borenstein et al., 2009; Polanin et al., 2016). Therefore, we hypothesized that peer-reviewed studies would yield larger ESs than non-reviewed ones. Regarding control treatment, it must be considered that ESs in this meta-analysis were calculated through the standardized mean difference, which depends on the score at posttest of both the experimental and the control group. Therefore, ESs depend not only on the treatment implemented in the experimental group, but also on the one implemented in the control group. Consequently, we expected studied where the control group received no specific argumentative writing instruction to obtain larger ESs than those that were comparing two different treatments focusing on argumentative writing.

As for grade, ESs must be interpreted in relation to natural growth for its target population, as natural growth presents larger ESs in early grades than in later ones (Baird & Pane, 2019; Dadey & Briggs, 2012; Hill et al., 2008). Therefore, we expected grade to have a negative moderating effect. Quality indicator scores were included in the meta-

regression as research design quality has been associated with variation in ESs and is therefore recommended to include a measure related to study quality as a moderator in a meta-regression model (Tipton et al., 2019). Thus, we expected quality indicator scores to have a positive moderator effect. As for treatment duration, treatments consist of intentionally applied instructional activities aimed at modifying a certain aspect of a target domain, in this case argumentative writing. However, there is no standardized duration for writing treatments: some consist of just a few sessions while others last for months, as is the case of the studies included in this review. Longer treatments imply more instruction and practice, and thus we expected treatment duration to have a positive moderating effect in the magnitude of the effect. None of the continuous variables, that is, grade, quality indicator scores, and treatment duration, were dichotomized as simulation studies have proven that it increases the risk of Type I and Type II errors (Helm & Mark, 2012; Viechtbauer, 2007).

According to the meta-regression (see Table 4.6), the average weighted ES was 0.94 and the model accounted for a 35.7% of heterogeneity, although it was non-significant ($Q_{model} = 10$, df[Q] = 5, $p = .075$). Therefore, the relationship between the moderator variables and the magnitude of the ESs was not stronger than we would expect by chance. The residual heterogeneity was also non-significant ($Q_{residual} = 18.05$, df[Q] = 15, $p = .260$). Thus, when the moderator variables were included in the model, the remaining variance could be explained by sampling error alone.

Table 4.6

Meta-regression of ES on study features

Descriptives	Mean ES	R^2	k
	0.94	0.357	21

Homogeneity analysis	Q	Df	p
Model	10	5	.075
Residual	18.05	15	.260
Total	28.05	20	.108

Regression coefficients	B	SE	95% CI Lower	95% CI Upper	Z	p	β
Constant	-0.68	0.76	-2.16	0.8	-0.9	.367	0.00
Publication type	0.34	0.3	-0.24	0.91	1.13	.257	0.26
Control treatment	0.54	0.22	0.11	0.98	2.44	.015	0.55
Grade	0.03	0.04	-0.05	0.11	0.71	.481	0.17
Quality score	0.06	0.05	-0.03	0.15	1.25	.211	0.28
Treatment duration	0.02	0.01	-0.01	0.05	1.25	.210	0.29

Out of the five moderator variables, only control treatment was significant (β = 0.55, 95% *CI*: 0.11 and 0.98, p = .007), indicating that the magnitude of the effect was larger when the control group received the standard writing and/or subject content instruction than when it received strategy instruction (in this case, following the SRSD model), and even larger when there was no information about the treatment they received. The other four moderator variables had a positive although non-significant impact on the size of the effect (all ps > .210).

4.4.5. Publication bias

We conducted several tests to assess if our meta-analysis could be affected by publication bias and to what extent. The visual analysis of the funnel plot asymmetry showed that there were more studies towards the right side, where significant positive results are found (see Figure 4.2). The trim and fill procedure (Duval & Tweedie, 2000) imputed one value to achieve symmetry in the funnel plot. We calculated the average weighted ES including the imputed value, obtaining an average effect of 0.87 (95% *CI*: 0.58 and 1.15). When we compared these values with the ones obtained originally (g = 0.94, 95% *CI*: 0.70 and 1.19), we observed small differences: the magnitude of the effect decreased by .07 and the confidence interval increased slightly.

Figure 4.2

Funnel plot of ESs and SEs with the Trim and Fill procedure
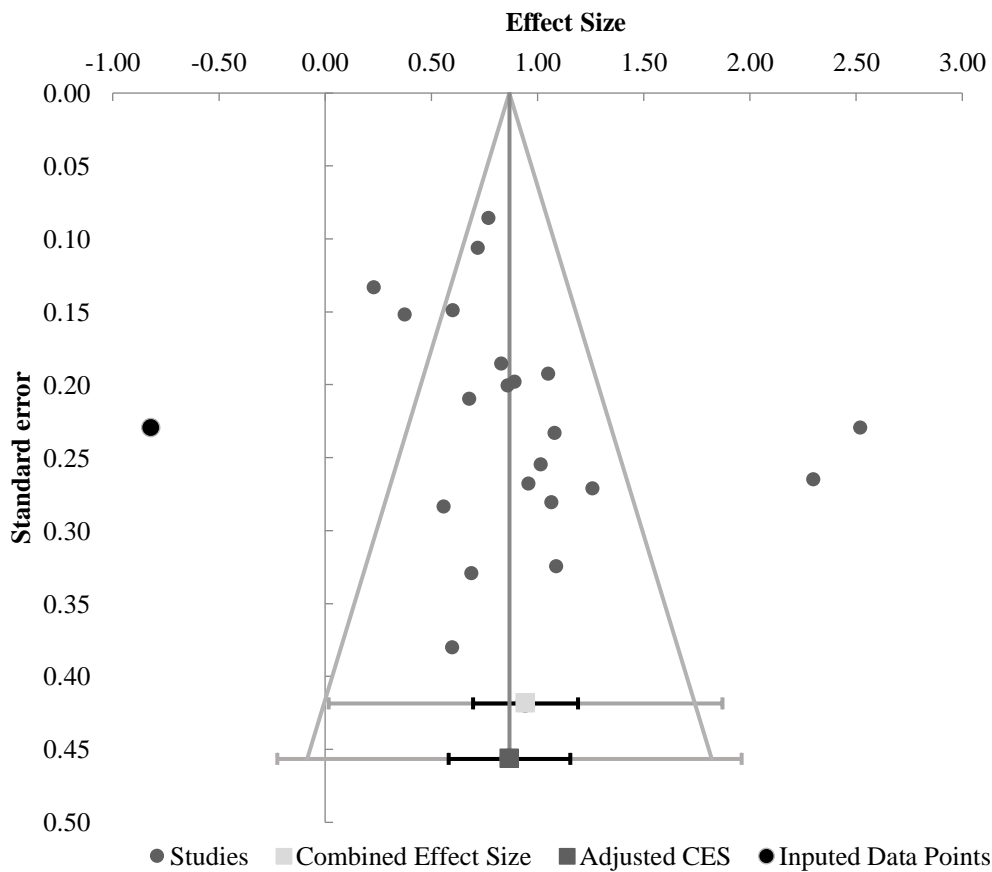
In the Egger regression, the intercept between the *g* indices and their SEs was non-significant, which can be interpreted as evidence against publication bias ($b = 3.86$, $t[17] = 1.08$, $p = .294$). Finally, Rosenthal's failsafe test indicated that we would need 604 additional studies with an average null ES to make the overall weighted ES of the meta-analysis to be non-significant. Based on these results, publication bias could be discarded as a threat to the overall results obtained in our meta-analysis. However, it is worth highlighting that none of the ESs reported in this review are either negative or positive but non-significant, which seems to indicate that studies that report non-significant or negative results are not only unlikely to be published in scientific journals, but also likely to be considered unworthy of publication overall.

4.5. Discussion

This meta-analysis aimed to determine the effectiveness of argumentative writing interventions in Romance languages on text quality and to determine whether these effects were moderated by variables related to participants, methodologies, and interventions implemented in the studies. The meta-analysis included 21 studies with 25 ESs in total, resulting in an average weighted ES of 0.94 standard deviations. Therefore, implementing an intervention on argumentative writing resulted in positive gains in the quality of the texts' students produced. However, there was significant heterogeneity between ESs ($Q = 126.92$, $p = .000$, $I^2 = 84.24\%$), meaning that most of the variability was likely to be produced by between-study factors. Following Cohen's (1977) rule of thumb, 0.94 would be considered a large ES. However, it is necessary to take into account the context in which this particular estimate was obtained, and we should rather interpret the magnitude of the effect in relation to results obtained in previous research in the field (Hill et al., 2008).

We only found two different treatments in our sample: text structure and strategy instruction. Text structure ($k = 3$) obtained an average weighted ES of 0.82, larger than Graham, Harris et al. (2015; g = 0.41) with studies from kindergarten to Grade 8, by Graham et al. (2012 g = 0.59) from Grade 2 to Grade 6, but similar to Koster et al. (2015 g = 0.76), from Grade 4 to Grade 6. The larger average weighted ES obtained in our meta-analysis could be explained by the genre being taught, argumentative writing. While children at the age of nine have already mastered the structure of a written narrative (Ravid, 2005), mastering the text structure of argumentative texts is a lot more demanding (Berman, 2008). In addition, text structure instruction in the studies we reviewed not only focused on the structure of the text but also on the structure of the arguments within it, thus helping students organize their texts and the arguments presented to support their standpoint. Therefore, it seems reasonable to assume that text structure instruction yields larger ESs in argumentative writing than in other text genres. Our results, however, must be interpreted with caution, as only three studies in our meta-analysis applied this treatment and the average quality indicator score was medium ($M = 4.67$). As for heterogeneity, the Q test was non-significant ($Q = 2.04$, $p = .361$), and the I^2 statistic was very low ($I^2 = 1.93\%$). However, Q tests have low power when the number of ESs is small (Higgins et al., 2003) and we should not consider the test as a confirmation that these studies are homogeneous.

The second treatment we found was strategy instruction ($k = 18$), which obtained an average weighted ES of 0.97 and significant heterogeneity ($Q = 124.88$, $p = .000$, $I^2 = 86.39\%$). Strategy instruction has been widely reported in previous meta-analyses and our results are comparable to those obtained previously ($g = 1.15$ by Graham, 2006; $g = 1.00$ by Graham, Harris et al., 2015; $g = 1.02$ by Graham et al., 2012; $g = 0.82$ by Graham & Perin, 2007; and $g = 0.96$ by Koster et al., 2015). In all cases except for Graham (2006),

where heterogeneity was not calculated, there was also a high degree of variability between ESs.

Seven studies applied the SRSD model with an average weighted ES of 0.63 (p = .000) and significant heterogeneity (Q = 19.23, p = .004, I^2 = 68.79%). Their average quality score was high (M = 6.93, SD = 1.79), so more confidence can be placed in their results. The average weighted ES we obtained is smaller than in previous meta-analyses that differentiated between SRSD instruction and other types of strategy instruction (g = 1.24 by Graham, Harris et al., 2015; g = 1.17 by Graham et al., 2012; and g = 1.14 by Graham & Perin, 2007). Part of this difference could be explained by the fact that two of the studies included in our sample also applied SRSD instruction in the control condition, which significantly affected the magnitude of the ES as we saw in the meta-regression.

The remaining 11 studies implemented other types of strategy instruction that did not follow the SRSD model. They resulted in an average weighted ES of 1.2 (p = .000) and significant heterogeneity (Q = 66.32, p = .000, I^2 = 84.92%). Less confidence can be placed in these results as their average quality score was lower (M = 4.55, SD = 2.52): most of them did not present evidence of implementing the treatment as intended, less than half trained the instructor in charge of implementing the treatment and controlled for teacher effects and only over half of them reliably scored text quality. In comparison to previous meta-analyses, the average weighted ES we obtained was larger (g = 0.53 by Graham, Harris et al., 2015; g = 0.59 by Graham et al., 2012 and g = 0.62 by Graham & Perin, 2007). However, further research will have to be conducted in order to elucidate what is producing the differences in the magnitude of the effect between the strategy instruction studies included in our meta-analysis and the ones included in previous ones.

As for treatments' comparison, we found no differences between text structure and strategy instruction ($Q_{between} = 0.53$, $p = .465$). Only Koster et al. (2015) conducted analyses to assess these differences, which in their case also resulted in non-significant differences. We found significant differences between SRSD and non-SRSD instruction in favor of the second ($Q_{between} = 6.99$, $p = .008$), which deviates from previous results. Graham, Harris et al. (2015), Graham et al. (2012) and Graham and Perin (2007) all found that SRSD instruction yielded significantly higher ESs than other types of strategy instruction.

Some of the differences mentioned above could be explained by several factors: first, we only included studies on argumentative writing, while previous meta-analyses did not have genre as part of their inclusion criteria and included studies implementing interventions in different genres. We already mentioned that genre could be affecting the magnitude of the effect in text structure instruction. As for strategy instruction, Graham and Perin (2007) found no differences between narrative and expository writing while Koster et al. (2015) found that ESs were smaller in expository writing than in narrative, informative and persuasive writing. Further research should be conducted to elucidate whether the magnitude of the effect is moderated by genre or not and if that depends on the treatment implemented.

Second, most studies in previous meta-analyses were conducted in English-speaking countries, while studies in our meta-analysis were conducted in Romance Language-speaking countries. It is also possible that linguistic and/or cultural differences could also be affecting the magnitude of the ESs obtained. More research is needed in order to elucidate whether this is the case or there are other variables explaining these

differences, as so far no meta-analysis has conducted moderator analyses with language of instruction as a moderator.

Finally, there are also differences in terms of the methodologies and computational models used: Graham (2006) presented unweighted mean effects; Graham and Perin (2007) used a weighted fixed-effects model, and Graham, Harris et al. (2015), Graham et al. (2012) and Koster et al. (2015) all used a weighted random-effects model. However, Koster et al. (2015) was the only one analyzing differences between treatments through a contrast analysis. In contrast, we applied a weighted random-effects model and analyzed differences between treatments through Q tests (Sedgwick, 2013).

As for our second goal, we performed a mixed-effects meta-regression following the REML method. We included five variables in the model that we hypothesized beforehand could be moderating the magnitude of the effect: publication type, control treatment, grade, quality score, and treatment duration. The model did not help explain excess variability ($Q_{model} = 10$, df[Q] = 5, p = .075), although the residual heterogeneity resulted non-significant ($Q_{residual} = 18.05$, df[Q] = 15, p = .260). Out of the five variables, only control treatment significantly moderated the magnitude of the effect ($\beta = 0.436$, p = .027). However, this contrasts with Koster et al. (2015), who also included control condition in their moderator analyses but found no significant differences.

Inconsistent results have been obtained in previous meta-analyses regarding moderator analyses: as for strategy instruction, Graham (2006) found that the magnitude of the effect was not moderated by students' writing abilities, grade, or genre (narrative and expository). In Graham and Perin (2007), neither publication type, grade, genre (narrative and expository), student assignment, nor overall study quality significantly moderated the magnitude of the effect. Graham, Harris et al. (2015) found a moderator

effect of schooling level favoring elementary students. Graham et al. (2012) found no moderator effect of grade or type of student. Finally, Koster et al. (2015) found a significant positive moderator effect of grade (Grade 6 obtained larger ESs than Grades 4 and 5), type of assessment (ESs were larger when text quality was assessed analytically rather than holistically) and genre (ESs were smaller for expository texts than for other genres). In contrast, none of the previous meta-analyses conducted moderator analyses with text structure instruction, either because of a small number of studies (Graham, Harris, et al., 2015; Graham & Perin, 2007) or because they found no heterogeneity to explain (Graham et al., 2012; Koster et al., 2015). From these results, there does not seem to be a variable consistently moderating the magnitude of the effect even within strategy instruction besides SRSD, which always resulted in larger ESs than other types of strategy instruction (Graham et al., 2012; Graham, Harris et al. 2015; Graham and Perin, 2007).

When comparing these results, we also need to consider methodological differences: none of the previously presented meta-analyses conducted a meta-regression to assess the effect of moderator variables: Graham (2006) conducted analyses of variance with the different study features as independent variables, while the rest only performed moderator analyses when heterogeneity tests were statistically significant but did not specify which model they were applying.

4.5.1. Caveats and limitations

This meta-analysis had several limitations that should be considered when interpreting its results. First of all, we only found 21 studies that met the inclusion criteria. Such a small number of ESs restricted our options to analyze the data and limited the statistical power of our analyses (Borenstein et al., 2009). Second, we only included experimental and quasi-experimental studies that provided data to calculate an ES. Qualitative, single

subject design and correlational studies were left out of this study as well as studies in which students acted as their own control. However, it is important to integrate the results provided by a meta-analysis including experimental and quasi-experimental studies with the results obtained through other valuable study designs. Third, we focused on argumentative writing in Romance languages and our results should be interpreted within those boundaries. We already mentioned that both genre and language could be moderating the magnitude of the effect, although further research should be conducted in order to determine the extent of their impact. Likewise, we limited our analyses to studies that assessed the quality of the texts' students produced and we should not draw any conclusions about other aspects of text production.

Fourth, even though all studies measured text quality, they did not use the same measures or procedure to evaluate it. Some studies used a holistic measure while others used analytical measures or combined both. We addressed this issue by calculating ESs with holistic measures when they were available or by combining the different analytic measures when no holistic measure was presented. Even though there were similarities between studies in terms of how text quality was conceived and assessed, there was also variability regarding the scales used and the text characteristics assessed. Our results should be interpreted taking this variability into account.

Fifth, we were only able to find two different treatments: explicit teaching of text structure and explicit teaching of strategy instruction. However, 18 out of the 21 studies in our meta-analysis implemented the latter treatment. In previous meta-analyses strategy instruction had always been one of the most implemented treatments and there is a wider amount of evidence about it than about other treatments. More research is needed to better understand the effectiveness of other treatments.

Sixth, we included in our meta-analysis studies with participants from Grade 1 to university. However, we did not find any study in Grades 1 or 7 and only one per grade in Grades 3, 8 and 10. Therefore, the amount of evidence covering each grade level is, in some cases, scarce, and practical implications of our results for specific grades should be inferred with caution. Similarly, even though we included studies conducted in five Romance languages, most of them were in Spanish or Portuguese. We only found one study in French, one in Catalan, and two in Italian, and none conducted in Romanian. Further research is needed to fill these gaps.

Seventh, we conducted a moderator analysis to elucidate whether there were variables moderating the magnitude of the effect. We decided to perform a mixed-effects meta-regression following the REML method as it provides more robust estimations than other methods (Hartung et al., 2008; Thompson & Higgins, 2002) and allows including multiple variables in the model at the same time. We restricted the number of variables included in our model as much as possible, but the small number of studies in our meta-analysis reduced the power and soundness of our results.

Eighth, we had some difficulties grouping the writing treatments found in the studies. We decided to use treatment categories used in previous meta-analyses to increase the options to compare our findings. However, in some instances the frontiers between treatments are not so clear and the decisions we have taken when categorizing studies into treatment conditions are up for debate.

Ninth, there were some differences in study quality, as SRSD studies had higher scores ($M = 6.93$) than text structure ($M = 4.67$) and non-SRSD strategy instruction studies ($M = 4.55$). Even though the relationship between study quality and the magnitude of the effect was weak, study quality does influence the trust we can place on the results

provided by the studies. Also, we decided to include studies in our meta-analysis even if they did not provide evidence of evaluating text quality reliably. However, results are more trustworthy when they are based on measures that have been reliably assessed. In this meta-analysis, the results obtained for SRSD studies are more reliable than those presented by the rest.

Tenth, we only included studies that provided enough information to calculate an ES. Some studies provided the mean and standard deviation for each condition, while in other instances we had to calculate the ESs through tables of frequencies and graphics. It is important that primary researchers follow the recommended standards when conducting and reporting research. It would not only benefit their own research, but also future meta-analyses based on it (Ahn et al., 2012).

Finally, an issue with this and most meta-analyses is related to dissimilar control comparisons. Standardized mean differences are calculated through subtracting the mean scores at posttest of the control group to the mean score of the treatment group and dividing the result by the pooled standard deviation. Therefore, two studies could be assessing the same treatment and obtain different ESs depending on the treatment implemented to the control group. Based on this concern, we decided to include control treatment in our meta-regression, which was the only significant variable moderating the magnitude of the effect. From the primary researchers' point of view, it is important not only to describe in detail the treatment implemented to the experimental group but also the one implemented to the control group. From the meta-analysts' point of view, it is essential to also consider the treatment being implemented to the control group as it can have a significant impact on the ESs obtained.

4.5.2. Recommendations for teaching

Two major recommendations to improve the quality of students' argumentative writing can be drawn from the results of this meta-analysis. First, teach students strategies to plan, revise, and/or edit their texts. Our results show that strategy instruction successfully enhances students writing across ages and languages. Strategy instruction can target specific aspects of text production that may be especially troublesome for the students being taught. For example, a student that does not plan can be taught how to brainstorm and organize his/her ideas before writing.

Second, teach students the prototypic structure of argumentative writing, its core elements, and how to organize them in a text. Start by providing students with a clear structure to follow, model how to use it, and gradually move towards independently using it. Also, explain the different elements of an argument, distinguishing between those that are indispensable (claim and grounds) and those that further ground and limit the argument.

Overall, our results support that explicitly teaching strategies and/or knowledge successfully improves the quality of students' argumentative writing. Even though the focus of these two treatments is different, both involve sustained, explicit, and systematic instruction aimed at facilitating students' mastery and independent usage of the strategies or knowledge taught.

4.6. Conclusion

In conclusion, identifying and understanding effective evidence-based teaching practices through high quality intervention research helps teachers and policymakers provide students with the tools they need to become skilled writers and meet the demands

requested at school, work and in their personal lives. In this direction and despite its caveats and limitations, this meta-analysis provides crucial information to the field of writing research on argumentative writing instruction. Moreover, it has helped to broaden our understanding of the effect of argumentative writing interventions implemented in Romance languages to text quality. As our results show, argumentative writing can be a challenging task, but interventions focused on this genre can help students to produce texts of higher quality. However, more research is needed in order to deepen our understanding of the effectiveness of argumentative writing interventions and how different variables can affect the magnitude of the outcome obtained.

Chapter 5. The rhetorical structure of analytical writing: a developmental and microdevelopmental approach[11]

5.1. Introduction

Our goal in this chapter is to characterize the development and microdevelopment of the rhetorical structure of analytical writing. Analytical writing is an academic genre that involves a lifelong learning process. Becoming proficient in this writing mode is necessary for academic success (Lai, 2011) and enables writers to participate in research-related fields of activity. The communicative goals of analytical writing shape its rhetorical structure while affecting and constraining choice of content, style, and register (Swales, 1990).

Analytical writing has two main communicative goals: to introduce the topic at hand to readers so as to establish a common frame of reference, and to persuade them of the writer's point of view by means of the soundness of the evidence presented. Readers should be persuaded by the evidence provided and the reasoning developed in the text rather than by the authority of its author (Tolchinsky et al., 2017). It is thus necessary to express ideas unambiguously and to construct a clear-cut rhetorical structure of the text as a whole.

In order to fulfill its communicative goals, analytical writing typically combines both exposition and argumentation. The expository component is characterized by features of the expository genre and meets the first goal of analytical writing: explaining the topic at hand to the audience in order to build a common understanding of what is

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[11] Part of the data presented in this chapter have been published in Vilar and Tolchinsky (2021) and Tolchinsky et al. (2021).

being discussed. In contrast, the argumentative component is characterized by features of the argumentative genre and addresses the second goal: persuading a reasonable audience of the validity of the writer's standpoint by presenting propositions that justify it (Van Eemeren & Grootendorst, 2004).

As mentioned before (see Section 2.3), two types of corpus-based approaches have been applied to examine the discourse structure of expository and argumentative texts: bottom-up and top-down. Bottom-up approaches start by segmenting the texts into discourse units according to their linguistic features and subsequently group them based on their commonalities to identify their communicative goals. In contrast, top-down approaches reverse the order: they first determine the discourse units based on the communicative goals of the genre and then linguistically analyze them (Upton & Cohen, 2009). In this study we adopt a top-down approach since this allows for a clearer understanding of the rhetorical structures typical of a given genre and how these evolve in the course of a text. In addition, we combine Swales' (1981) model, first developing an analytical framework that identifies the different types of rhetorical moves expected in analytical writing, and Toulmin's (2003) model, to identify the two indispensable elements of an argument, the claim and the grounds, as each one focuses on one of the two main components of analytical writing.

Previous developmental research on expository writing (see Section 2.4) shows that with an increase in schooling level, texts become more elaborated and better structured. Students recruit a wider range of resources at sentence and overall text structure level, showcasing an increased concern for the potential audience of their text (Aparici & Perera, 2001; Perera et al., 2004). Although inter-genre distinctiveness is established early on, older writers tend to go beyond genre typicality to achieve more

general communicative goals (Berman & Nir-Sagiv, 2007). As for argumentative writing, elementary school students can already express their standpoint and ground it with evidence (Coirier & Golder, 1993). However, the structure of their texts, the quality of their arguments, and the amount of evidence grounding their standpoint improves and increases with schooling experience (Coirier et al., 1990; Knudson, 1992a, 1992b; McCann, 1989). Despite these findings, it is not clear from prior research how these developmental trends are realized in analytical writing and how the unique features of the expository and the argumentative genres are combined in constructing the special mode of discourse we term "analytical writing".

As for microdevelopmental changes (see Section 2.5), interventional research on expository and argumentative writing shows that the quality and the structure of the texts students produce can be improved through a wide variety of treatments, including explicitly teaching them skills, processes, or knowledge to write (Burke et al., 2017; Cihak & Castle, 2011; De La Paz & Graham, 2002; Limpo & Alves, 2014; Malpique & Simão, 2019; Salas et al., 2020; Torrance et al., 2007) and scaffolding their writing amongst others (Fearn & Farnan, 2007; Gárate et al., 2007; Matos, 2021; Pritchard, 1987). Text length was also positively impacted by these interventions in expository writing (De La Paz & Graham, 2002; Torrance et al., 2007), but there were mixed results in argumentative writing related to age: while elementary school students significantly increased the length of their texts (Limpo & Alves, 2013; López et al., 2017; Salas et al., 2020), high school and university students showcased no significant changes (Araújo et al., 2017; Festas et al., 2015; Prata et al., 2019) or even a significant decrease (Luna et al., 2020). Nonetheless, it is unclear how the quality and the structure of analytical writing will be affected by the writing treatment implemented in the EsCan project.

Regarding the impact of linguistic condition in text production (see Section 2.7), mixed results have been reported. While Sun et al. (2018) found that Grade 3 bilingual students wrote narratives of lower quality, Danzak (2020) found no differences in the argumentative texts of Grade 4 to 8 gifted students. In contrast, Poorebrahim et al. (2019) and Galindo (2012) reported that bilingual university students wrote argumentative texts of better quality than their monolingual counterparts. Also, Hsin and Snow (2017) found that bilingual students obtained higher scores in perspective taking when constructing their arguments. This study was conducted with participants from Catalonia, Castille-La Mancha, and Castile and León. As we discussed in Section 2.7, data indicates that while Catalonia has high levels of bilingualism, most inhabitants of Castille-La Mancha and Castile and León can be considered monolinguals.

5.2. Purpose of the study

Our goal in this chapter is to characterize the development and microdevelopment of the rhetorical structure of analytical writing. More specifically, we aim to determine the impact of age-schooling experience and students' linguistic condition in such process, with particular attention to identifying how the expository and argumentative components of analytical writing are realized in the written productions of students from elementary school, high school, and university in the Catalan and Spanish setting.

5.3. Method

5.3.1. Participants

The participants were 181 native bilingual Catalan/Spanish speakers from the province of Barcelona, 53 from elementary school (Grade 6), 72 from high school (Grade 10), and 56 from university (second year), and 212 native monolingual Spanish speakers from

Ciudad Real and León, Spain, 65 from elementary school (Grade 6), 78 from high school (Grade 10), and 69 from university (second year; see Section 2.8.1 for more details).

To ascertain that the groups were comparable in terms parental occupation and education, we performed single-factor ANOVAs with school level and linguistic condition as between-subjects factors. We also performed a chi-square test on sex with school level and linguistic condition as between-subjects factors. Results showed that students at different school levels were not homogeneous regarding parental education, $F(2, 362) = 22.55$, $p = .000$. These differences were significant between all school levels, with parents in the younger groups presenting higher scores. In contrast, no significant differences were found when comparing both linguistic conditions, $F(1, 362) = 2.46$, $p = .118$. We obtained similar results in parental occupation, with significant differences between school levels, $F(2, 350) = 7.46$, $p = .001$, with parents of elementary school students presenting significantly lower scores, associated with higher training requirements and SES, than the two other groups. No significant differences were found between both linguistic conditions, $F(2, 350) = 0.82$, $p = .366$. School levels were not homogeneous either regarding the number of male and female participants, $\chi^2(2, N = 393) = 11.48$, $p = .003$, with the university group including a higher percentage of female participants than the two other groups. The high percentage of female participants in the university group was expected given that the students in the bachelor's degree of elementary education teaching are mostly women. No significant differences were found between linguistic conditions, $\chi^2(2, N = 393) = 0.22$, $p = .636$.

Considering these differences between groups, the variable sex was added in subsequent analyses. Parental education and occupation, however, were not incorporated to our analyses for two reasons: first, some of the participants' answers did not provide

enough information to appropriately code their parents' education and occupation, resulting in missing data. Second, preliminary analyses showed that these two variables had no impact in the dependent variable.

5.3.2. Tasks and procedures

Teaching of genre. The elementary and the high school curriculums of Catalonia (Decree 119/2015; Decree 187/2015), Castile-La Mancha (Decree 54/2014; Decree 40/2015), and Castile and León (Decree 26/2016; Order EDU/362/2015) establish that students in elementary and high school should learn to read and write in different genres, including the expository and the argumentative. In addition, they point out that students have to develop their ability to describe, explain, expose, and argue in the oral and written modalities. However, the teachers confirmed, as is often the case, that they rarely assign classroom activities aimed at specifically working on these genres. Thus, all students had little experience with the expository and the argumentative genres and how to combine their features in analytical texts, assuring a similar baseline across and within groups regarding genre knowledge.

Pilot study. As previously mentioned, the participants were involved in the EsCan project that aimed to provide a developmental framework accounting for individual variability and developmental changes in the production of analytical texts with different linguistic conditions and controlling for pedagogical input. The participants of the three school levels took part in an identical writing treatment consisting of seven sessions in which we applied a set of instructional activities aimed at increasing their awareness of features of analytical writing.

We conducted a pilot study the year prior of starting the definitive application with four main purposes: first, to verify that the instructional activities of the writing treatment

met their intended goals; second, to ensure that the instructions provided in the instructional manual teachers received were unambiguous; third, to enable teachers to practice conducting the lessons and to provide additional feedback; and fourth, to confirm that the three topics chosen for the text-writing activities triggered varied and rich responses across school levels and linguistic conditions. Prior to that, teachers participated in two two-hours meetings, where they were introduced to the writing treatment and the different instructional activities that had to be carried out and they had the chance to discuss the lessons' procedures and instructions.

To assure that the writing treatment was delivered as intended, two sessions per class were observed by a member of the research team. This also allowed the research team to provide feedback to teachers regarding how they delivered the instructions and how they guided the instructional activities. Subsequently, the writing treatment was modified based on the comments provided by the teachers in charge of delivering the activities, the class observations, and the results obtained during the pilot study. Before the onset of the definitive application of the writing treatment, all members of the research team and the participating teachers met to discuss the updated version of the manual and other details regarding its implementation. Again, to guarantee that the treatment was implemented as intended, at least two sessions per class were observed by a member of the research team. Also, teachers had weekly meetings with a member of the research team to receive support and discuss any implementation issues.

The writing treatment. During the writing treatment, students wrote five texts. Regular teachers were in charge of delivering the activities. Teachers' instructions were slightly adapted only for the elementary school participants, although they performed the

same activities than the two other groups. A detailed description of the writing treatment can be found in Appendix 1.

The design of the writing treatment was influenced by the results obtained by previous meta-analyses on text writing (see Section 2.6) and by the meta-analysis on argumentative writing in Romance languages developed in this doctoral thesis (see Section 4.5.2). The goal of the treatment was homogenizing the input students' received along the production of the five texts so as to strengthen a developmental interpretation of the results. Despite that, the instructional activities needed to have a pedagogical purpose grounded on the results obtained by previous intervention studies.

During the first session, the teachers introduced the purpose of the project and explained that they were going to discuss about relevant and debatable topics. This helped students be aware of what they were going to do during the next sessions and the goal of those activities. Afterwards, using a computer, students completed the sociolinguistic questionnaire and wrote the first text (T1). The prompt for this text was *What do you think about freedom of dress?* All texts were produced using a computer, as previous studies have shown that word processors are effective at enhancing text quality (e.g., Graham, Harris, et al., 2015; Graham & Perin, 2007; Little et al., 2018), although they were not allowed to browse the internet or talk to each other. The participants did not receive any information about the topic, and they had around 30 minutes to produce each text individually in their language of instruction: Catalan in the bilingual group and Spanish in the monolingual group. All five texts were written under the same conditions. In session two, they wrote the second text (T2). The prompt for this text was *What do you think about people's freedom of movement to countries other than their own?* However, before and after writing the text, students were asked to self-evaluate their knowledge of

the topic, freedom of movement, in a scale from 1 to 10. These questions aimed to determine whether writing about the topic changed the students' perception of their knowledge about it. During the next sessions, freedom of movement was the topic of focus.

Session three had a duration of two hours, although teachers could decide if doing it as a single session or splitting it into two one-hour sessions. First, students read two texts about freedom of movement with opposing standpoints. They read them individually, then the teacher read them aloud, answering any comprehension questions that students could have had. Then, the teacher was in charge of guiding a group discussion about both texts, talking about their vocabulary, their structure, and the key similarities and differences between the two. Then, in pairs, students had to analyze the texts and try to find the writers' standpoints and the evidence they used to support them. This part of the session was based on two different treatments found efficient in previous meta-analyses: inquiry and text structure. Inquiry involves engaging students in analyzing concrete data about the topic, in this case the information found in both texts. Graham and Perin (2007) found that inquiry had a small but significant effect in text quality. Text structure focuses on the prototypic structure of the genre as well as on the main components of a text. In the activities previously presented, the focus was on the elements that form an argument, the claims, presenting the writer's standpoint, and the evidence used to ground them. This fostered students' awareness of these elements and provided clear examples of them in a real text. The results of Study 1 as well as those obtained in previous meta-analyses show that text structure instruction has a positive impact in text quality (Graham et al., 2012; Graham, Harris, et al., 2015; Koster et al., 2015). In addition, this session provided students with some information about the topic as well as two opposing standpoints and reasons supporting them, which they could use in their future

texts. This type of prewriting activities have also shown to enhance text quality (Graham, Harris, et al., 2015; Graham & Perin, 2007). Finally, the teachers read a letter wrote by the directors of the project, thanking their participation and asking the students to send them a copy of their texts, which they would read with great interest. This presented students a real audience for their texts other than their teachers, which has shown to increase their motivation (Chen, 2013), the likelihood to persuade the audience (Redd-Boyd & Slater, 1989), and the quality of their texts (Droge, 1994). Next, students were asked to write the third text (T3), using the same prompt than for T2, considering what they had done during the session.

Session four was devoted to text evaluation. In dyads, students had to go over two texts produced by their classmates, different ones for each dyad, and evaluate them using a rubric that focused on the author's knowledge of the topic, clear definition of a standpoint, evidence used, organization, vocabulary, and grammar. Texts were anonymous and orthographic errors were corrected. The students had to evaluate and score each text individually, and then share their thoughts with their pair in order to reach a consensus. Afterwards, students filled an online questionnaire with the score given to each text in each indicator of the rubric. The goal of this session was to make students think about the texts they wrote applying what they had learnt in session three. During the next session, students visualized and discussed about the scores obtained and reflected on the group's results, focusing on their strong and weak points. For each indicator, the teachers showed anonymous samples extracted from students' third text, and they had to reason why each text had received a specific score. This session aimed to encourage students to think about the quality of their texts and to determine what characterizes texts with high and low scores. These activities were grounded on the feedback/assessing writing treatment, which involves students evaluating their classmates' texts as well as

receiving feedback of their texts. Previous meta-analyses have shown that these practices have a positive impact in text quality (Biber, Nekrasova, et al., 2011; Graham et al., 2012; Graham, Hebert, et al., 2015; Koster et al., 2015).

In session six, students had to write text four (T4). As this was the third time that students had to write a text about freedom of movement in a short period of time, teachers reproduced in class a video recorded by the directors of the project, intended to enhance their motivation to write a new text. In the video, the directors thanked the students for their participation in the project and their texts and asked them to write a new text that they could use during their classes with students in the bachelor's degree of elementary education teaching so they could learn to teach writing to their future students. Again, this provided students a real audience for their texts. Session seven was the last one of the writing treatment. In this session, that took place a month after session six, students had to write the fifth text (T5). The prompt for this text was *What do you think about rewards and punishments?* As when writing T1, students did not receive any information regarding this topic.

Overall, the writing treatment combined instructional activities with characteristics of different evidence-based treatments, explicitly teaching text structure, scaffolding students' writing through inquiry and other prewriting activities, providing feedback, and assessing other texts as well as using a word processor to write. Additionally, it incorporated other aspects that positively affect text production such as having students work together and collaborate, stating the goals of the sessions, writing for real audiences, and creating a supportive writing environment. Even if the main goal of the treatment was homogenizing the input received by all students participating in the

project to validate a developmental interpretation of the results, a sound pedagogical design would benefit students' writing skills.

5.3.3. Transcription and coding

All texts were transcribed and coded in the CHAT format (*Codes for the Human Analysis of Transcripts)*, a system to transcribe and code linguistic data developed in the context of the CHILDES project (*Child Language Data Exchange System*; MacWhinney, 2000). Transcribing and coding the texts following this format allows subsequent analysis using the CLAN programs (*Computerized Language Analysis*; MacWhinney, 2000), which provide different procedures to process transcriptions, facilitate accessing the information contained in the transcriptions, and allow conducting automatic recounts of this information (Aparici, 2010).

In order to allow automatic analyses, all texts were *normalized*. Errors in spelling, typography, use of uppercase and lowercase letters as well as unconventional word segmentation were corrected, but punctuation and morphological errors were left unchanged. Subsequently, all the texts were segmented in clauses following Berman and Slobin's criteria (Berman & Slobin, 1994). In general terms, a clause corresponds to a proposition consisting of a predicate expressing an event plus all its arguments.

The texts were then manually coded for their rhetorical structure. Our unit of analysis is the *rhetorical move*, a segment of discourse that fulfills a concrete communicative goal (Swales, 1981; Upton & Cohen, 2009). Following Upton and Cohen's approach, we developed a provisional analytical framework that reflects the communicative goals of analytical writing, looking for expository and argumentative features realized in different types of moves. subsequently, we piloted the framework to evaluate if it was adequate for our corpus and captured the communicative goals of each

text segment. Below we present the different types of rhetorical moves followed by illustrative examples. The complete coding guide can be found in Appendix 2.

A move was coded as *expository* when it (1) provided data or evidence related to the topic in the form of facts, statistics, or empirical proof, or (2) defined terms used in the text, or (3) advanced a reflection or a rhetorical question about the topic. This information functions to describe the topic under debate and to provide a shared foundation between the writer and the reader for the explanation constructed, as illustrated in (1), (2), and (3).

(1) *Actualmente hay mucha gente que se desplaza a diferentes países por motivos distintos; algunos porque se ven obligados a hacerlo debido a la situación política de su país y otros tratan de encontrar una vida mejor.*
'Nowadays many people travel and move to different countries for different reasons; some of them because they have to due to the political situation of their country and others try to find a better life.'
[I05ESF4[12]]

(2) *Hay gente que es muy pobre que no tiene donde ir o vivir llamada refugiados.*
'There are very poor people that have no place to go or live called refugees.'
[H23EPM2]

(3) *Un dels temes d'actualitat que resulta bastant preocupan tés el de la immigració.*

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[12]Subject and text identification are indicated by seven symbols as follows:

I = Colegio Santo Tomás (*school*)

05 = 5th subject in that group (*subject ID*)

E = Spanish (*language*)

S = high school (*school level*)

F = female (*sex*)

4 = text number 4 (*text number*)

'One of the current issues that is quite worrisome is immigration.'

[G22CUF4]

In (1), a high school student from the monolingual group explained why people have to move to another country; in (2), an elementary school student from the monolingual group defined refugees, a relevant term in his text; whereas in (3), a university student from the bilingual group advanced an introductory reflection about the current relevance of the topic.

A move was coded as *argumentative* when it contained a claim expressing the writer's standpoint on the topic and evidence to ground it, as in (4).

(4) *La libertad de movimiento debería ser un derecho para todo el mundo ya que sin ella se agravarían los efectos de las guerras en muchos países y dejaría a muchas personas sin oportunidad de encontrar un trabajo y mejorar.*
'Freedom of movement should be a right for everyone because without it the effects of war would worsen in many countries and it would take away the chance for many people to find a job and improve.'
[M048EUM4]

In (4), a monolingual university student presented his standpoint on the topic: everyone should have freedom of movement. This claim was grounded in two pieces of evidence: first, if people cannot move freely, war would have a worse impact on them; and second, they would not have the chance to improve their lives.

In addition, to capture Coirier and Golder's (1993) findings of standpoints presented without any evidence grounding them, *assertive* moves were also included in the analytical framework. A move was coded as assertive when it contained a claim

expressing the writer's standpoint on the topic but without any evidence grounding it, as in (5).

(5) *En general, tot el món té dret a desplaçar-se pel lloc del món que vulgui.*

'In general, everybody has the right to move wherever in the world they want.'

[A02CPM2]

In (5), a grade school student from the bilingual group presented his standpoint (people have the right to travel) but it was not grounded in any evidence.

Finally, moves that did not fit into any of the previous categories were coded as *unrelated*. They referred to a different topic, included unrelated narratives, or mentioned the instructional activities of the writing treatment, as in (6).

(6) *Jo vaig caminant a peu a casa meva tots els dies i la veritat és que cansa una mica.*

'I walk back home every day and the truth is that it tires me a little.'

[B17CPF2]

Each text was manually segmented into rhetorical moves. The first step was reading the whole text, as the identification of each move is related with the text as a unit. Then, the first indicator to identify the boundaries of each move was the communicative goal of the segment. Several other indicators were used when the communicative goal of the segment alone was not clear enough: change of topic, as moves deal with a specific topic and shifting the focus to a different one tended to indicate the boundary with a new move; punctuation, specially periods, as the boundary of most moves usually coincided with the presence of a period; switch from affirmative to negative modality, as this is usually linked with the communicative intention of the writer; and discourse markers and connectors, as they indicate the relation between the clauses they connect.

To assess the reliability of the coding criteria, we calculated the agreement between the PhD candidate and an external coder. The external coder was another PhD candidate of the Teaching and Learning of Sciences, Languages, Arts, and Humanities doctoral program who was part of the research team but had not participated in the development of the coding criteria. The coder received the coding guide and was trained with an initial sample of 20 texts. Once she proved to have an adequate understanding of the coding criteria and its application, she coded 100 different texts. In order to ensure that there was a similar number of texts of each school level, linguistic condition, and time point, the texts were selected in a quasi-random fashion. The inter-rater agreement between the two coders was .89.

Once texts were divided in rhetorical moves, we proceeded to determine the type of each rhetorical move. We first identified the claims of the text, that is, the assertions that state the writer's standpoint on the topic. Those claims that were grounded in evidence within the same move were coded as argumentative moves. Claims that were not supported by evidence within the same move were coded as assertive moves. Moves that contained no claim but only data, evidence, reflections about the topic, or rhetorical questions were coded as expository moves. Moves not included in any of these categories were coded as unrelated. Inter-rater agreement on move type identification between the two coders was .94, with a Cohen's κ of .92. The inter-rater agreement results guaranteed the reliability of the coding criteria in terms of move definition, identification, and segmentation.

5.3.4. Measures

Type of rhetorical structure. We inductively identified seven rhetorical structures (RS) depending on the types of moves a text included. RS1 combines the three types of moves:

expository, argumentative, and assertive; RS2 includes expository and argumentative moves; RS3 combines expository and assertive moves; RS4 combines argumentative and assertive moves; RS5 only includes argumentative moves; RS6 only includes expository moves; RS7 only includes assertive moves; and RS8 only includes unrelated moves. recall that each rhetorical structure is defined by the occurrence of a certain type of move irrespective of its frequency. A text exemplifying each rhetorical structure is presented in Appendix 3.

Rhetorical structure completeness. To provide a more explanatory view of the rhetorical structures students developed in their texts, these were scored from one to four for fulfillment of analytical writing goals, internal differentiation, and structural completeness. As a result, texts that combined the three types of moves (RS1) were scored with four points, as writers fulfilled the two main communicative goals of analytical writing by means of maximally differentiated discourse units and a complete structure. Next, texts with RS2 were scored with three points, as through argumentative and expository moves writers also fulfilled the communicative goals of the genre, but they did so in a less differentiated structure, since the writer's standpoint was not expressed in a separate move. Texts with RS3 were scored with two points, as writers provided data in expository moves and presented their standpoint in assertive moves, although they failed to provide evidence to ground their standpoint within the same move. Texts with RS4 were also scored with two points, as writers presented their standpoint and grounded it on evidence, but they did not provide any information to introduce and describe the topic being discussed. Next, texts with RS5 were scored with two points, as even though they presented the writer's standpoint on the topic and grounded it on evidence, they only included one type of move and failed to fulfill one of the communicative goals of the genre, introducing the topic to readers. Texts with RS6 also received one point, as through

expository moves they presented information on the topic but failed to provide the writer's standpoint on the topic and persuade the reader of it. Next, texts with RS7 were also scored with one point, as they presented the writer's standpoint on the topic but failed to provide any evidence to ground it or any data to describe the topic being discussed. Finally, texts with RS8 were scored with zero points, as they did not fulfill any of the communicative goals of analytical writing.

The argumentative-expository gradation. To complement the data gathered through the examination of the rhetorical structures students developed in their text, we examined the relative presence of the expository and the argumentative components in the texts. Recall that types of structures were defined by the occurrence of a certain type of move irrespective of its frequency. Therefore, two texts could have the same rhetorical structure but a different distribution of the expository and the argumentative components. With this gradation, we examined the use of expository moves over assertive moves controlled by the total number of moves. Formally, we took the ratio between expository and assertive moves, multiplied by the number of rhetorical moves in a text, and logged the result:

$$AEG_i = Ln(\frac{(\#Expository\ moves + 1)_i}{(\#Assertive\ moves + 1)_i} * Total\ number\ of\ moves_i)$$

In this gradation, values smaller than zero represent texts mainly composed of assertive moves, while higher values indicate a stronger presence of the expository component.

5.3.5. Analytical strategy

Developmental changes. In order to address our second goal, that is, to determine the impact of age-schooling experience and students' linguistic condition in the development of the rhetorical structure of analytical writing, we focused on the two measures

previously described: rhetorical structure completeness and score in the argumentative-expository gradation. We examined these measures at three school levels and in two linguistic conditions in T1, as this text was produced before the application of the classroom activities.

We first examined the percentage of texts (T1) per rhetorical structure by school level and linguistic condition. Given that rhetorical structure score can be considered an ordinal variable, we used an ordinal logistic model: a linear probability regression for ordinal dependent variables (Agresti, 2002). With this type of logistic model results can be transformed into probabilities, and it ranks the probability of each category (in our case, each point in the rhetorical structure score) in relation to the categories below it. This allowed determining the effect of school level, linguistic condition, and sex on the probability of a text being in each score. The outcome of the model provides the coefficients and a set of thresholds. Each threshold behaves independently, as in a linear regression analysis. When the thresholds are transformed into probabilities, the probability of belonging to a category is the difference between the probabilities of that category minus the probability of the category below it. For the second measure, the score in the argumentative-expository gradation, we used a linear regression, as it can be considered a continuous variable, with a Bonferroni post-hoc test.

Microdevelopmental changes. To address our third goal, to determine the impact of age-schooling experience and students' linguistic condition in the microdevelopment of the rhetorical structure of analytical writing, we focused on the same measures, that is, rhetorical structure and the score in the argumentative-expository gradation. On top of the three school levels and the two linguistic conditions, we examined these measures at three points in time: T1, before the writing treatment, T4, at the end of it, and T5, one

month later. We used the generalized estimating equations (GEEs) modeling framework, as it allowed integrating the repeated text production of each subject in a multilevel analysis in which texts were clustered into subjects. Therefore, we could estimate the effect of school level, linguistic condition, sex, and text. For the rhetorical structure scores, we used an ordinal logistic model, and a linear model for the score in the argumentative-expository gradation with a Bonferroni post-hoc test.

5.4. Results

5.4.1 Developmental results

Rhetorical structure. The percentage of texts (T1) employing each rhetorical structure per school level and linguistic condition can be found in Table 5.1. In the bilingual group, most texts across school levels combined expository and assertive moves (RS3). In elementary school, there were as many texts combining the three types of moves (RS1) as including expository and assertive moves (RS3), with a 30.2% of the texts including each of these rhetorical structures. Next, we find texts only consisting of expository moves (RS6), closely followed by texts combining expository and argumentative moves (RS2). The remaining rhetorical structures were uncommon, with a 5.7% of occurrence or less. Similar results were obtained in high school, where there were slightly more texts that combined expository and assertive moves (RS3) than the three types of moves (RS1). The next most common rhetorical structure was the one combining expository and argumentative moves (RS2). Finally, there were less than a 10% of texts with any of the other rhetorical structures. A similar distribution was found in university, with most texts either combining expository and assertive moves (RS3) or the three types of moves (RS1). There was a 12.5% of texts that only included expository moves (RS6). The remaining rhetorical structures were not common in this group.

Table 5.1

Percentage of texts per rhetorical structure per school level and linguistic condition

	Bilingual			Monolingual		
Rhetorical structure	Elementary school (*n* = 53)	High school (*n* = 72)	University (*n* = 56)	Elementary school (*n* = 65)	High school (*n* = 78)	University (*n* = 69)
RS1: Exp, Arg, As	30.2	31.9	33.9	21.5	39.7	40.6
RS2: Exp, Arg	9.4	13.9	7.1	7.7	9	15.9
RS3: Exp, As	30.2	37.5	44.6	43.1	32.1	31.9
RS4: Arg, As	1.9	2.8	1.8	9.2	3.8	0
RS5: Arg	5.7	0	0	4.6	5.1	0
RS6: Exp	11.3	9.7	12.5	4.6	7.7	11.6
RS7: As	5.7	4.2	0	9.2	2.6	0
RS8: Un	5.7	0	0	0	0	0

Note. Exp = expository move, Arg = argumentative move, As = assertive move, Un = unrelated move.

In the monolingual group too, most texts either combined the three types of moves (RS1) or expository and assertive moves (RS3). In elementary school, almost half of the texts combined expository and assertive moves (RS3) and a 21.5% the three types of moves (RS1). The other rhetorical structures were found in less than a 10% of the texts. In high school and university, texts that combined the three types of moves (RS1) were slightly more common than those that included expository and assertive moves (RS3). However, while in high school none of the other rhetorical structures was found in over a 10% of the texts, in university there was a 15.9% of texts that combined expository and argumentative moves (RS2), a 11.6% that only included expository moves, and there was no text with the other rhetorical structures.

Overall, most texts either combined the three types of moves (RS1) or expository and assertive moves (RS3), with texts combining expository and argumentative moves

(RS2) or only including expository moves (RS6) only occurring around once every ten texts. The rest of the rhetorical structures were very uncommon. When comparing by school level, the combination of the three types of moves (RS1) increased between elementary and high school and including expository and argumentative moves (RS2) and only expository moves (RS6) increased with school level. No relevant differences were found when comparing both linguistic conditions.

Next, to determine to which degree the texts accomplished the communicative goals of analytical writing, we examined the mean rhetorical structure scores per school level and linguistic condition. Recall that texts received a score from 1 to 4 for fulfillment of analytical writing goals, internal differentiation, and structural completeness, with higher scores indicating a higher degree of accomplishment (see Section 5.3.4 for more details). Descriptive results can be found in Table 5.2.

Table 5.2

Mean rhetorical structure score (SD) per school level and linguistic condition

Linguistic condition	Elementary school ($n = 118$)	High school ($n = 150$)	University ($n = 125$)
Bilingual	2.42 (1.2)	2.64 (1.08)	2.63 (1.09)
Monolingual	2.32 (1.02)	2.73 (1.15)	2.86 (1.09)

Scores tended to increase with school level in both linguistic conditions. In the bilingual group, elementary school students obtained an average score of 2.42, lower than in high school ($M = 2.64$) and university ($M = 2.63$). Amongst the monolingual participants, the increase was more sustained throughout the school levels, from 2.32 in elementary school, to 2.73 in high school, and 2.86 in university. Note that scores were

higher amongst bilinguals in elementary school and amongst monolinguals in high school and university.

Table 5.3 displays the results of the ordinal logistic regression model showing the likelihood of producing a text with a certain rhetorical structure score as predicted by school level, linguistic condition, and sex (Model A). In all cases, the reference category was the one coded with the highest value, that is, a score of 4 in completeness, university for school level, monolingual for linguistic condition, and female for sex. The omnibus test showed that the model containing the predictors represented a significant improvement in fit over an unconditional model with no predictors, $\chi^2(4, N = 393) = 12.14$, $p = .016$. As for the tests of model effects, there was a significant effect of school level, $\chi^2(2, N = 393) = 7.55$, $p = .023$. The exponential β coefficient revealed that the odds of elementary school students obtaining a higher rhetorical structure completeness score were 0.55 times that of university students, while the odds of high school students were 0.95.

Linguistic condition was not a significant predictor, $\chi^2(1, N = 393) = 0.68$, $p = .411$, but it had a negative relation with the outcome, that is, bilingual students had lower odds of writing texts with a more complete rhetorical structure than their monolingual peers. Finally, sex was not a significant predictor either, $\chi^2(1, N = 393) = 2.54$, $p = .111$, and male students also had lower odds of writing texts with higher rhetorical structure scores.

Table 5.3

Ordinal logistic regression modeling the relationships between school level, linguistic condition, and sex with rhetorical structure scores

Parameters	Model A					Model B				
	β	SE	CI	Exp(β)	Wald χ^2	β	SE	CI	Exp(β)	Wald χ^2
School level					7.55*					6.8*
Elementary school	-0.6	0.24	[-1.07, -0.12]	0.55	6.1*	-0.38	0.38	[-1.13, 0.36]	0.68	1.01
High school	-0.06	0.22	[-0.5, 0.39]	0.95	0.06	-0.31	0.36	[-1.02, 0.39]	0.73	0.76
Linguistic condition					0.68					0.32
Bilingual	-0.15	0.19	[-0.52, 0.21]	0.86	0.68	-0.45	0.35	[-1.14, 0.24]	0.64	1.66
Sex					2.54					3.29
Male	-0.3	0.19	[-0.68, 0.07]	0.74	2.54	-0.21	0.39	[-0.98, 0.55]	0.81	0.3
Completeness score = 1	-2.07	0.23	[-2.51, -1.63]	0.13	84.24***	-2.2	0.29	[-2.77, -1.62]	0.11	56.08***
Completeness score = 2	-0.15	0.2	[-0.53, 0.24]	0.86	0.57	-0.23	0.27	[-0.76, 0.29]	0.79	0.77
Completeness score = 3	0.31	0.2	[-0.07, 0.7]	1.37	2.54	0.24	0.27	[-0.29, 0.76]	1.27	0.78
School level*Linguistic condition										1.29
Elementary school*Bilingual						0.56	0.5	[-0.41, 1.53]	1.75	1.27
High school* Bilingual						0.22	0.46	[-0.68, 1.11]	1.24	0.22
School level*Sex										7.65*
Elementary school*Male						-0.97	0.5	[-1.96, 0.01]	0.38	3.75
High school*Male						0.28	0.48	[-0.66, 1.21]	1.32	0.33
Linguistic condition*Sex										0.19
Bilingual*Male						0.17	0.39	[-0.6, 0.94]	1.19	0.19

| *Goodness of fit*		
Deviance	33.96	24.57
Pearson Chi-Square	33.15	24.24
Log likelihood	-74.66	-69.97
AIC	163.32	163.93
AICC	163.61	164.75
BIC	191.14	211.62
CAIC	191.14	223.62
Omnibus test		
Likelihood ratio	$\chi^2(4, N = 393) = 12.14, p = .016$	$\chi^2(9, N = 393) = 21.53, p = .01$

*p < .05; **p < .01; ***p < .001

Subsequently, we added to the model the two-way interactions between the predictors school level, linguistic condition, and sex (Model B). The omnibus test showed that the model containing the predictors and their two-way interactions had a significantly improved fit over the unconditional model, $\chi^2(9, N = 393) = 21.53$, $p = .010$. Moreover, Model B had a better fit of the data than Model A. The tests of model effects showed that school level was, again, a significant predictor of rhetorical structure completeness scores, $\chi^2(2, N = 393) = 6.8$, $p = .033$, but linguistic condition, $\chi^2(1, N = 393) = 0.32$, $p = .573$, and sex, $\chi^2(1, N = 393) = 3.29$, $p = .070$, were not.

Figure 5.1

Interaction between school level and sex
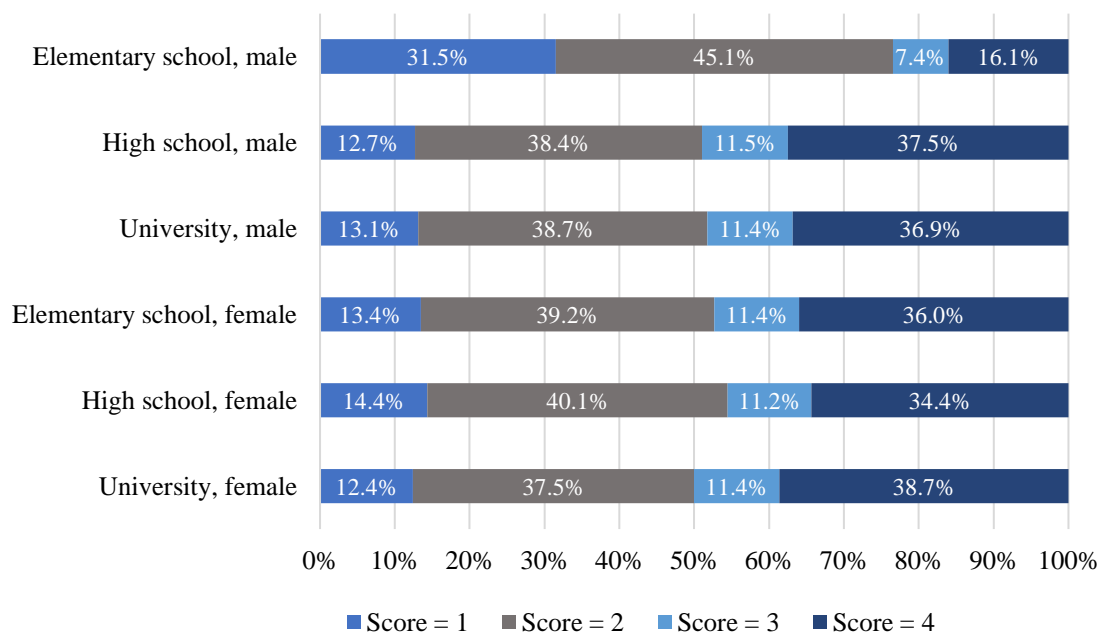
The only significant interaction was between school level and sex, $\chi^2(2, N = 393) = 7.65$, $p = .022$. As Figure 5.1 shows, the odds for elementary school male participants of writing texts with a rhetorical structure score of 1 were higher than for female participants of the same school level. In contrast, elementary school male participants had

lower odds than elementary school female participants of producing a text with a score of 4. None of the other interactions reached significance levels (all ps > 0.583).

Argumentative-expository gradation. Our previous examination of the rhetorical structures that students developed in their texts helped us determining to which degree the texts accomplished the communicative goals of the genre based on the inclusion and combination of different types of rhetorical moves. In turn, examining the scores in the argumentative-expository gradation allowed determining the distribution in the texts of the expository and the argumentative components.

Descriptive statistics for the scores in the argumentative-expository gradation per school level and linguistic condition can be found in Table 5.4. Overall, scores increased with school level in both linguistic conditions. When comparing both linguistic conditions, bilingual elementary school students obtained slightly higher scores than their monolingual counterparts, although scores were almost identical in both linguistic conditions in high school and university.

Table 5.4

Mean scores in the argumentative-expository gradation (SD) per school level and linguistic condition

Linguistic condition	Elementary school ($n = 118$)	High school ($n = 150$)	University ($n = 125$)
Bilingual	1.68 (0.99)	2.11 (0.98)	2.82 (0.86)
Monolingual	1.45 (1.1)	2.14 (0.99)	2.84 (0.8)

Table 5.5

Linear regression modeling the relationships between school level, linguistic condition, and sex with scores in the argumentative-expository gradation

Parameters	Model A					Model B				
	β	SE	CI	Wald χ^2	EMM	β	SE	CI	Wald χ^2	EMM
(Intercept)				2,025.09***					2,033.68***	
(Intercept)	2.95	0.1	[2.76, 3.14]	905.75***	2.15	2.93	0.14	[2.66, 3.19]	478.57***	2.17
School level				95.68***					102.18***	
Elementary school	-1.18	0.12	[-1.42, -0.95]	95.37***	1.57[a]	-1.16	0.19	[-1.54, -0.78]	36.56***	1.57[a]
High school	-0.64	0.11	[-0.86, -0.41]	31.33***	2.12[b]	-0.43	0.18	[-0.78, -0.08]	5.8*	2.1[b]
University	0				2.75[c]	0				2.83[c]
Linguistic condition				0.4					1.48	
Bilingual	0.06	0.09	[-0.13, 0.24]	0.4	2.18[a]	-0.13	0.18	[-0.47, 0.22]	0.51	2.23[a]
Monolingual	0				2.12[a]	0				2.11[a]
Sex				22.09***					18.13***	
Male	-0.45	0.1	[-0.64, -0.26]	22.09***	1.92[a]	-0.22	0.19	[-0.6, 0.16]	1.34	1.96[a]
Female	0				2.37[b]	0				2.37[b]
School level*Linguistic condition									1.28	
Elementary school*Bilingual						0.24	0.24	[-0.24, 0.72]	0.98	
High school*Bilingual						0.02	0.23	[-0.43, 0.46]	0	
School level*Sex									6.88*	
Elementary school*Male						-0.43	0.25	[-0.92, 0.05]	3.08	
High school*Male						-0.61	0.23	[-1.07, -0.15]	6.73**	

Linguistic condition*Sex				2.65
Bilingual*Male	0.31	0.19	[-0.06, 0.69]	2.65

Goodness of fit		
Deviance	33.96	24.57
Pearson Chi-Square	33.15	24.24
Log likelihood	-74.66	-69.97
AIC	163.32	163.93
AICC	163.61	164.75
BIC	191.14	211.62
CAIC	191.14	223.62

Omnibus test		
Likelihood ratio	$\chi^2(4, N = 393) = 12.14, p = .016$	$\chi^2(9, N = 393) = 21.53, p = .01$

*p < .05; **p < .01; ***p < .001

Table 5.5 displays the results of the linear regression modeling the relationship between school level, linguistic condition, and sex with the scores in the argumentative-expository gradation (Model A). The estimated marginal means were ranked statistically and marked by Latin superscripts, with letter [a] indicating the smallest marginal mean and so on. Different letters were used when means were statistically different. The omnibus test showed that the model containing the predictors represented a significant improvement in fit compared to an unconditional model with no predictors, $\chi^2(4, N = 393) = 117.57$, $p = .000$. There was a significant effect of school level, $\chi^2(2, N = 393) = 95.68$, $p = .000$. The β coefficients in elementary and high school indicated a negative relation with the outcome variable. The model-estimated pairwise comparisons revelated that the differences between school levels were all significant, with the older groups presenting higher scores than the younger ones.

Linguistic condition was not a significant predictor, $\chi^2(1, N = 393) = 0.4$, $p = .529$, although the β coefficient indicated that bilingual students had slightly higher scores. In contrast, sex did show to have a significant effect on the outcome, $\chi^2(1, N = 393) = 22.09$, $p = .000$, and the β coefficient showed that male participants had significantly lower scores than their female peers, that is, the texts written by female participants had a stronger presence of the expository component.

Subsequently, we added the two-way interactions to the model (Model B). The omnibus test showed a better fit of the data in comparison to the unconditional model without the predictors and to Model A, $\chi^2(9, N = 393) = 128.81$, $p = .000$. The tests of model effects showed similar results regarding the three predictors: school level was a significant predictor, $\chi^2(2, N = 393) = 102.18$, $p = .000$, and the β coefficients indicated a positive relation between school level and score. Linguistic condition was not a

significant predictor, $\chi^2(1, N = 393) = 1.48$, $p = .224$, although this time the β coefficient for the bilingual participants was negative. Sex, again, had a significant effect in the outcome, $\chi^2(1, N = 393) = 18.13$, $p = .000$, with male participants scoring lower in the argumentative-expository gradation.

Figure 5.2

Interaction between school level and sex
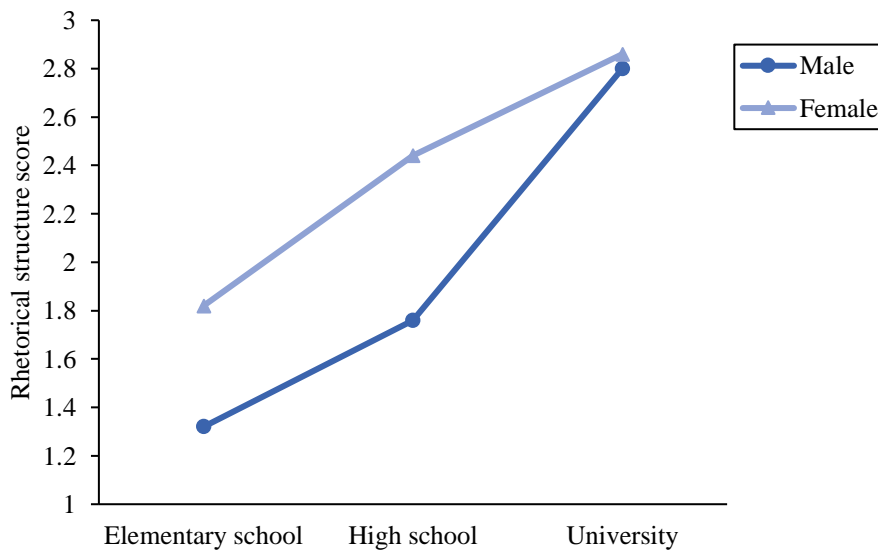
The interaction between school level and sex was also significant, $\chi^2(2, N = 393) = 6.88$, $p = .032$. An examination of the estimated marginal means by school level and sex helps explain this result (see Figure 5.2). While the estimated marginal mean difference between sexes is significant in elementary school ($MD = -0.5$, $SE = 0.17$, $p = .003$) and high school ($MD = -0.67$, $SE = 0.15$, $p = .000$), in university the difference is small and non-significant ($MD = 0.07$, $SE = 0.18$, $p = .713$).

Overall, school level was a significant predictor for both outcome variables, rhetorical structure completeness scores and the score in the argumentative-expository gradation. Older students produced texts with rhetorical structures that better attained the communicative goals of analytical writing and with a higher presence of the expository

component. Linguistic condition was not a significant predictor for neither variable, and it showed a negative relation with rhetorical structure scores and almost no impact on scores in the argumentative-expository gradation, that is, bilingual students produced texts with lower completeness scores than the monolingual ones but with similar data and evidence. Sex was not a significant predictor either in rhetorical structure scores. However, it had a significant impact in students' scores in the argumentative-expository gradation, indicating that female participants wrote texts with a higher presence of the expository component.

Next, we examined the microdevelopment of the rhetorical structure focusing on the same measures, rhetorical structure completeness and the argumentative-expository gradation. In addition to school level, linguistic condition, and sex, we examined these measures at three points in time: T1, before the writing treatment, T4, at the end of it, and T5, one month later.

5.4.2. Microdevelopmental results

Rhetorical structure. The percentage of texts with each rhetorical structure per school level and text can be found in Table 5.6. Most texts either combined the three types of rhetorical moves (RS1) or expository and assertive moves (RS3). Less common were texts that combined expository and argumentative moves (RS2) or that only consisted of expository moves (RS6). The remaining rhetorical structures were uncommon across school levels, linguistic conditions, and texts, except for RS4, which combines argumentative and assertive moves, and RS7, which only includes assertive moves, that were more common in the monolingual elementary school group in T5.

Table 5.6

Percentage of texts per rhetorical structure per school level, linguistic condition, and text

	Bilingual									Monolingual								
	Elementary school (n = 53)			High school (n = 72)			University (n = 56)			Elementary school (n = 65)			High school (n = 78)			University (n = 69)		
Rhetorical structure	T1	T4	T5	T1	T4	T5	T1	T4	T5	T1	T4	T5	T1	T4	T5	T1	T4	T5
RS1: Exp, Arg, As	30.2	43.4	62.3	31.9	26.4	50	33.9	21.4	58.9	21.5	30.8	23.1	39.7	46.2	59	40.6	50.7	82.6
RS2: Exp, Arg	9.4	15.1	11.3	13.9	5.6	6.9	7.1	7.1	21.4	7.7	15.4	3.1	9	11.5	19.2	15.9	4.3	4.3
RS3: Exp, As	30.2	24.5	17	37.5	50	29.2	44.6	55.4	17.9	43.1	36.9	9.2	32.1	32.1	14.1	31.9	36.2	13
RS4: Arg, As	1.9	3.8	7.5	2.8	0	4.2	1.8	0	0	9.2	9.2	32.3	3.8	0	3.8	0	0	0
RS5: Arg	5.7	1.9	0	0	0	4.2	0	0	0	4.6	0	20	5.1	0	0	0	0	0
RS6: Exp	11.3	7.5	1.9	9.7	18.1	4.2	12.5	16.1	1.8	4.6	3.1	0	7.7	9	2.6	11.6	8.7	0
RS7: As	5.7	3.8	0	4.2	0	1.4	0	0	0	9.2	4.6	12.3	2.6	1.3	1.3	0	0	0
RS8: Un	5.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. Exp = expository move, Arg = argumentative move, As = assertive move, Un = unrelated move.

As for changes along the writing treatment, the two most common rhetorical structures showed a reversed pattern: while there was a generalized increase from T1 to T5 in the percentage of texts that combined the three types of moves (RS1), there was a decrease in those that combined expository and assertive moves (RS3). No clear patterns emerged regarding the percentage of texts combining expository and argumentative moves (RS2), that behaved very differently depending on school level and linguistic condition: in both elementary school groups, RS2 increased in T4 and decreased in T5; in the bilingual university group and the monolingual high school group, it increased from T1 to T5; and in the bilingual high school group and the monolingual university group, it decreased from T1 to T5. As for texts with only expository moves (RS6), the percentage decreased from T1 to T5.

As for developmental comparisons, the percentage of texts combining the three types of moves (RS1) and combining expository and assertive moves (RS3) increased with school level. In contrast, the percentage of texts combining expository and argumentative moves (RS2) remained around the 10% mark, while the percentage of texts that only included expository moves (RS6) increased with age, although RS6 was not a common rhetorical structure. The rest of the rhetorical structures were rarely found, and their use decreased with school level.

When comparing both linguistic conditions, similar patterns were found. Combining the three types of moves (RS1) was very common in both linguistic conditions, although more in elementary school in the bilingual group and in high school and university in the monolingual group. The reversed pattern emerged regarding the texts including expository and assertive moves (RS3), as these were more common in elementary school in the monolingual group and in high school and university in the

bilingual group. Next, texts that combined expository and argumentative moves (RS2) were not especially common in either linguistic condition. In most cases, only around a 10% of the texts exhibited this rhetorical structure, only increasing in T5 in the bilingual university and in the monolingual high school groups. As for texts that only included expository moves (RS6), these were slightly more common in high school and university than in elementary school, and also more common in the bilingual group.

As for microdevelopmental changes, there was a generalized increase in the percentage of texts combining the three types of moves (RS1) across school levels and linguistic conditions, except for elementary school monolinguals. The opposite happened to the percentage of texts with expository and assertive moves (RS3), although in the bilingual high school and university groups and in the monolingual university group these increased in T4. As for texts combining expository and argumentative moves (RS2), the pattern was less clear: they decreased in high school amongst bilinguals and in university amongst monolinguals, they increased in university in the bilingual group and in high school in the monolingual group, and they showed an increase in T4 and a decrease in T5 in elementary school in both linguistic conditions. As for texts that only included expository moves (RS6), these generally decreased from T1 to T5, although first increasing in T4 in high school and university amongst bilinguals. The remaining rhetorical structures were generally uncommon, except for the combination of argumentative and assertive moves (RS4) and the sole inclusion of assertive moves (RS7) that increased in T5 in the monolingual elementary school group.

Next, we examined to which degree the texts accomplished the communicative goals of analytical writing through the mean rhetorical structure completeness scores per school level, linguistic condition, and text. Descriptive results can be found in Table 5.7.

Mean scores ranged from 2.17 in the elementary school monolingual group to 3.7 in the university monolingual group, both in T5. Scores tended to increase with school level, especially in the monolingual group. However, in the bilingual group, elementary school students actually obtained higher scores than the other groups in T4 and similar scores than university students and higher than high school students in T5. As for linguistic condition comparisons, Bilinguals' texts showed higher scores in elementary school but lower than the monolingual group in high school and university, differences that remained stable along the writing treatment. Regarding text comparisons, scores increased along the writing treatment in the bilingual group of elementary school and in the monolingual groups of high school and university. In the bilingual groups of high school and university, scores decreased in T4 and increased in T5, while in the monolingual elementary school group they increased in T4 and decreased in T5.

Table 5.7

Mean rhetorical structure score (SD) per school level, linguistic condition, and text

Linguistic condition	Elementary school (*n* = 118)			High school (*n* = 150)			University (*n* = 125)		
	T1	T4	T5	T1	T4	T5	T1	T4	T5
Bilingual	2.42 (1.2)	2.89 (1.12)	3.34 (0.92)	2.64 (1.08)	2.4 (1.07)	2.97 (1.11)	2.63 (1.09)	2.34 (1)	3.38 (0.84)
Monolingual	2.32 (1.02)	2.69 (1)	2.17 (1.13)	2.73 (1.15)	2.94 (1.1)	3.33 (0.91)	2.86 (1.09)	2.97 (1.11)	3.7 (0.69)

Table 5.8 shows the results of the GEE modeling the relation between the inter-subject factors school level, linguistic condition, and sex, and the intra-subject factor text with the rhetorical structure scores along the writing treatment (Model A). The tests of model effects show a significant effect of school level, $\chi^2(2, N = 1179) = 16.7$, $p = .000$. The exponential β coefficient showed that elementary school students' odds of obtaining

a higher score than university students were 0.52, while those of high school students were 0.77. Linguistic condition, $\chi^2(1, N = 1179) = 2.82$, $p = .093$, and sex, $\chi^2(1, N = 1179) = 0.03$, $p = .872$, were not significant predictors, although linguistic condition showed a negative relation with the outcome variable, that is, bilingual students had lower chances of getting a higher score than their monolingual counterparts, and sex had almost no effect on the outcome. Finally, there was a significant effect of text, $\chi^2(2, N = 1179) = 60.14$, $p = .000$, with T1 having 0.39 times the odds of T5 of obtaining a higher score, and T4 of 0.47.

Next, we added to the model the two-way interactions between the predictors school level, linguistic condition, sex, and text (Model B). This model is also displayed in Table 5.8. The tests of model effects showed that school level was a significant predictor of rhetorical structure scores, $\chi^2(2, N = 1179) = 18.68$, $p = .000$. Again, the exponential β coefficients showed that elementary and high school students had significantly lower odds of obtaining higher scores when compared with university students. As in Model A, linguistic condition was not a significant predictor, $\chi^2(1, N = 1179) = 0.76$, $p = .383$, and bilingualism showed a negative relation with the outcome variable, rhetorical structure completeness scores. Sex was not a significant predictor in this model either, $\chi^2(1, N = 1179) = 0.04$, $p = .837$, although male students were more likely to obtain higher scores than their female peers. Finally, text also had significant effect in rhetorical structure completeness scores, $\chi^2(2, N = 1179) = 55.59$, $p = .000$. The exponential β coefficients indicated that both T1 and T4 had a negative relation in comparison to T5 with the outcome measure.

Table 5.8

Generalized estimating equation modeling the relationships between school level, linguistic condition, sex, and text with rhetorical structure scores

Parameters	Model A					Model B				
	β	SE	CI	Exp(β)	Wald χ^2	β	SE	CI	Exp(β)	Wald χ^2
School level					16.7***					18.68***
Elementary school	-0.65	0.16	[-0.96, -0.34]	0.52	16.57***	-1.94	0.36	[-2.64, -1.24]	0.14	29.54***
High school	-0.27	0.15	[-0.55, 0.02]	0.77	3.25	-0.66	0.33	[-1.3, -0.02]	0.52	4.05*
Linguistic condition					2.82					0.76
Bilingual	-0.21	0.12	[-0.45, 0.03]	0.81	2.82	-0.36	0.29	[-0.93, 0.2]	0.7	1.61
Sex					0.03					0.04
Male	-0.02	0.13	[-0.27, 0.23]	0.87	0.03	0.35	0.33	[-0.31, 1]	1.41	1.07
Text					60.14***					55.59***
Text 1	-0.93	0.13	[-1.18, -0.68]	0.39	54.84***	-1.33	0.28	[-1.87, -0.79]	0.26	23.39***
Text 4	-0.75	0.13	[-1. -0.5]	0.47	34.74***	-1.42	0.27	[-1.95, -0.89]	0.24	27.91***
Completeness score = 1	-3.01	0.17	[-3.3, -2.67]	0.05	308.99***	-3.6	0.28	[-4.15, -3.04]	0.03	162.08***
Completeness score = 2	-1.07	0.15	[-1.36, -0.78]	0.34	52.04***	-1.55	0.26	[-2.07, -1.03]	0.21	34.34***
Completeness score = 3	-0.62	0.15	[-0.91, -0.33]	0.54	17.79***	-1.07	0.26	[-1.59, -0.56]	0.34	16.69***
School level*Linguistic condition										29.73***
Elementary school*Bilingual						1.55	0.33	[0.9, 2.19]	4.7	21.99***
High school* Bilingual						0.12	0.31	[-0.49, 0.72]	1.13	0.15
School level*Sex										7.82*
Elementary school*Male						-0.97	0.35	[-1.65, -0.29]	0.38	7.82**
High school*Male						-0.59	0.33	[-1.24, 0.06]	0.55	3.18

School level*Text					26.72***
Elementary school*Text 1	1.05	0.35	[0.37, 1.74]	2.86	9.07**
Elementary school*Text 4	1.67	0.34	[1.02, 2.33]	5.33	24.92***
High school*Text 1	0.75	0.31	[0.14, 1.37]	2.13	5.74*
High school*Text 4	0.71	0.31	[0.1, 1.33]	2.04	5.21*
Linguistic condition*Sex					0.13
Bilingual*Male	0.09	0.26	[-0.41, 0.6]	1.1	0.13
Linguistic condition*Text					8.99*
Bilingual*Text 1	-0.29	0.27	[-0.81, 0.24]	0.75	1.17
Bilingual*Text 4	-0.75	0.26	[-1.25, -0.25]	0.47	8.58**
Sex*Text					8.7*
Male*Text 1	-0.22	0.27	[-0.75, 0.31]	0.8	0.65
Male*Text 4	0.52	0.26	[0, 1.03]	1.68	3.87*

*p < .05; **p < .01; ***p < .001

Figure 5.3

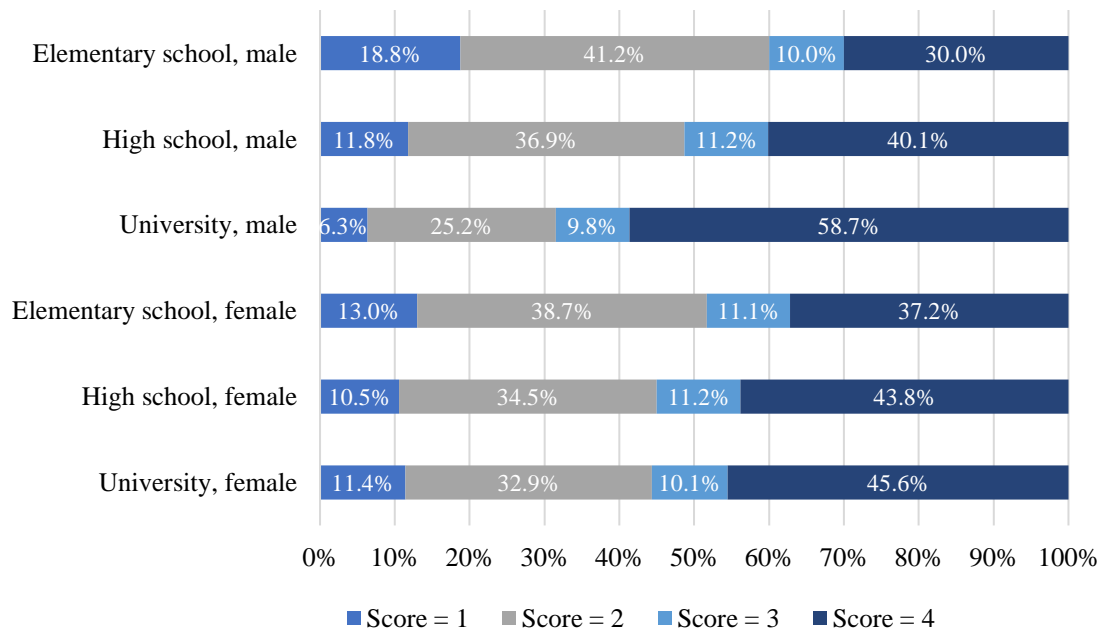*Interaction between school level and linguistic condition*
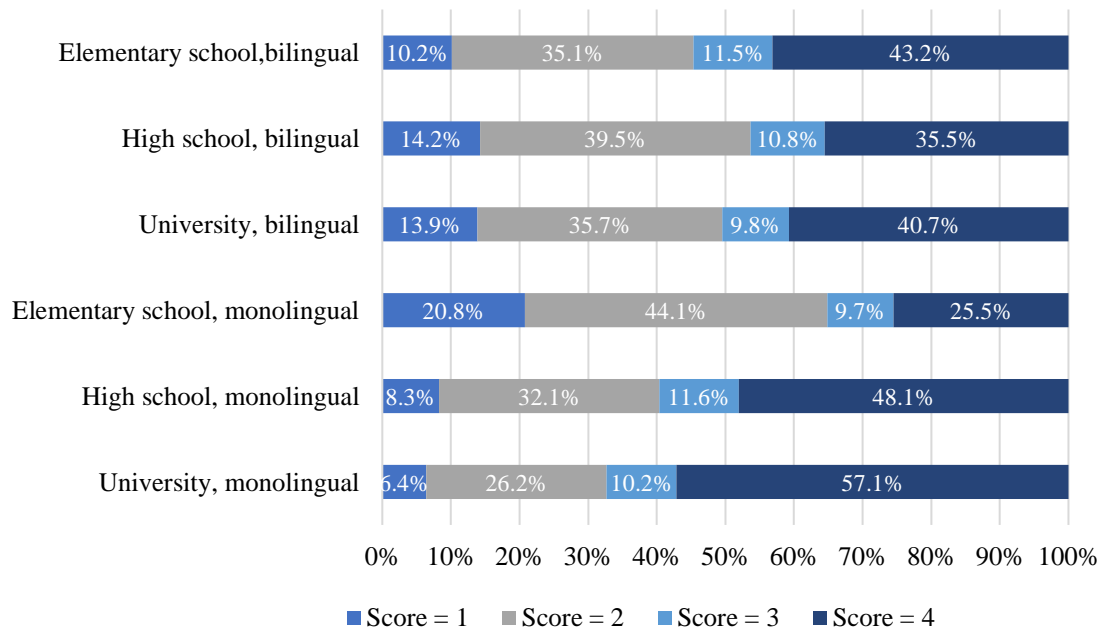
The interaction between school level and linguistic condition was significant, $\chi^2(2, N = 1179) = 29.73$, $p = .000$ (see Figure 5.3). While in the bilingual group the odds of writing a text with a certain rhetorical structure completeness score were similar across school levels, in the monolingual group there was a decrease with school level in the odds of producing a text with structures scored 1 or 2 and an increase with structures that were scored 4. Thus, in the monolingual group older students were less likely to write texts scored low in rhetorical structure completeness (1 or 2) and more likely scored high (4) than their younger peers.

The interaction between school level and sex was also significant, $\chi^2(2, N = 1179) = 7.82$, $p = .020$. As it can be observed in Figure 5.4, the odds for male participants of writing a text with a score of 1 or 2 decreased with school level, while the odds of writing one with a score of 4 highly increased. In contrast, the odds for female participants were

a lot more similar between school levels, slightly decreasing for a score of 2 and increasing for a score of 4.
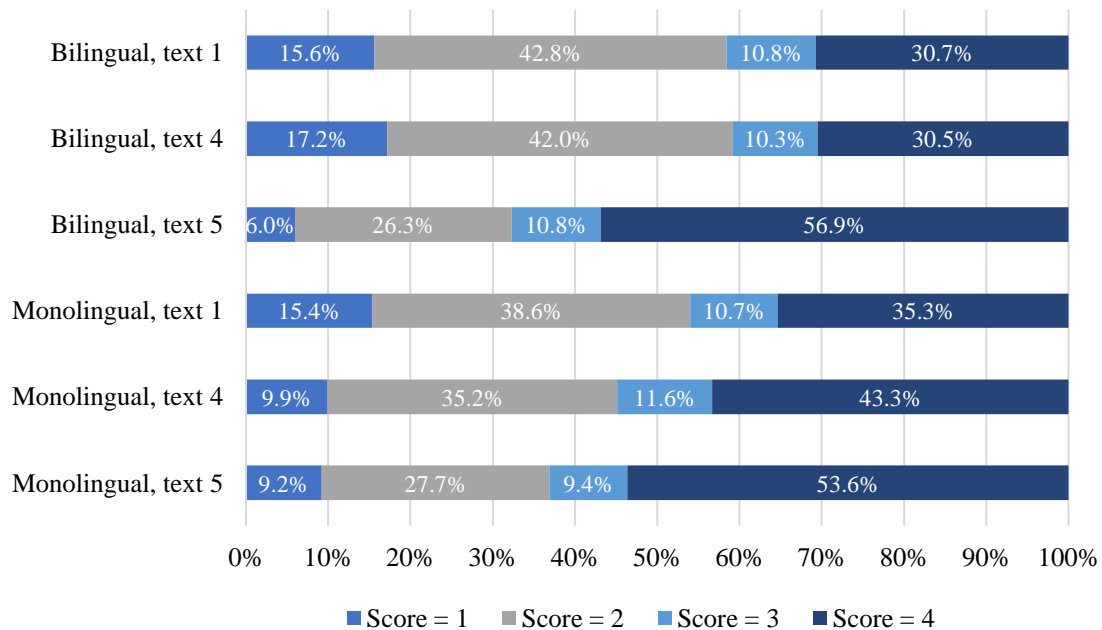
Figure 5.4

Interaction between school level and sex

	Score = 1	Score = 2	Score = 3	Score = 4
Elementary school, male	18.8%	41.2%	10.0%	30.0%
High school, male	11.8%	36.9%	11.2%	40.1%
University, male	6.3%	25.2%	9.8%	58.7%
Elementary school, female	13.0%	38.7%	11.1%	37.2%
High school, female	10.5%	34.5%	11.2%	43.8%
University, female	11.4%	32.9%	10.1%	45.6%

Next, the interaction between school level and text was also significant, $\chi^2(4, N = 1179) = 26.72$, $p = .000$ (see Figure 5.5). Differences were found between elementary school and the two other groups. The odds of elementary school students of producing a text with a score of 1 or 2 decreased from T1 to T4, while in high school and university they decreased from T4 to T5. Similarly, in elementary school the odds of producing a text with a score of 4 increased from T1 to T4 and in high school and university they increased from T4 to T5. That is, elementary school students were less likely to produce a text with a low completeness score and more likely to produce one with a high score after the pedagogical treatment, whereas high school and university students were less likely to write a text with a low completeness score and more likely to produce one with a high score one month after the treatment.

Figure 5.5

Interaction between school level and text
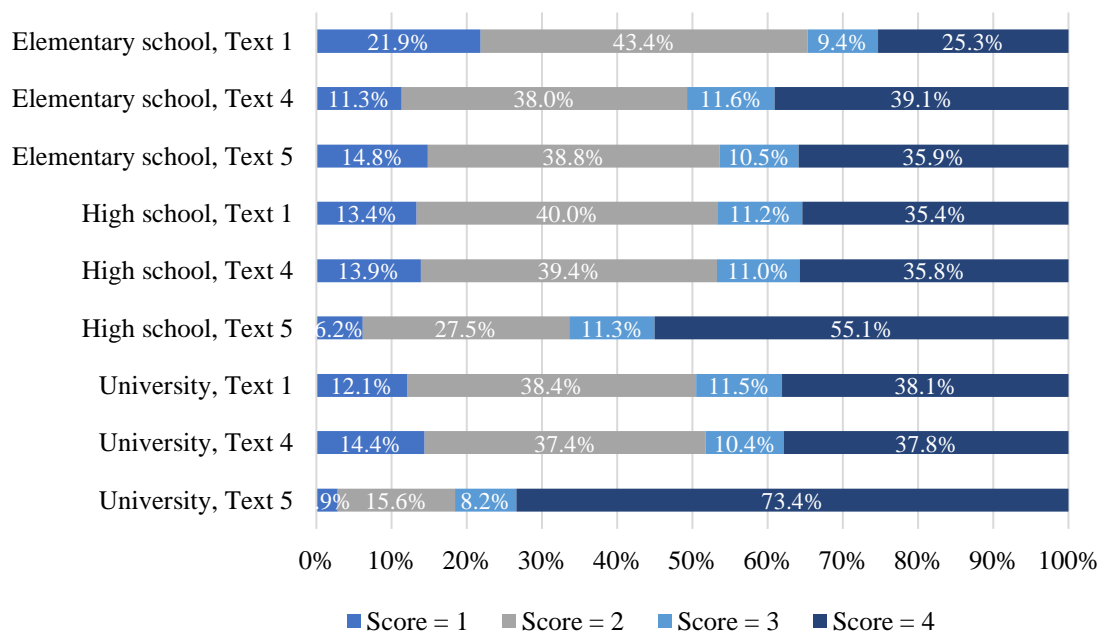
The interaction between linguistic condition and text was also significant, $\chi^2(2, N = 1179) = 8.99$, $p = .011$ (see Figure 5.6). In the bilingual group, the odds of writing a text with a score of 1 or 2 decreased from T4 to T5, while in the monolingual group the odds for a score of 1 decreased from T1 to T4 and for a score of 2 the decrease was steadier. Similarly, the odds of producing a text with a score of 4 in the bilingual group increased from T4 to T5, while in the monolingual group the increase was steady from T1 to T5. In other words, while bilingual students were less likely to write a text with a low completeness score and more likely to write one with a high score one month after the writing treatment, this improvement was more regular in the monolingual group.

Figure 5.6

Interaction between linguistic condition and text

Finally, the interaction between sex and text was also significant, $\chi^2(2, N = 1179)$ = 8.7, p = .013. As Figure 5.7 shows, the odds of writing a text with a score of 1 or 2 decreased from T1 to T4 for male participants, while this decrease was found from T4 to T5 for female participants. Similarly, there was an increase in the probability of producing a text with a score of 4 from T1 to T4 for male participants, whereas this increase was found from T4 to T5 for their female peers.

To obtain a more visual representation of the results obtained, we fit an ordinal logistic model only including those predictors that were significant in the tests of model effects. Therefore, we included in the model school level and text, as well as their interaction. The resulting β coefficients were used to calculate the probability of belonging to a certain category in rhetorical text structure score (see Figure 5.8).

Figure 5.7

Interaction between sex and text
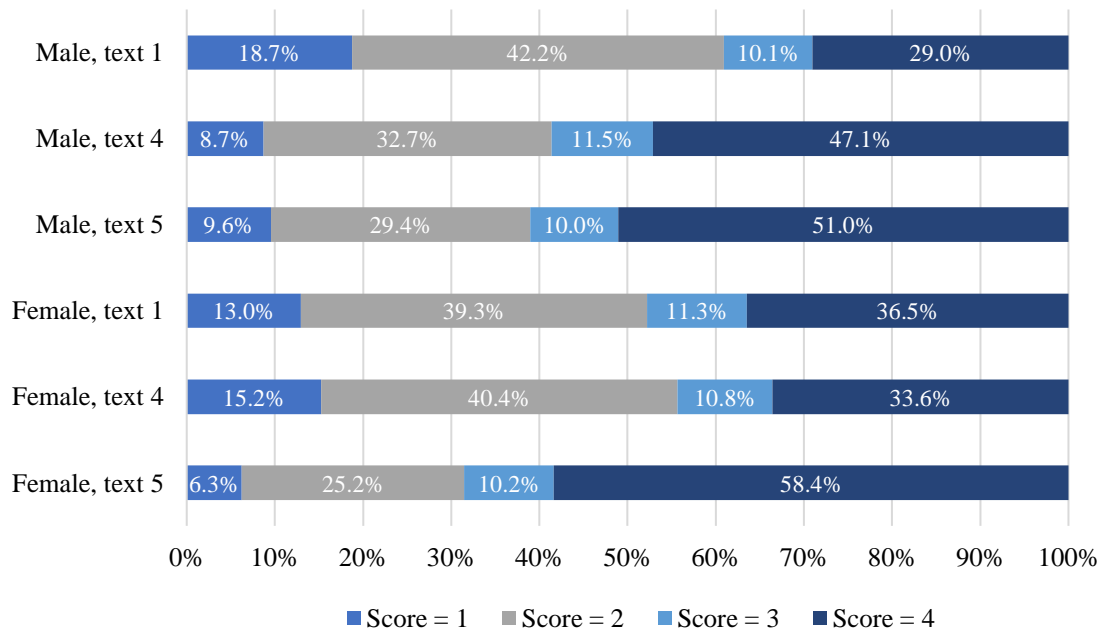
Overall, the two highest probabilities were found in texts with a score of 4, that is, texts that combined the three types of rhetorical moves (RS1), and in texts with a score of 2, those that either included expository and assertive moves (RS3) or argumentative and assertive moves (RS4). Students had higher chances of producing a text with a rhetorical structure completeness score of 4, the maximum, one month after the writing treatment (T5). The odds drastically increased from T4 to T5 in high school and university, although in elementary school there was a slight decrease. As for texts with a score of 2, the probabilities decreased, although this decrease was found between T1 to T4 in elementary school and between T4 to T5 in high school and university. In other words, elementary school students were less likely to produce a text with a score of 2 after the writing treatment and high school and university students one month after it. The probability of producing a text with a score of 3 was stable along the classroom activities in all three school levels, around a 10%. Finally, the odds of writing a text with a score of

1, that is, that only included one type of move (RS5, RS6, RS7, or RS8) decreased from T1 to T5, although this decrease was found in T4 in elementary school and in T5 in high school and university.

Figure 5.8

Predicted probabilities of rhetorical structure score by school level and text
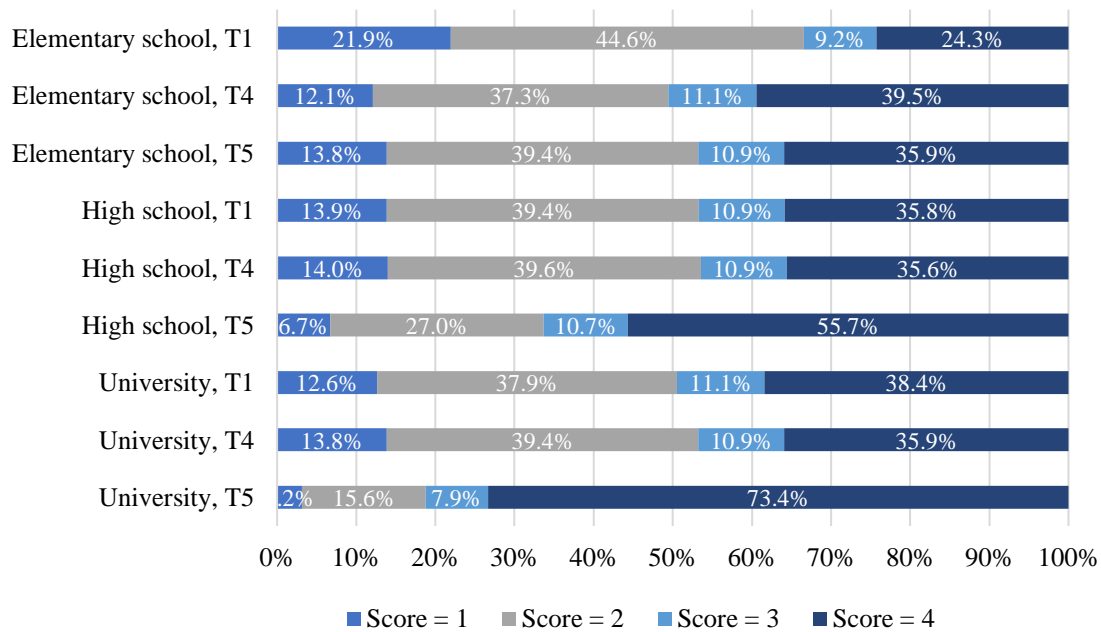
Argumentative-expository gradation. Mean scores in the argumentative-expository gradation and standard deviations per school level, linguistic condition, and text can be found in Table 5.9. Overall, scored tended to increase with school level, more pronouncedly amongst bilinguals between high school and university and amongst monolinguals between elementary and high school. As for linguistic condition comparisons, scores were higher in the bilingual group in elementary school and university, and very similar in high school. As for differences between texts, scored tended to be the highest in T4 and the lowest in T1. The only exceptions to this were in the monolingual groups: elementary school and university students obtained the lowest scores in T5 and not in T1, that is, one month after the treatment, their texts presented a

lower presence of expository moves in comparison to assertive moves than in the previous texts, produced before and at the end of the treatment.

Table 5.9

Mean score in the argumentative-expository gradation (SD) per school level, linguistic condition, and text

Linguistic condition	Elementary school (*n* = 118)			High school (*n* = 150)			University (*n* = 125)		
	T1	T4	T5	T1	T4	T5	T1	T4	T5
Bilingual	1.68 (0.99)	2.78 (1.13)	2.04 (0.85)	2.11 (0.98)	3.02 (0.72)	2.21 (0.96)	2.82 (0.86)	3.45 (0.68)	3.21 (0.86)
Monolingual	1.45 (1.1)	1.83 (1.07)	0.83 (0.88)	2.14 (0.99)	2.93 (0.85)	2.37 (0.95)	2.84 (0.8)	2.87 (0.69)	2.69 (0.72)

Table 5.10 displays the results of the GEE modeling the relation between the inter-subject factors school level, linguistic condition, and sex and the intra-subject factor text with the scores in the argumentative-expository gradation along the writing treatment (Model A). The tests of model effects show a significant main effect of school level, $\chi^2(2, N = 1179) = 201.37, p = .000$. The β coefficients indicated that elementary and high school students obtained lower scores than university students, the reference group, and the test-model estimated marginal mean differences showed that differences between school levels were all significant. Linguistic condition also had a significant main effect, $\chi^2(1, N = 1179) = 28.79, p = .000$, with bilingual students scoring higher than their monolingual peers. Sex had a significant effect too, $\chi^2(1, N = 1179) = 30.49, p = .000$, and male participants scored significantly lower. Finally, text also had a significant effect, $\chi^2(2, N = 1179) = 170.69, p = .000$, and scores in T4 were significantly higher than in the other two texts.

Table 5.10

Generalized estimating equation modeling the relationships between school level, linguistic condition, and sex with the scores in the argumentative-expository gradation

Parameters	Model A					Model B				
	β	SE	CI	Wald χ^2	EMM	β	SE	CI	Wald χ^2	EMM
(Intercept)				5,260.87***					5,970.61***	
(Intercept)	2.76	0.07	[2.63, 2.89]	1,727.81***	2.38	2.76	0.09	[2.59, 2.94]	964.87***	2.4
School level				204.18***					235.36***	
Elementary school	-1.16	0.08	[-1.32, -1]	203.81***	1.76[a]	-1.52	0.15	[-1.82, -1.23]	101.81***	1.76[a]
High school	-0.47	0.07	[-0.61, -0.32]	41.45***	2.45[b]	-0.21	0.13	[-0.46, 0.03]	2.85	2.44[b]
University	0				2.92[c]	0				2.99[c]
Linguistic condition				25.7***					45.77***	
Bilingual	0.33	0.07	[0.2, 0.45]	25.7***	2.54[b]	0.4	0.12	[0.16, 0.64]	10.45**	2.62[b]
Monolingual	0				2.21[a]	0				2.19[a]
Sex				31.56***					26.45***	
Male	-0.37	0.07	[-0.5, -0.24]	31.56***	2.19[a]	-0.14	0.12	[-0.38, 0.1]	1.36	2.24[a]
Female	0				2.56[b]	0				2.56[b]
Text				170.68***					178.07***	
Text 1	-0.04	0.06	[-0.16, 0.08]	0.45	2.15[a]	0.11	0.12	[-0.12, 0.34]	0.95	2.17[a]
Text 4	0.59	0.05	[0.49, 0.69]	129.11***	2.78[b]	0.15	0.1	[-0.04, 0.34]	2.53	2.81[b]
Text 5	0				2.19[a]	0				2.22[a]
School level*Linguistic condition									26.3***	
Elementary school*Bilingual						0.42	0.16	[0.11, 0.73]	6.96**	

High school* Bilingual	-0.39	0.14	[-0.67, -0.11]	7.54**
School level*Sex				16.63***
Elementary school*Male	-0.45	0.16	[-0.75, -0.14]	8.15**
High school*Male	-0.56	0.14	[-0.84, -0.28]	15.02***
School level*Text				38.74***
Elementary school*Text 1	0.29	0.15	[-0.01, 0.59]	3.65
Elementary school*Text 4	0.66	0.13	[0.41, 0.91]	26.58***
High school*Text 1	-0.05	0.13	[-0.31, 0.21]	0.14
High school*Text 4	0.45	0.12	[0.23, 0.68]	15.17***
Linguistic condition*Sex				4.97*
Bilingual*Male	0.29	0.13	[0.03, 0.54]	4.97*
Linguistic condition*Text				16.69***
Bilingual*Text 1	-0.41	0.12	[-0.65, -0.18]	11.86**
Bilingual*Text 4	0.03	0.1	[-0.17, 0.23]	0.11
Sex*Text				2.95
Male*Text 1	-0.08	0.12	[-0.32, 0.16]	0.39
Male*Text 4	0.12	0.1	[-0.09, 0.32]	1.27
Goodness of fit				
QIC	1,003.8		942.88	
QICC	1,000.21		938.59	

*p < .05; **p < .01; ***p < .001

Next, we added to the model the two-way interactions between the predictors school level, linguistic condition, sex, and text (Model B). This model is also shown in Table 5.10. School level had a significant effect in the outcome variable, $\chi^2(2, N = 1179) = 235.36$, $p = .000$. The pairwise comparison of estimated marginal means showed that the differences between school levels were all significant (all ps $= .000$), with older students presenting higher scores than their younger peers.

Figure 5.9

Estimated marginal means by school level and linguistic condition
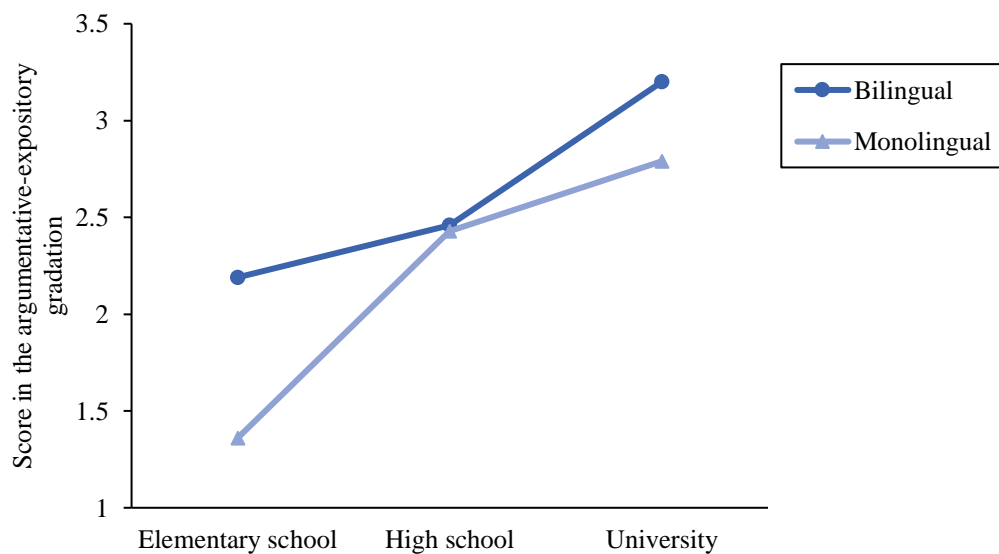
Linguistic condition also had a significant effect, $\chi^2(1, N = 1179) = 45.77$, $p = .000$, and the estimated marginal means indicated that bilingual students scored significantly higher than their monolingual counterparts, with an estimated marginal mean difference of 0.42 ($p = .000$). In addition, sex was also a significant predictor of scores in the argumentative-expository gradation, $\chi^2(1, N = 1179) = 26.45$, $p = .000$, as the estimated marginal means indicated that male students scored 0.32 points below their female peers ($p = .000$). Finally, text was also significant, $\chi^2(2, N = 1179) = 178.07$, $p =$

.000. The pairwise comparisons show that T4 obtained significantly higher scores than T1 and T5. Scores in T5 were slightly higher than in T1, but the difference was not significant ($p = .422$).

The interaction between school level and linguistic condition was significant, $\chi^2(2, N = 1179) = 26.3$, $p = .000$. As Figure 5.9 shows, there was a clear difference between bilingual and monolingual elementary school students ($MD = 0.83$, $SE = 0.12$, $p = .000$). In contrast, scores were very similar in high school ($MD = 0.03$, $SE = 0.1$, $p = .792$) but in favor again for the bilingual group in university ($MD = 0.42$, $SE = 0.1$, $p = .000$).

Figure 5.10

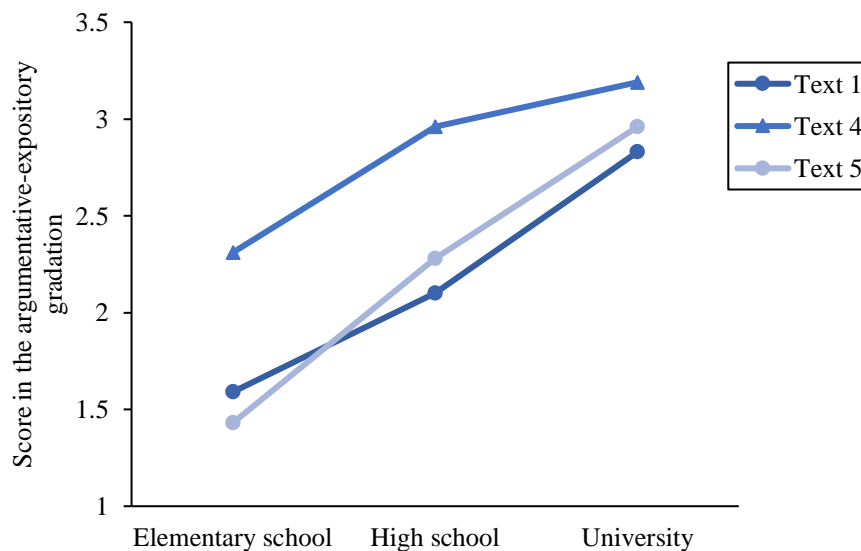*Estimated marginal means by school level and sex*
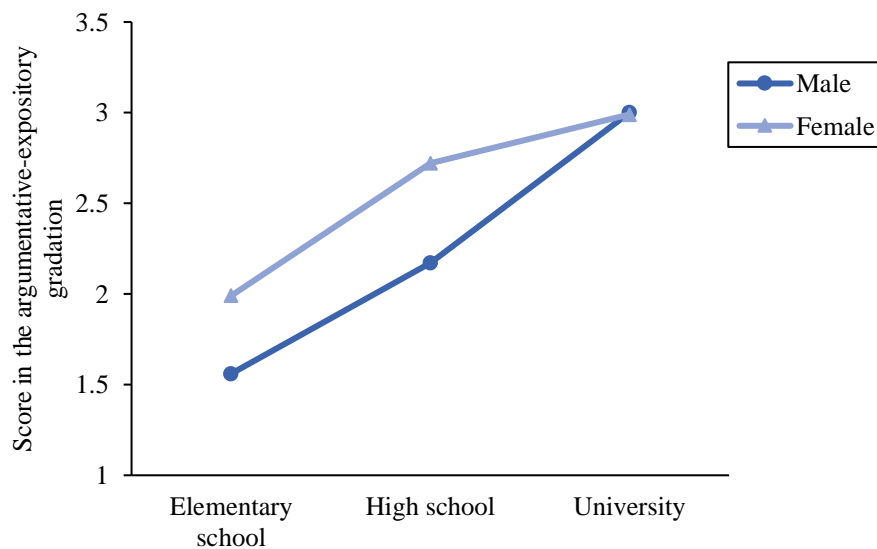
The interaction between school level and sex was also significant, $\chi^2(2, N = 1179) = 16.63$, $p = .000$ (see Figure 5.10). Differences between male and female participants were significant in elementary school ($MD = -0.43$, $SE = 0.12$, $p = .000$) and in high school ($MD = -0.54$, $SE = 0.1$, $p = .000$) in favor of the female participants. However, scores in university were, in both sex groups, almost identical ($MD = 0.01$, $SE = 0.1$, $p = .889$).
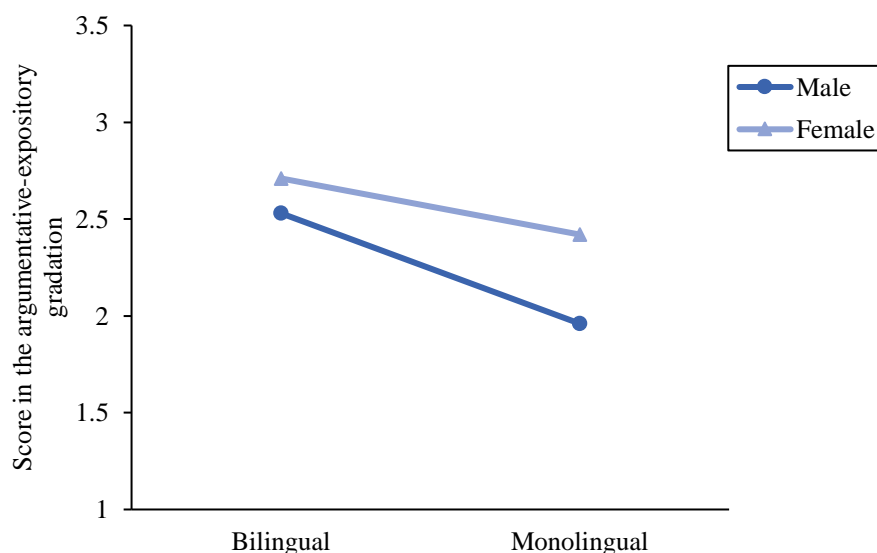
There was also a significant interaction between school level and time, χ^2(4, N = 1179) = 38.74, p = .000. As Figure 5.11 shows, all school levels behaved similarly: scores increased in T4 and decreased in T5. However, while in elementary school scores in T5 were lower than in T1, in high school and university they were higher. Differences between T1 and T5 were not significant in any school level. In addition, the increase and posterior decrease was more pronounced in elementary and high school than in university. As for school level comparisons, scores were the highest at university, followed by high school and elementary school, and differences were significant between school levels in all texts.

Figure 5.11

Estimated marginal means by school level and text

The interaction between linguistic condition and sex was significant too, χ^2(1, N = 1179) = 4.97, p = .026 (see Figure 5.12). In both sexes scores were higher amongst bilinguals than amongst monolinguals. However, while differences between bilinguals were not significant (*MD* = -0.18, *SE* = 0.09, p = .060), they were significant between monolinguals (*MD* = -0.46, *SE* = 0.08, p = .000).

Figure 5.12

Estimated marginal means by linguistic condition and sex

The interaction between linguistic condition and time was also significant, $\chi^2(2, N = 1179) = 16.69$, $p = .000$. As Figure 5.13 shows, scores were higher in the bilingual group than in the monolingual. However, while in the bilingual group T5 had higher scores in the argumentative-expository gradation than T1 ($MD = 0.26$, $SE = 0.09$, $p = .005$), in Spanish it was the opposite and the difference was not significant ($MD = -0.16$, $SE = 0.08$, $p = .053$). In addition, differences between bilinguals and monolinguals were significant in T4 ($MD = 0.58$, $SE = 0.09$, $p = .000$) and T5 ($MD = 0.55$, $SE = 0.09$, $p = .000$) but not in T1 ($MD = 0.14$, $SE = 0.1$, $p = .147$). Finally, the interaction between sex and time was not significant, $\chi^2(2, N = 1179) = 2.95$, $p = .229$.

Figure 5.13

Estimated marginal means by linguistic condition and text
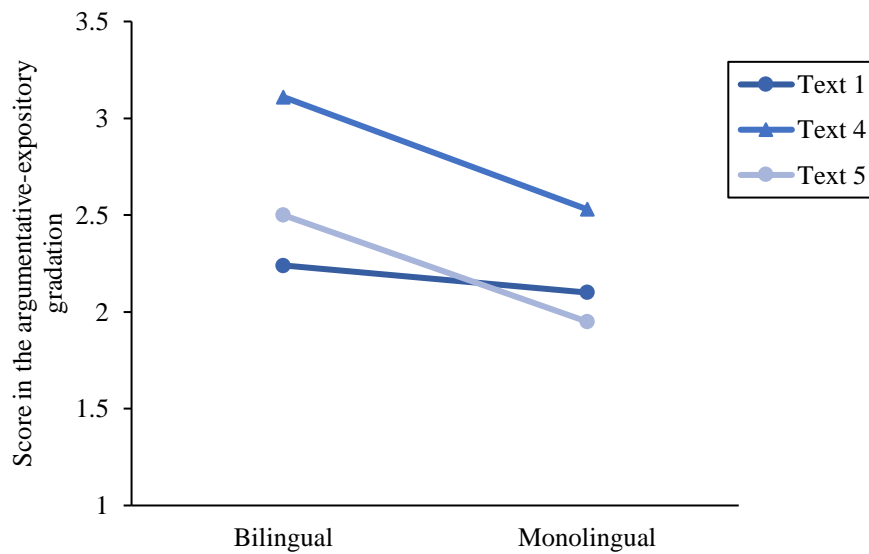
Overall, school level was a significant predictor for both rhetorical structure completeness scores and the scores in the argumentative-expository gradation. Older students tended to write texts with rhetorical structures that better helped them attain the communicative goals of analytical writing and with a stronger presence of data and evidence. Linguistic condition and sex were not significant predictors for rhetorical structure completeness scores, but they were significant for the scores in the argumentative-expository gradation. Bilingual students wrote texts with a higher presence of the expository component, and so did female students when compared with their peers. Finally, text was a significant predictor in both outcome measures, although while rhetorical structure completeness scores tended to increase along the writing treatment, scores in the argumentative-expository gradation peaked in T4 and decreased in T5.

5.5. Discussion

The present study focused on the development and microdevelopment of analytical writing's rhetorical structure. More precisely, we examined how school level and

students' linguistic condition impacted two indicators of proficiency in analytical writing: rhetorical structure completeness and the distribution of the argumentative and the expository component. To legitimize a developmental interpretation of the observed changes in these two indicators, we controlled for participants' sociodemographic characteristics as well as pedagogical input. In addition, this design allowed identifying whether these indicators were sensitive to the pedagogical scaffolding received along the writing treatment.

5.5.1. Developmental changes

We expected that with increased age/school level, students would produce rhetorical structures that better attained the communicative goals of the genre. In addition, we expected bilingual students to obtain higher results than their monolingual peers. Our findings partly confirmed our expectations. Results showed that school level had a significant effect in the rhetorical structure completeness scores and the scores in the argumentative-expository gradation, that is, older students wrote texts that better attained the communicative goals of analytical writing and with a higher presence of data and evidence to describe the topic and support their standpoint. As for the impact of linguistic condition, contrary to our expectations it did not have a significant effect in neither measure. Finally, given the differences between groups, the variable sex was also added to the analyses and female students wrote texts with more data and evidence than their male peers, and in elementary and high school also with more complete rhetorical structures.

The absence, as far as we know, of prior research on the rhetorical structure of analytical writing limits possible comparisons. However, we can compare our findings with those emerging from developmental research on expository and argumentative text

writing. Even though elementary school students were already able to integrate the expository and the argumentative components of analytical writing in their texts, older students, more experienced with written texts, produced texts with a more complete rhetorical structure, more thoroughly integrating the two components to meet the goals of the mode of discourse they were producing. Different text genres follow different learning processes and may take more or less time to be mastered depending on the cognitive and linguistic abilities they demand. At earlier ages, performance on expository and argumentative writing is worse than in narrative writing (Berman, 2004b; Crowhurst, 1990). In addition, the study of Berman and Nir-Sagiv (2007) showed that only adults go beyond canonical genres to combine features of different text genres when producing written narratives and expository texts. In analytical writing, writers have to go beyond canonical requirements of expository and argumentative writing, two genres already difficult to master, and combine their features to fulfill the communicative goals of the text. Therefore, the combination in a written text of exposition and argumentation is already an achievement. This finding seems to be developmental in nature, as the teachers participating in the study explained that they rarely worked on the expository and argumentative genres in the classroom and that the students had not previously received specific instruction in combining the features of these genres in a text. The combination in the same text of features characteristic of different genres may also be supported by the participants' pragmatic knowledge marshaled by the writing tasks we proposed. In addition, the classroom activities implemented during the writing treatment may have also contributed to this mobilization, as we asked them to write about topics in which they felt involved, made explicit the goal of their text, and identified the target audience. However, further research is needed to confirm these interpretations.

Our second result was in line with previous studies (Coirier & Golder, 1993; García & Rosado, 2013; Wilkinson et al., 1980), as younger students produced more assertions than their older counterparts. This is a recurrent indicator of younger students' propensity for deontic attitudes, whereas older students tend towards epistemic attitudes, reflecting more abstract and reflective perspectives on the topic they are writing about (Aparici & Perera, 2001; Coirier & Golder, 1993; Perera et al., 2004; Reilly et al., 2002).

In addition, older students in our study produced texts with a higher score in the argumentative-expository gradation, showing that they constructed their texts focusing on the data about the topic and the evidence to support their standpoint. This showcases their increased critical thinking abilities and dispositions, such as curiosity and the intention to inform the audience about the topic (Facione, 1990; Willingham, 2008). Also, a wider array of evidence is likely to result in a more thoroughly grounded standpoint with higher odds of succeeding in convincing the audience of the writer's standpoint (Levy, 1996; Willingham, 2008). These findings are in line with previous research suggesting that elementary school students already show signs of thinking critically (Heyman & Legare, 2005; Koenig & Harris, 2005; Lutz & Keil, 2002), and that their critical thinking skills improve with schooling experience (Kennedy et al., 1991; Kuhn, 1999; O'Hare & McGuinness, 2009).

In analytical writing, considering the audience is crucial since it allows the writer to include the most relevant information about the topic and to choose those arguments that are more likely to succeed in convincing the audience of the writer's standpoint (Perelman & Olbrechts-Tyteca, 1989). The higher scores in the argumentative-expository gradation in the older students' texts reflects a more thorough consideration of the audience, putting forward data and evidence to conceptualize the topic as the writer does

and to agree with his/her standpoint (Tolchinsky et al., 2005). Even if students at the end of elementary school already show signs of considering the audience (Craig, 1986; Crowhurst, 1980; Ortega de Hocevar, 2016), it seems reasonable to expect this ability to improve with schooling experience. Previous research on expository writing also points to this direction, as moves that advance and expand information, similar to our expository moves, increased with age (Aparici & Perera, 2001; García & Rosado, 2013; Perera et al., 2004). These findings are also in line with Coirier and Golder (1993) and Crammond (1998), who found that the use of data and evidence in argumentative writing increased with age. Moreover, Crammond (1998) also found that older students more frequently used modals and hedges to limit their assertions, a strategy to gain the audience's adherence to the writer's standpoint that showcases more educated students' increased concern of the audience. However, our analyses did not distinguish between expository moves containing data to describe the topic and expository moves containing evidence not explicitly linked to an assertion but supporting the writer's standpoint. These macro-structural connections are beyond the scope of this doctoral thesis but will be addressed in the near future.

As for the impact of students' linguistic condition, the bilingual students in our study did not write texts with significantly higher rhetorical structure scores nor with higher scores in the argumentative-expository gradation. Even though these results go against our initial expectations, previous studies on the impact of linguistic condition in text production have reported mixed results. Our results are in line with Danzak (2020), who found no significant differences between monolinguals and bilinguals in the quality of their argumentative texts using a rubric that included ratings for text organization and structure. In contrast, Poorebrahim et al. (2019) and Galindo (2012) did find that bilingual students wrote texts of significantly higher quality than their monolingual counterparts.

However, Poorebrahim et al. (2019) assessed the texts employing a rubric that besides organization and content included syntax, vocabulary, and mechanics, whereas Galindo (2012) focused on the quality of the texts' arguments and their use of connectors. In contrast, our two measures, rhetorical structure completeness the argumentative-expository gradation, evaluated different aspects of analytical writing proficiency: while the first one assessed the fulfillment of analytical writing goals through internally differentiated rhetorical moves and structural completeness, the second one examined the distribution of the argumentative and the expository components of analytical writing. It is possible that these results are not contradicting each other and only looking at different aspects of text production that depend on different abilities and skills. Further research is needed in order to determine which aspects of text production are impacted by students' linguistic condition, as we did find a main effect of linguistic condition in the argumentative-expository gradation scores in the microdevelopmental results.

In addition, the fact that participants' linguistic condition did not have an effect on their rhetorical structure completeness scores is in line with research in second language acquisition showing that the level of proficiency in the second language has a stronger influence on morpho-syntactic features than on discourse aspects of writing (Rosado et al., 2014). Rhetorical structure scores depend on the writer's ability to identify the communicative goal of the genre and to include rhetorical moves fulfilling them and is thus less likely to be impacted by the writer's linguistic condition.

Finally, sex also had an effect in the two outcome measures: on one side, it interacted with school level in the rhetorical structure scores, and the results showed that elementary school male students had higher odds of writing texts with a score of 1, the lowest score, and lower odds of writing a text with a score of 4, the highest. On the other

side, sex had a significant effect in the scores in the argumentative-expository gradation, as female participants scored significantly higher than their male peers. In addition, sex significantly interacted with school level, as these differences were significant in elementary and high school but not in university. Female students have shown to have higher cognitive empathy (Dewaele & Wei, 2012), which could explain their higher scores in the argumentative-expository gradation, as they feel the need to include a wider range of data and evidence to accommodate a diverse audience. These results are also in line with previous research that found that female students write longer narratives (Troia et al., 2013) and argumentative texts (Knudson, 1991; Prata et al., 2019; Salas et al., 2020), their written productions are better structured (Salas et al., 2020), and their argumentative texts are, overall, of better quality (Prata et al., 2019; Preiss et al., 2013; Troia et al., 2013). Male students have also shown to develop handwriting skills at a slower rate (Berninger et al., 2008; Berninger & Fuller, 1992; Vlachos & Bonoti, 2006), which could explain the differences found in elementary school. Halpern et al. (2007) also conclude that by the end of elementary school and beyond, female students perform better on assessments of verbal abilities when writing plays a crucial role.

5.5.2. Microdevelopmental changes

As for microdevelopmental changes, we expected to find a significant impact of age-school level and linguistic condition, that is, that along the writing treatment older and bilingual students would write texts with a more complete rhetorical structure and a stronger presence of the expository component. In addition, we expected scores to increase in T4, at the end of the writing treatment, and to decrease in T5, one month later, although still remaining at a higher level than in T1.

Our results partly confirmed these expectations. First, there was a significant effect of school level in both measures, as older students wrote texts that better attained the communicative goals of analytical writing by means of a more complete rhetorical structure through the combination of differentiated rhetorical moves and a higher presence of data about the topic and evidence to support their standpoint. Second, there was a significant effect of text in both measures. However, while the highest results in rhetorical structure completeness were found in T5, the highest in the argumentative-expository gradation were found in T4. Third, linguistic condition had a significant impact in scores in the argumentative-expository gradation, as bilingual participants scored significantly higher than their monolingual peers. However, it did not have a direct impact in rhetorical structure completeness. Finally, sex had a significant effect in scores in the argumentative-expository gradation, with female participants scoring significantly higher, but it did not directly impact rhetorical structure scores.

The school level differences, already found in T1, were maintained at the end of the writing treatment, in T4, and one month after it, in T5. Even though the elementary school students in our study were already able to combine the expository and the argumentative components of analytical writing, older students wrote texts that more thoroughly integrated them. As previously mentioned, these results are in line with previous research, showing that older students are able to go beyond the canonical requirements of a genre to combine features of different modes of discourse in their texts (Berman & Nir-Sagiv, 2007), something that is required to fulfill the communicative goals of analytical writing. In addition, older students wrote texts with a higher presence of the expository component, indicating a more thorough consideration of the audience, presenting data to conceptualize the topic as the writer does and evidence to agree with the standpoint defended by the writer (Tolchinsky et al., 2005).

As for the effect of linguistic condition, no differences between bilinguals and monolinguals were found in their rhetorical structure completeness scores. This same result was found when examining T1. Even though some previous research found that bilingual students produced argumentative texts of higher quality (Galindo, 2012; Poorebrahim et al., 2019) and that rhetorical structure completeness is an indicator of text quality, it mainly depends on the writer's ability to identify the communicative goals of analytical writing and to include segments of discourse fulfilling them. This may explain why we observed no impact of linguistic condition in the rhetorical structure scores before or after pedagogical scaffolding.

In contrast, bilinguals did score significantly higher in the argumentative-expository gradation. However, differences between bilinguals and monolinguals were significant in T4 and T5, but not in T1. This leads us to think that it is not linguistic condition which directly impacted the students' scores in the argumentative-expository gradation, but their microdevelopment along the writing treatment, which in turn increased their scores in T4, at the end of the writing treatment, and in T5, one month later. It is possible that bilinguals, due to their higher competence in perspective taking (Hsin & Snow, 2017) and their increased cognitive empathy related to their high levels of proficiency and frequency of use of both languages (Dewaele & Wei, 2012) were more susceptible to the instructional activities, where they analyzed a topic from different perspectives. These activities could have accentuated their need to present data to describe the topic with more detail and to provide a wider array of evidence to support their standpoint, demonstrating a higher awareness of potential audience. Further research should be conducted to confirm our hypothesis.

However, the interaction between school level and linguistic condition was significant. Bilingual students scored higher than their monolingual peers in elementary school and university but similarly in high school. As we mentioned earlier, bilinguals may be more susceptible to the instructional activities than their monolingual peers. However, we speculate that students' susceptibility to pedagogical scaffolding and topic effect may not be linearly related to school level, meaning that some age/school level groups may benefit more than others from certain instructional activities or may be more or less interested in discussing certain topics.

There were no differences between sexes in the rhetorical structure completeness scores, although sex interacted with school level, as older male participants had higher odds of writing a text with a higher rhetorical structure score, but female participants of different school levels had similar odds of producing a text with each of the four scores. When comparing both sexes, in elementary school male participants had lower odds of producing a text with a high score, in high school odds were similar across sexes, and in university the male participants had better odds of writing a text with a high completeness score. Previous literature have found writing assessments to favor female students and is therefore reasonable to see these differences in elementary school, especially considering that most boys at the lower end of the writing ability spectrum do not catch up with expected proficiency levels until the end of elementary school (Vlachos & Bonoti, 2006). However, results favoring male participants in university are not in line with previous research. More research will have to be conducted to elucidate what could be the source of this difference.

In contrast, female participants wrote texts with a higher presence of the expository component. However, sex significantly interacted with school level, as

differences were significant in elementary and high school but not in university. Moreover, the differences between female and male participants were only significant in the monolingual group. The higher scores in the argumentative-expository gradation obtained by female participants could be explained by their higher levels of cognitive empathy (Dewaele & Wei, 2012) and their tendency to build empathy within a wider group of people (Baron-Cohen, 2012; Tannen, 1990). As we hypothesized with bilingual participants, higher levels of empathy could have pushed them to provide more data and evidence to reach a potential audience with more varied perspectives on the topic. This could also explain why differences in scores between female and male participants were only significant in the monolingual group.

Finally, repeated text production and pedagogical scaffolding also had a significant effect in rhetorical structure completeness, as students had lower odds in T5 to produce a text with a score of 1 or 2, and higher odds of producing one with a score of 4. This goes against our initial expectations, as we hypothesized that scores would be the highest in T4, at the end of the writing treatment, and slightly lower in T5, one month after the treatment and writing about a different topic. This in part may be explained by the instructional activities developed, which were not aimed at explicitly teaching text structure even though they intended to scaffold it. In addition, the higher scores obtained in T5 may indicate that a text's rhetorical structure is susceptible to text topic. Freedom of dress, the topic of T1, freedom of movement, the topic of T4, and rewards and punishments in education, the topic of T5, were all topics of current relevance when the project was conducted. However, the topic of T5 may have induced students to recur to their personal experience with rewards and punishments. Their familiarity with T5's topic may have led them to be clearer and more explicit regarding their standpoint and the grounds supporting it. In addition, there was a small difference between the prompts:

while in T1 and T4 the focus was on a single topic each time, freedom of dress and freedom of movement, in T5 there were two closely related topics, rewards and punishments. Even though these two topics are usually considered together and as a unit, having two topics may have induced participants to organize their texts in a different way, thus impacting their rhetorical structure. However, further research will have to be conducted in order to unravel the contribution of text topic to the rhetorical structure of a text and the rhetorical structure's malleability to pedagogical scaffolding and explicit teaching of text structure.

There were differences in the impact of repeated text production and pedagogical scaffolding due to school level, as elementary school students improved their odds of producing a text of higher quality between T1 and T4 while high school and university students did so between T4 and T5. In T1, over one every six elementary school students wrote a text that did not include both components of analytical writing, something that only happened half of the time in T5. It is possible that the instructional activities helped those elementary school students realize the need to combine both components in their text instead of only focusing in one of them. In contrast, most high school and university students that did not combine both components produced texts that only included expository moves. Instead of explicitly stating their standpoint towards the topic, they may have relied on the data and evidence provided to fulfill the two communicative goals of analytical writing. However, further analyses will have to be conducted in order to confirm this explanation.

There were also differences regarding the impact of the writing treatment in relation to linguistic condition: in the bilingual group, T1 and T4 present very similar results. However, in T5 they had lower odds of writing a text with a score of 1 or 2 and

higher odds of writing one with a score of 4. In the monolingual group however, the odds of producing a text with a score of 1 decreased from T1 to T4, the odds for a score of 2 mainly decreased from T4 to T5, while the odds of producing a text with a score of 4 steadily increased from T1 to T5. It is thus possible that the students' linguistic condition affected the microdevelopment of their texts' rhetorical structure along the writing treatment. The fact that monolinguals increased their odds of producing a text with a more complete rhetorical structure is in line with previous research where text structure was positively impacted by the instructional activities developed, both in expository (Cihak & Castle, 2011; Raphael & Kirschner, 1985; Reimer, 2001; Torrance et al., 2007) and in argumentative writing (Festas et al., 2015; Gárate et al., 2007; López et al., 2017; Luna et al., 2020; Malpique & Simão, 2019; Salas et al., 2020; Torrance et al., 2015). However, the microdevelopmental pattern of rhetorical structure completeness scores in the bilingual students was not expected based in these results. Similarly, female and male participants behaved differently along the writing treatment, as male students improved their odds of producing a text with a higher score between T1 and T4 while female students did so between T4 and T5, again indicating that students of different sexes showed different microdevelopmental patterns. It is possible that there was an influence of text topic. Previous research has already noted the importance of previous knowledge in argumentative writing and critical thinking, a variable that we did not control in this study (Knudson, 1992a, 1992b; Willingham, 2008). Further research will have to be conducted in order to determine the impact of text topic in the rhetorical structure of analytical text production.

In line with our expectations, text was also a significant predictor for the second outcome measure, scores in the argumentative-expository gradation. The estimated marginal means show that T4 had significantly higher scores than T1 and T5, which in

turn had similar estimated means. Recall that T4 was written at the end of the writing treatment, in which students read texts about the topic, analyzed them, and evaluated their classmates' texts. It is thus reasonable to expect students to have expanded their knowledge of the topic and to have more data and evidence at their disposal than when writing T1 and T5, texts about topics that were not dealt with during the writing treatment.

As seen, there was a significant interaction between school level and the time at which texts were produced as well as between linguistic condition and the moment of text production. Across school levels, the text that was produced immediately after the classroom activities (T4) showed a stronger presence of the expository component, that is, more data and evidence. This is in line with our expectations, as at the end of the treatment students had read two texts with opposing standpoints as well as other texts written by their classmates, which could have potentially provided additional data and evidence to incorporate in their texts. However, in elementary school T1 had higher estimated scores than T5, while in high school and university it was the other way around, although these differences were not significant. A similar pattern was obtained in both linguistic conditions. However, while bilingual students scored higher in T5 than in T1, monolingual students scored higher in T1 than in T5. Taking into account both interactions, we see bilingual and monolingual high school students performed similarly throughout the writing treatment. As for elementary school and university students, the differences in score between the two linguistic conditions were not significant in T1, but they were in T4 and in T5. Thus, the starting point in both linguistic groups was similar in all school levels. However, while in elementary school and university the bilingual students showed a more marked response to the writing treatment than their monolingual counterparts, in high school there were no differences between linguistic groups in the argumentative-expository gradation scores' along the writing treatment. It is possible that

the monolingual high school students were especially interested in the topics of T4 and T5 or more susceptible to the pedagogical scaffolding received, thus not reflecting the differences found in the other school levels.

Overall, our results show a clear effect of school level in both outcome measures: older students wrote texts with a rhetorical structure that better accomplished the communicative goals of analytical writing and with more data and evidence to describe the topic and ground their standpoint. In contrast, the students' linguistic condition had no effect on their texts at the beginning of the writing treatment, but bilinguals tended to show a more pronounced improvement of their texts' rhetorical structure and a higher increase of the amount of data and evidence included after the treatment, possibly due to a higher susceptibility to pedagogical scaffolding caused by their increased perspective taking-skills and cognitive empathy. As for sex differences, female elementary school students were already able to produce texts with an adequate rhetorical structure, whereas male students were behind their female peers until high school and university. Furthermore, female students wrote texts with more data and evidence in comparison with assertions, thus describing the topic with more detail and providing a wider array of evidence to support their standpoint. Finally, while the most complete rhetorical structures were found in T5, one month after the writing treatment, students included a higher presence of data and evidence in T4, immediately after the writing treatment.

5.5.3. Caveats and limitations

Our study provided clear and novel criteria to characterize the rhetorical structure of analytical texts in relation to their communicative goals. We tested the impact of school level and linguistic condition in the rhetorical structure of analytical texts while controlling for students' sociodemographic characteristics and the pedagogical input they

received. However, there are several caveats and open questions that need to be considered when interpreting these results. First, our findings could have been influenced by the topics chosen. The three topics were evaluated in the pilot study and the results showed that all of them triggered varied and rich responses across school levels and linguistic conditions. However, each topic could have had a different impact on the rhetorical structures that the students developed. Furthermore, previous research has also pointed out the importance of background knowledge of the topic in argumentative writing and critical thinking, a variable that we did not control in this study (Knudson, 1992a, 1992b; Willingham, 2008). Further research is needed in order to determine the extent of their impact.

Our results showed a clear developmental increase in the presence of the expository component. However, our analyses did not distinguish between expository moves presenting data to describe the topic and expository moves containing evidence intended to indirectly support the writer's standpoint. In addition, we focused on considering the different rhetorical moves found in analytical writing and how these were combined, but we did not assess their quality nor to what extent were they supporting the writer's standpoint. Even though these aspects were not included and analyzed in the context of this doctoral thesis, they will be addressed in the near future.

Finally, participants' linguistic condition was initially established based on the sociolinguistic characteristics of the regions they lived in and confirmed by a detailed sociolinguistic questionnaire. Even though the sociolinguistic characteristics of the bilingual group allowed identifying different linguistic profiles within the same linguistic condition, that was not the case for the monolingual group, as there was not enough variance; the sample was homogeneously monolingual. Therefore, we opted for a dichotomous characterization of the samples, only distinguishing between bilinguals and

monolinguals. However, we are aware of the multidimensionality of the bilinguals' linguistic profile (S. A. Smith & Briggs Baffoe-Djan, 2019), and we developed a detailed although complex characterization of linguistic profile that was implemented in other studies within the same research project for a better understanding of how the different dimensions conforming bilingualism influence writing proficiency (Tolchinsky et al., 2021).

5.6. Conclusion

This study sheds light on the development and microdevelopment of analytical writing, a crucial genre in knowledge construction and academic success that has rarely been examined. Our findings help to understand how students structure their analytical texts, how their rhetorical structure develops from elementary school to university, and how the students' linguistic condition impacts such development. In addition, our study also proved useful to determine how students' schooling experience and linguistic condition impacted their texts' rhetorical structure along a writing treatment aimed at increasing their awareness of analytical writing's features. However, further research is needed in order to improve our current understanding of analytical writing development and microdevelopment.

Chapter 6. General discussion

6.1. Discussion of the results

This doctoral thesis aimed to characterize the development and microdevelopment of the rhetorical structure of analytical writing. A complete rhetorical structure integrating the expository and argumentative components is crucial in analytical writing, as it allows fulfilling the communicative goals of the genre and it is a major indicator of writing performance (Allen et al., 2019). To fulfill our goals, we conducted a meta-analysis on argumentative writing in Romance languages, which helped inform the design of the writing treatment implemented in the EsCan project while also determining the effectiveness of argumentative writing interventions (Chapter 4). We examined the impact of age/school level and students' linguistic condition on the development of the rhetorical structure of analytical writing and the microdevelopmental changes this structure undergoes along a writing treatment (Chapter 5). In what follows, we discuss the main results obtained in these two chapters (Section 6.1), the research (Section 6.2) and educational implications of these results (Section 6.3), the caveats and limitations we faced as well as how future research can help overcome them (Section 6.4), and we finally offer some concluding remarks (Section 6.5).

6.1.1. Interventions focused on argumentative writing effectively improve the quality of the texts students produce.

The main goal of the meta-analysis was to determine the effectiveness of argumentative writing interventions implemented in Romance languages on the quality of the texts students produced. Additionally, and in relation with the rest of the doctoral thesis, it aimed to inform the design of the writing treatment implemented in the EsCan project. Overall, we were able to compute a total of 25 ESs from 21 studies, only one of which

had already been included in a previous meta-analysis. The primary studies we included had been conducted in five different languages and involved 2,868 participants from Grade 2 to university. However, most studies were conducted in Spanish and Portuguese, and only four were conducted in Italian, Catalan, or French, and none in Romanian. Therefore, additional research is needed in order to verify the generalizability of our findings to these languages.

Our meta-analysis provided sound support for the effectiveness of argumentative writing interventions in the improvement of text quality. Irrespective of the type of treatment implemented, the quality of the argumentative texts improved. In addition, all the effect sizes included in our meta-analysis were positive and significantly different from zero. These results are in line with previous meta-analyses that mainly included studies on narrative and expository writing conducted in English (e.g., Graham et al., 2012; Graham, Harris, et al., 2015; Koster et al., 2015; Little et al., 2018), where the only treatment that did not result in an improvement in text quality was grammar instruction (Graham & Perin, 2007).

More specifically, our analyses showed that explicitly teaching the prototypical structure of argumentative writing, the structure of arguments, and their elements as well as explicitly teaching strategies to plan, produce, revise, and/or edit the text (Graham, 2006) significantly enhanced the quality of students' productions. We only found three studies that explicitly taught text structure: two conducted in Spanish with university students and one conducted in French with Grade 6 students. The resulting average weighted ES was high, 0.82, larger than in Graham et al. (2012; Graham, Harris, et al., 2015). As mentioned, previous meta-analyses included a high percentage of studies focused on narrative writing, a genre whose structure is mastered around the age of nine

(Ravid, 2005). In comparison, developing the skills and abilities required to structure an argumentative text is more demanding, and it is not until late high school or university that this is achieved (Berman, 2008). Therefore, we conjecture that the impact of explicit teaching of text structure is related to how challenging the structure to be learned is in relation to the age of the students learning it. The results obtained by Koster et al. (2015), who included a higher proportion of primary studies working on expository and argumentative writing in Grades 4 to 6 seem to support our hypothesis, as the average weighted ES they obtained was similar to ours, 0.76. Unfortunately, the number of studies in our meta-analysis implementing this treatment was too small to verify our hypothesis through a meta-regression. We also found a low variability between studies, indicating that these studies are homogenous, although given the small number of studies implementing this treatment, results should be interpreted with caution.

The second treatment we found was strategy instruction, implemented in 18 studies with students from Grade 2 to university in Spanish, Portuguese, Catalan, and Italian. The overall weighted ES was high, 0.97, and comparable in magnitude to the ones obtained in previous meta-analyses (Graham, 2006; Graham et al., 2012; Graham, Harris, et al., 2015; Graham & Perin, 2007; Koster et al., 2015). However, there was a high degree of variability that was likely to be produced by the differences amongst primary studies. The meta-regression we performed that included the 21 studies showed that the only significant moderator was the treatment received by the control group: ESs were smaller when the control group also received instruction in argumentative writing. However, our model was only able to account for a third of the heterogeneity. Overall, strategy instruction has shown to be effective across a myriad of populations and contexts and our results further support its effectiveness.

In conclusion, our results show that explicitly teaching the structure of argumentative writing and explicitly teaching strategies to plan, produce, revise, and/or edit the text written effectively enhances the quality of students' argumentative texts in Romance languages. These results, together with the existing body of literature, helped inform the design of the writing treatment implemented in the EsCan project by providing evidence-based teaching practices that effectively impact the quality of the texts students produce.

6.1.2. The rhetorical structure of analytical texts improves with schooling experience.

One of the goals of this thesis was to determine the impact of age/school level in the development and microdevelopment of the rhetorical structure of analytical writing. To fulfill this goal, we examined the texts produced by students at three stages in writing development, end of elementary school, end of high school, and university, at three different points: before the writing treatment was implemented (T1), at the end of it (T4), and one month later (T5; see Chapter 5). We examined two indicators of rhetorical structure's quality in analytical writing: rhetorical structure completeness, based on the texts' fulfillment of the genre's goals and internal differentiation, and the distribution of the argumentative and the expository components of analytical writing, which we examined using the argumentative-expository gradation.

Our results show that there is a clear improvement with schooling experience in the rhetorical structure of analytical writing: first, older students, more experienced with writing, produced texts with more complete rhetorical structures that better attained the communicative goals of analytical writing; second, their texts obtained higher scores in

the argumentative-expository gradation, indicating a higher presence of data and evidence to introduce the topic discussed and support their standpoint.

Nonetheless, it is important to remark that most elementary school students were already able to combine exposition and argumentation in their texts and to include data and evidence to fulfill the communicative goals of analytical writing. The fact that Grade 6 students effectively combined features of expository and argumentative writing, two genres already difficult to master, and to produce rhetorical structures attuned to the expectations of the genre, is already an achievement. These results should also provide supporting evidence to the fact that it is not necessary nor recommendable to wait until adolescence to introduce these genres in the classroom, as students in elementary school are already able to write with different communicative goals and explicit instruction in a myriad of genres could enhance their development from early on (Chapman, 1995; Donovan & Smolkin, 2002; Duke & Kays, 1998; Perlman & Ross, 2005; Stein & Bernas, 1999).

6.1.3. Linguistic condition impacts the microdevelopment of the rhetorical structure of analytical writing.

One of our aims was to determine the impact of students' linguistic condition in the rhetorical structure of the analytical texts they produced. Our results show that there was no significant effect of linguistic condition in rhetorical structure completeness nor in the argumentative-expository gradation on the text written before any pedagogical input (T1). However, when we examined the same indicators across the successive texts students were asked to produce (T1, T4, and T5), bilingual students had significantly higher scores in the argumentative-expository gradation than their monolingual peers, particularly in T4 and T5, that is, at the end of the writing treatment and one month after it. Considering

that differences between linguistic conditions were not significant in T1, this leads us to think that bilinguals may have benefited more from the pedagogical scaffolding along the treatment. We conjecture that their increased cognitive empathy (Dewaele & Wei, 2012) and their higher competence in perspective taking (Hsin & Snow, 2017) may have made them more susceptible to the pedagogical scaffolding received, as several activities involved considering different perspectives and standpoints as well as playing different roles related to writing (e.g., writer, reader, evaluator). In addition, the ability to consider the topic from different perspectives and to form a mental representation of the potential audience of the text and their standpoints is crucial in the argumentative component of analytical writing, an ability that may have been positively impacted by bilinguals' increased cognitive empathy and higher competence in perspective taking. In contrast, there was no clear effect of linguistic condition in rhetorical structure completeness, neither in T1 nor in the subsequent texts produced. Rhetorical structure completeness mainly depends on the writer's ability to identify the communicative goals of analytical writing and to fulfill them in differentiated segments of discourse. Overall, our results seem to indicate that rhetorical structure completeness and scores in the argumentative-expository gradation are affected by student-internal (age) and external factors (pedagogical scaffolding). However, other student-internal factors (linguistic condition, sex) influence the addition of data and supporting evidence but not the writer's ability to identify and fulfill the communicative goals of analytical writing.

6.1.4. Pedagogical scaffolding and repeated text production have a positive impact in the rhetorical structures students produce.

Repeated text production and pedagogical scaffolding resulted in texts with a more complete rhetorical structure and a higher presence of data and evidence to describe the topic and ground the writers' standpoints. Regarding rhetorical structure completeness,

our results show that one month after the treatment (T5) students had the highest chances of producing a text with the maximum completeness score (4) and the lowest chances of producing one with a low score (1 or 2). This result was not in line with our initial expectations, as we hypothesized that the highest rhetorical structure completeness scores would be obtained at the end of the writing treatment (T4). However, it is possible that text topic influenced the rhetorical structures students developed, as T4 was about freedom of movement and T5 was about rewards and punishments. In addition, the specific nature of the instructional activities implemented may also explain these results, as none of the activities aimed to explicitly teach text structure, although some of the activities in sessions 3 and 4 (see Section 5.3.2) intended to scaffold it.

In contrast, the scores in the argumentative-expository gradation were in line with our expectations, as students had higher estimates at the end of the treatment (T4) than at the beginning of it (T1) and one month later (T5). In several of the instructional activities, students had the chance to gather information on the topic and discuss with their classmates about it (Session 3; see Section 5.3.2), information that they could incorporate in T4. In comparison, T1 and T5 were written about different topics, freedom of dress and rewards and punishments, respectively, and without any previous activities nor pedagogical work on the topic. Therefore, it seems reasonable that at the end of the writing treatment (T4), students were able to produce texts with a higher presence of data and evidence.

6.1.5. Females produce analytical texts with more adequate and complete rhetorical structures than their male peers.

Even though our study did not initially intend to examine the effect of sex in analytical text production, we added this variable in our analyses due to the differences amongst

groups in the number of male and female participants and the results obtained in previous research comparing the performance of both sexes in written tasks. In line with previous research that found that females tend to write texts of higher quality (Prata et al., 2019; Preiss et al., 2013; Troia et al., 2013) and better structured (Salas et al., 2020), our results show that texts produced by female participants got higher scores in the argumentative-expository gradation, meaning that they tended to include more data and evidence to describe the topic and support their standpoint. As for rhetorical structure completeness, even though sex was not a significant predictor, female elementary school students had similar odds than their older peers to produce a text with an adequate rhetorical structure, whereas male elementary school students, when compared to their older peers, had higher odds of producing a text with a low completeness score and lower odds of producing one with a high score. This is in line with previous research (Halpern et al., 2007) and leads us to think that male participants take until high school to catch up with their female peers in some aspects of analytical written production.

6.2. Research implications

6.2.1. More research in languages other than English is needed.

One of the main conclusions of the meta-analysis we conducted is that we need more research in languages other than English on argumentative writing as well as on other text genres. There are over 70 countries in which a Romance language is either official or co-official, and these countries host over a billion speakers of one or more of these languages. However, most findings reported on argumentative writing instruction are based on studies conducted in English with English-speaking students. Clear evidence of this lack of research is that despite identifying and reviewing over 146,000 studies, we were only able to find 21 that met our inclusion criteria. Therefore, our current understanding of

what is effective and what is not when teaching argumentative writing is biased and incomplete, and we do not know to what extend the current findings can be applied to different languages and contexts.

Similarly, previous meta-analyses on writing instruction were able to gather evidence over a wide variety of treatments (Graham et al., 2012; Graham, Harris, et al., 2015; Graham & Perin, 2007; Koster et al., 2015). However, we were only able to find studies applying two different treatments: text structure instruction and strategy instruction. In addition, only three studies implemented the first one. Widely examined treatments provide sound evidence of their effectiveness, but we should not discard treatments less frequently reported only because results from a limited number of studies show smaller levels of effectiveness. There is a myriad of factors that play a role in learning and teaching and only through detailed examination we will be able to better understand how these factors interplay and affect the results.

6.2.2. Rhetorical structure completeness and the argumentative-expository gradation are informative measures to characterize the rhetorical structure of analytical writing.

Our study proved useful for developing clear criteria to characterize the rhetorical structure of analytical text writing in direct relation to the communicative goals of the genre. Even though these measures were specifically designed to examine analytical writing, they can easily be adapted to other text genres based on their communicative goals and components. Moreover, both measures have proven to be susceptible to schooling experience, linguistic condition, sex, and pedagogical scaffolding, although following contrasting patterns. As previously explained (see Section 6.1), schooling experience, repeated text production, and pedagogical scaffolding positively impacted the

production of rhetorical structures able to fulfill the communicative goals of analytical writing and the inclusion of data and evidence.

In addition, our examination of the development and microdevelopment of the rhetorical structure of analytical texts through these two measures helps to understand how students structure their texts, how this structure develops with schooling experience, and how students' linguistic condition impacts their written productions. Given that analytical writing is a crucial genre that has rarely been explored, these results may also prove useful for future comparisons.

6.3. Educational implications

6.3.1. Text structure and strategy instruction effectively improve the quality of argumentative writing in Romance languages.

The results of our meta-analysis on argumentative writing in Romance languages found two treatments that effectively improved the quality of the texts students produced. First, we found that explicitly teaching the prototypic structure of argumentative writing and the components of an argument as well as how to connect ideas and concepts improved the quality of the texts students produced. Second, explicitly teaching strategies to plan, produce, revise, and/or edit the text in addition to the knowledge and skills to properly develop these processes and implement the strategies taught also effectively improved the quality of students' argumentative texts.

Even though these two treatments present different approaches to argumentative writing instruction, they also display some similar core characteristics: writing is scaffolded through activities that focus on different aspects of the genre, gradually providing students with the tools they need to become independent writers and competent

users of the acquired knowledge and strategies. Most studies also show that it is advantageous to organize activities in diverse levels of grouping, combining whole class, small groups, and individual work. These levels of grouping can also be coupled with different levels of scaffold: activities where the teacher is in charge and models how to use the target writing skills, activities where students work in groups and help each other, and others where they have to independently utilize the knowledge and strategies taught. Students are also likely to benefit from establishing clear and reachable goals not only for their writing assignments but also for the whole instructional period. Overall, our results show that even if argumentative writing is a challenging genre, students of all ages can improve the quality of their texts through tailored and well-designed instruction.

6.3.2. Students need additional and specific pedagogical scaffolding to master analytical writing.

Mastering analytical writing involves a lifelong learning process. Although the core structure of the genre is already part of many elementary school students' repertoire of writing schema, it takes until university level to flesh it out with supporting data and evidence. Moreover, a lot of rhetorical work is still necessary to integrate the writer's standpoint and the evidence provided into fully developed argumentative moves. These findings provide additional support to the existing body of research pointing towards the early starting point of analytical skills and the capabilities of young children to write in different genres (Chapman, 1995; Donovan & Smolkin, 2002; Duke & Kays, 1998; Perlman & Ross, 2005; Stein & Bernas, 1999).

However, reaching proficiency levels in analytical writing is one of the most protracted accomplishments in text production (Berman, 2008). As our findings show, elementary school students are able to structure their analytical texts adequately, but they

tend to focus on their standpoint as the pivot of the text instead of providing more data and evidence to ground the standpoint they defend. Despite a clear developmental improvement, there was a considerable number of university students that failed to fulfill the communicative goals of analytical writing, most of them due to not explicitly linking their standpoint with the evidence provided in the same rhetorical move.

Overall, our findings provide a basis for developing effective pedagogical strategies to scaffold students' writing of the genre. For example, grade school students may need specific instruction to provide enough information about the topic and evidence to ground their standpoint, while high school and university students may need to focus on more complex aspects of the genre, such as dealing with potential opposing claims and establishing a precise and well-based relation between their standpoint and the evidence provided to ground it.

6.4. Limitations and future research

Our meta-analysis in argumentative writing instruction provides a solid basis for future pedagogical research on the genre. Nonetheless, additional studies are needed not only to help ground these results, especially regarding text structure instruction, but also to explore the effectiveness of other writing treatments revolving around setting product goals, organizing students in dyads to plan, draft, and revise their compositions, and teaching students strategies to gather, summarize, and organize information from different sources. These treatments proved effective in previous meta-analyses and further research is needed in order to verify their applicability in other text genres and languages. Additional research on argumentative writing instruction would also provide more power to the analyses conducted in future meta-analyses and could help explain the differences in the magnitude of the effect amongst primary studies.

In addition, our meta-analysis only included interventional studies in argumentative writing, even though analytical writing also has an expository component. Despite its multiple advantages, meta-analysis is highly time-consuming and labor-intensive. Given that expository writing had been partially examined in previous meta-analyses and that our meta-analysis had to be conducted before the implementation of the EsCan project, we opted for focusing on argumentative writing, given that there were almost no studies on this genre included in previous reviews. However, future research should aim to explore the effectiveness of writing interventions in other text genres in Romance languages as well as in other languages and contexts.

As for analytical writing, future research on the rhetorical structure of the genre should aim to explore the relations between the different moves in a text and how these are connected to shape the texts' overall rhetorical structure. In addition, they should also explore each move individually, examining the elements within a move and the connections between elements. Both aspects could also be analyzed in direct relation with text quality in order to disentangle the impact of a text's rhetorical structure in its perceived quality. We hypothesize that this line of research could not only improve our current understanding of the rhetorical structure of analytical writing, but also help explain some of the results we have presented in this doctoral thesis.

One important aspect of analytical writing that requires careful investigation concerns the quality of the evidence grounding a claim as well as the quality of the arguments included in a text. In our research we focused on presence/absence of these components without examining their specific content. For example, the use of source-based evidence in contrast to opinion or authority based-evidence makes a difference in the quality of analytical texts, but these differences were disregarded in our analyses.

Similarly, regarding the quality of the individual arguments. For instance, whether it includes just a claim and grounds or other elements such as qualifiers or rebuttals (Toulmin, 2003) and/or whether it functions to support the author standpoint or as a counterargument.

In addition, the effect of topic on the rhetorical structure of analytical writing should also be explored. As we mentioned, we conjecture that some of our results could be explained by the impact of text topic on how students structure their texts and organize the different moves in order to fulfill the communicative goals of the genre (see Chapter 5). Considering that prior research has also highlighted the relevance of students' previous knowledge of the topic (Coirier et al., 1990; Coirier & Golder, 1993; Knudson, 1992b), it would also be advisable to control this variable in future examinations of analytical writing and to examine the extent of its impact.

Even though the linguistic profile of the bilingual participants in our sample was multidimensionally characterized, having a group with a one-dimensional characterization and another with a multidimensional characterization presented some methodological issues. Therefore, we opted for a dichotomous characterization (monolingual/bilingual) when all participants were included in the analyses, and opted for the multidimensional characterization of their linguistic profile when only the bilingual participants were studied as in Tolchinsky et al. (2021). In light of the increasing linguistic diversity worldwide, it is crucial that such fine-tuned characterizations of participants' linguistic profiles are employed not only in research with multilingual participants, but also with so-called monolinguals. Bilingualism is a multidimensional construct, and its influence is multifold both in the way it influences writing development and proficiency and how it moderates pedagogical input.

6.5. Concluding remarks

This doctoral thesis provides evidence that despite being a challenging task, interventions focused on argumentative writing can effectively improve the quality of students' texts. Considering the ever-growing need to develop argumentative and critical thinking skills, it is crucial to identify and understand effective evidence-based teaching practices through high quality intervention research in order to help teachers and policymakers provide students with the tools they need to develop these skills and meet the demands requested at school, work, and in their personal lives. Moreover, this thesis has also helped to broaden our current understanding of the effect of argumentative writing interventions implemented in Romance languages in the quality of students written productions.

This doctoral thesis also sheds light on the development and microdevelopment of analytical writing, a key genre in academic success and knowledge construction that has rarely been explored. Our findings help to understand how students structure their analytical texts along a writing treatment aimed at increasing their awareness of analytical writing's features and how their schooling experience, linguistic condition, and sex influenced their written products. Overall, this doctoral thesis together with future examinations will improve our current understanding of the development of analytical writing, a genre little explored yet crucial in knowledge construction and academic success.

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Appendix 1. Analytical writing treatment: activity guide

Escritura analítica y diversidad lingüística: cambios evolutivos y microevolutivos desde la educación primaria a la educación superior (EscAnDiLing)[13]

Este documento incluye la guía de actividades que se llevarán a cabo en Cataluña, Ciudad Real y León para la aplicación de la secuencia didáctica.

Cada participante producirá **5** textos:

> Dos textos iniciales: uno sobre un tema que no se trabajará en la secuencia didáctica (Texto 1, tema A: *Libertad en el vestir*) para determinar su forma inicial de escribir sobre un tema; y antes de comenzar la secuencia didáctica propiamente dicha deberán redactar otro texto sobre el tema que se trabajará en la misma (Texto 2, tema B: *Libertad de desplazamiento entre países*). Al promediar la secuencia didáctica, después de la sesión de lectura, producirán un tercer texto sobre el mismo tema (Texto 3, tema B: *Libertad de desplazamiento entre países*). Y al finalizar la secuencia didáctica, un cuarto texto sobre el mismo tema (Texto 4, tema B: *Libertad de desplazamiento entre países*). Cuatro o cinco semanas después de acabada la aplicación de la secuencia didáctica se pedirá un quinto texto (Texto 5, tema C: *Premios y castigos*). El objetivo final es trazar un "itinerario de aprendizaje" en la redacción de textos analíticos.

IDENTIFICACIÓN DE LOS TEXTOS

Dado que cada participante producirá cinco textos, es muy importante tenerlos bien identificados. Para conservar el anonimato, los maestros y profesores recibirán los códigos que sus aulas utilizarán para que puedan distribuirlos entre sus alumnos de forma aleatoria. De esta manera, los alumnos no sabrán qué código tienen sus compañeros.

El código de cada alumno consta de 3 caracteres: una letra más dos dígitos. La letra inicial corresponde al centro (e incluye también la ciudad, la lengua de producción del texto y el nivel escolar) y los dos dígitos siguientes corresponden al número de orden del alumno en su lista. Una vez producidos los textos, se añadirá por parte de los investigadores un último dígito, de forma

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[13] Members of the research team and collaborators that participated in the design of the writing treatment, its application, and the observation of the sessions: Joan Perera Parramon, Zaira Liliana Tolchinsky Brenman, Ángel Gregorio Cano Vela, María Teresa Llamazares Prieto, María Mercedes López Aguado, María Dolores Alonso-Cortés Fradejas, Melina Aparici Aznar, Elisa Rosado Villegas, Paola Uccelli, Ruth Berman, María del Rocío Cuberos Vicente, Laia Cutillas Alberich, Susana Sánchez Rodríguez, María Lourdes Zapico Alonso, and Hugo Vilar Weber.

que cada texto será identificado por un código formado por cuatro caracteres (los tres del alumno más un último dígito para el texto que corresponda).

Centro	Nº de orden del alumno	Texto
A = Escola Gravi, Barcelona, Primaria, Catalán	01	1 = tema A, no se va a trabajar
B = Escola Bisbat d'Ègara, Terrassa, Barcelona, Primaria, Catalán	02	2 = tema B, texto inicial
C = Escola Gravi, Barcelona, Secundaria, Catalán	03	3 = tema B, texto intermedio
D = Institut Premià de Mar, Premià de Mar, Barcelona, Secundaria, Catalán	....	4 = tema B texto final
E = Institut Rafael Casanova, Sant Boi de Llobregat, Barcelona, Secundaria, Catalán		[5 = tema C, un mes más tarde]
F = Institut La Tordera, Santa Maria de Palautordera, Barcelona, Secundaria, Catalán		
G = Universitat de Barcelona, Barcelona, Universidad, Catalán		
H = Colegio Santo Tomás, Ciudad Real, Primaria, Castellano		
I = Colegio Santo Tomás, Ciudad Real, Secundaria, Castellano		
J = Universidad de Castilla la Mancha, Ciudad Real, Universidad, Castellano		
K = CEIP La Palomera, León, Primaria, Castellano		
L = IES Santa María de Carrizo, Carrizo de la Ribera, León, Secundaria, Castellano		
M = Universidad de León, León, Universidad, Castellano		

Ejemplo: **A042** es el texto nº 2 producido en la Escola Gravi de Barcelona, por el cuarto alumno de la lista de primaria, en catalán.

Los profesores de cada centro recibirán los códigos que van a utilizar sus alumnos y los distribuirán de forma aleatoria para mantener el anonimato de los alumnos y para evitar que los compañeros sepan a quién pertenece cada código. Es fundamental para el proyecto que todos los 'productos' de cada estudiante (textos, cuestionario, preguntas pre- y post-redacción, evaluación) vayan correctamente identificados y mantengan siempre el mismo código. Por lo tanto, hay que pedir a los profesores que dispongan del listado de alumnos y asignen los códigos

correspondientes con antelación para poder resolver cualquier imprevisto en caso de que sea necesario.

MUY IMPORTANTE: Los profesores deben hacer una tabla en la que indiquen los alumnos que han faltado a cada sesión.

SESIÓN 1 - 1 hora de clase

Objetivo: Contextualizar la secuencia didáctica

En esta sesión (1) se presentan los objetivos (qué buscamos), (2) se da una información general sobre la secuencia didáctica, (3) se responde a un cuestionario sociolingüístico, y (4) se redacta un texto sobre *Libertad en el vestir* (tema A).

Para este texto (tema A: *Libertad en el vestir*) se dan las mismas instrucciones que utilizaremos para el texto sobre el tema que se trabajará en las sesiones posteriores (tema B: *Libertad de desplazamiento entre países*). La única diferencia entre el texto que producen en esta sesión (tema A) y el que van a producir en la sesión 2 (tema B) es que en las sesiones sucesivas se trabajará sobre el tema B.

En cuanto al cuestionario, permite obtener un perfil lingüístico preciso de hablantes multilingües y evaluar su conocimiento de la lengua y el uso que hacen de ella, así como obtener información sobre aspectos culturales y sociales de su comportamiento lingüístico.

Lo que se dice en clase **NO HAY QUE LEER LAS INSTRUCCIONES EN CLASE, HAY QUE DECIRLAS SEGÚN EL TONO Y ESTILO HABITUAL DE CADA PROFESOR**	**Explicaciones adicionales**
Nuestra clase participa en un proyecto que se está llevando a cabo en diferentes escuelas/institutos, no solo en ……….. sino también en ………..	Es importante que los participantes (docentes y alumnos) sientan que forman parte de un proyecto común. A los alumnos de universidad se les explicará que forman parte de un proyecto de investigación y que todas las preguntas que tengan sobre el proyecto y/o el proceso se

	aclararán una vez finalizada la aplicación de la secuencia didáctica.
Nos proponemos reunir <u>vuestras reflexiones</u> sobre algunos <u>temas importantes que provocan debate.</u> *Como participan alumnos y profesores de distintos lugares, debemos reunir estas reflexiones <u>por escrito.</u>* *Son cuestiones que nos interesan a todos.* *Por ejemplo, el tema de los salarios que cobran los futbolistas o algunas modelos: todos los estudios muestran que sus salarios son demasiado elevados y muchos hasta tienen avión privado.* *Por ejemplo, el tema de los* youtubers *que son tan famosos: tienen miles de seguidores y podemos preguntarnos por qué sucede eso.*	Nótese que insistiremos en que queremos obtener "reflexiones sobre un tema", "lo que pensáis sobre un tema". Debemos ser absolutamente consistentes en la presentación de la tarea de redacción.
Pues bien, durante 7 clases trabajaremos en este proyecto: <u>escribiremos</u> sobre temas que nos interesan, <u>leeremos juntos</u> sobre estos temas para estar bien informados, <u>evaluaremos</u> nuestros propios textos, nos pondremos notas y <u>responderemos a algunos cuestionarios.</u> *Las respuestas a los cuestionarios y las redacciones se harán en ordenador. Las tareas que vamos a realizar cuentan para la evaluación.*	Se hace un recorrido por las actividades que se llevarán a cabo, pero sin entrar en detalles dejando claro que se harán en ordenador, cada alumno en un ordenador. [*Necesitamos 7 clases en total, ya sea alargando la Sesión 3 o agregando una.] No se comienza a redactar el texto hasta que todos los alumnos hayan acabado el cuestionario que se presenta a continuación.
	Para el cuestionario damos tres instrucciones distintas: una para los grupos de Primaria (en que el profesor leerá las preguntas y los alumnos las irán respondiendo a medida que el

[PRIMARIA]

Antes de comenzar vamos a completar un cuestionario al que llegáis clicando en el enlace. Son una serie de preguntas sobre nosotros, sobre qué nos gusta hacer y también alguna sobre nuestros padres y sus gustos.

Vamos a leer todos juntos las preguntas y las vais a contestar individualmente en el ordenador.

(Se van leyendo y respondiendo de la pregunta 1 a la 17).

*Ahora pasamos a la segunda parte del cuestionario, que responderemos **solo** si hemos contestado en la pregunta 16 que habitualmente hablamos más de una lengua. Si habéis contestado que no, esperaréis unos minutos ante el ordenador a que vuestros compañeros respondan algunas preguntas más.*

En esta segunda parte contestaremos algunas preguntas sobre las lenguas que usamos normalmente para comunicarnos en diferentes situaciones. Vamos a leerlas todos juntos y a responderlas cada uno en el ordenador.

profesor avance) una para los grupos de Secundaria (en que el profesor no leerá las preguntas aunque tienen el mismo cuestionario que los grupos de Primaria) y otra para los grupos de universidad (en que, a partir de una instrucción inicial, los alumnos responderán las preguntas por su cuenta pero en un cuestionario para adultos).

INSTRUCCIONES PARA LOS GRUPOS DE PRIMARIA

El profesor lee una por una las preguntas 1 a 17 aclarando las dudas, y no pasa a la siguiente pregunta hasta que todos hayan respondido.

De las preguntas 10 y 11 el dato que nos interesa es el nivel de estudios de la madre y del padre. Si el niño no sabe bien cómo contestar, reformularemos la pregunta para obtener esta información, por ejemplo: "¿Tu madre fue al instituto?, ¿a la universidad?, ¿qué estudió?"

Las preguntas 18 a 27 **solo las responderán aquellos niños que hablan más de una lengua/cuyos padres son originarios de otro país**. Mientras las responden, los otros niños esperan (no tardarán más de 10 min.).

El profesor lee el enunciado que hay antes de la pregunta 18 y, una por una, las preguntas 18 a 27 aclarando las dudas, y no pasa a la siguiente pregunta hasta que todos hayan respondido.

En la pregunta 19 podemos especificar que se les está preguntando por la lengua que usan,

[SECUNDARIA]

Antes de comenzar vamos a completar un cuestionario al que llegáis clicando en el enlace. Son una serie de preguntas sobre nosotros, sobre qué nos gusta hacer y también alguna sobre nuestros padres y sus gustos.

Individualmente, podéis ir respondiendo las preguntas. De la pregunta 1 a la 17 son para todos los alumnos.

Las preguntas 18 a 27 solo deben responderlas aquellos chicos que han contestado en la pregunta 16 que habitualmente hablan más de una lengua.

Si tenéis dudas sobre alguna pregunta, me lo decís para que os lo pueda aclarar.

Cuando terminéis os esperáis un poquito, porque la siguiente actividad tenemos que empezarla todos a la vez. Yo os avisaré.

[UNIVERSIDAD]

Antes de comenzar vamos a completar un cuestionario al que llegáis clicando en el enlace. Son una serie de preguntas sobre nosotros, sobre qué nos gusta hacer y también alguna sobre nuestros padres y sus gustos.

Individualmente, podéis ir respondiendo las preguntas. De la pregunta 1 a la 14 son para todos los alumnos.

Las preguntas 15 a 24 solo deben responderlas aquellos alumnos que han contestado en la pregunta 13 que habitualmente hablan más de una lengua.

por ejemplo, a la hora del recreo, no en la clase.

Una vez hayamos comprobado que todos han acabado con el cuestionario comienzan a redactar el texto.

INSTRUCCIONES PARA LOS GRUPOS DE SECUNDARIA

Lo alumnos de Secundaria responden las preguntas por su cuenta. Si alguno tiene dudas, el profesor se las puede aclarar.

De las preguntas 10 y 11 el dato que nos interesa es el nivel de estudios de la madre y del padre. Si el chico no sabe bien cómo contestar, reformularemos la pregunta para obtener esta información, por ejemplo: "¿Tu madre fue al instituto?, ¿a la universidad?, ¿qué estudió?"

Las preguntas 18 a 27 **solo las responderán aquellos chicos que hablan más de una lengua/cuyos padres son originarios de otro país**.

En la pregunta 19 podemos especificar que se les está preguntando por la lengua que usan, por ejemplo, a la hora del recreo, no en la clase.

Los alumnos que vayan acabando primero deberán esperar a que todos hayan terminado.

Una vez hayamos comprobado que todos han acabado con el cuestionario comienzan a redactar el texto.

Si tenéis dudas sobre alguna pregunta, me lo decís para que os lo pueda aclarar. *Cuando terminéis os esperáis un poquito, porque la siguiente actividad tenemos que empezarla todos a la vez. Yo os avisaré*	**INSTRUCCIONES PARA LOS GRUPOS DE UNIVERSIDAD** Lo alumnos mayores responden las preguntas por su cuenta. Si alguno tiene dudas, el profesor se las puede aclarar. Las preguntas 15 a 24 **solo las responderán aquellos alumnos que hablan más de una lengua/cuyos padres son originarios de otro país**. Los alumnos que vayan acabando primero deberán esperar a que todos hayan terminado. Una vez hayamos comprobado que todos han acabado con el cuestionario comienzan a redactar el texto.
*Y ahora comenzaremos con la primera actividad de escritura. Escribiremos sobre **la libertad en el vestir (en la escuela, en casa, en la vida en general)**.* *Acceded al link.* *Cuando entréis, veréis que lo primero que os pide es que escribáis vuestro código de identificación. Hacedlo con cuidado y aseguraos de que el código que habéis escrito es el vuestro. Una vez hayáis terminado, clicad en "next" e iréis a la página siguiente donde podréis realizar la tarea.*	Cuidado: no dar información sobre organización del texto ni sobre características del tipo de texto. En caso de que pregunten si se ha de poner título, se responde: *Como os parezca*. Si preguntan "¿Debo dar mi opinión?", se debe responder: *Tus reflexiones, lo que piensas*. Atención: • Por favor, no escribir el tema en la pizarra. • No cortar el debate si surge entre los alumnos, pero no intervenir. Es importante que se entusiasmen e intercambien ideas entre ellos, pero el profesor debe abstenerse de intervenir más allá de en los aspectos dinámicos como dar la palabra • Si preguntan por la longitud que debe tener el texto, decir: *Lo que tú consideres, mejor largo que corto.*

	• Si preguntan "¿Cuenta para la nota?", decir: *Sí, todo cuenta, es evaluación continua.*
Podéis pensar un poco sobre lo que vamos a escribir, si queréis podéis tomar algunas notas para vosotros. *No hay extensión máxima, podéis escribir todo lo que queráis.* *Tenéis hasta el recreo para acabar.* *A escribir, qué pensáis sobre la libertad en el vestir.* *Cuando terminéis, clicad en el botón azul "Submit" para entregar la tarea.*	Importante: Aunque no se limita el tiempo, hay que calcular que queden unos 20 minutos para redactar. Y <u>anotar</u> cuanto tiempo llevó la redacción. Si algún alumno escribe solo 2 o 3 líneas, hay que decirle: *Debes escribir un poco más.* LOS ALUMNOS PRODUCEN EL TEXTO 1A (TEMA: *LA LIBERTAD EN EL VESTIR*). Los alumnos deben redactar el texto con el corrector Word activado. Además, en el Word pueden ver la estructura del texto, en el formulario no.

SESIÓN 2 - 1 hora de clase

Objetivo: Obtener el texto 2 sobre el tema que se trabajará en la secuencia didáctica (tema B: *Libertad de desplazamiento entre países*).

En esta sesión tendrán que (1) responder a una pregunta pre-redacción, (2) redactar el texto 2 (tema B: *Libertad de desplazamiento entre países*) siguiendo las mismas instrucciones que se dieron para el texto 1 (tema A) y (3) responder a la pregunta post-redacción.

Lo que se dice en clase	Explicaciones adicionales
*¿Recordáis que dijimos que escribiríamos sobre temas importantes? Pues hoy escribiremos sobre **la libertad de***	Ante todo, asegurarse de que funciona el ordenador y de que cada alumno tiene su código.

desplazamiento de las personas a países distintos del suyo. <u>*Antes que nada*</u>*, acceded al enlace para responder a una pregunta. Esperad a que todos hayáis acabado para avanzar a la siguiente parte.*	Si al decir el tema se abre algún debate, en esta sesión se corta explicando: *No os adelantéis, tendréis oportunidad de hablar sobre el tema más adelante.* Acceder al link La instrucción sobre la pregunta pre-redacción que los alumnos encontrarán en la pantalla es la siguiente: - ¿Cuánto crees que sabes sobre el tema? Ponte una nota de 0 a 10 según cuánto sabes de este tema. NO DAR AYUDA ALGUNA.
Podéis pensar un poco sobre lo que vamos a escribir, si queréis podéis tomar algunas notas para vosotros. *No hay extensión máxima, podéis escribir todo lo que queráis.* *Tenéis hasta el recreo para acabar.* <u>*A escribir, qué pensáis sobre **la libertad de desplazamiento de las personas a países distintos del suyo**</u>.	(Una vez todos los alumnos hayan respondido a la pregunta pre-redacción) REITERAR LA INSTRUCCIÓN DE LA SESION ANTERIOR. LOS ALUMNOS PRODUCEN EL TEXTO 2B (TEMA: *LA LIBERTAD DE DESPLAZAMIENTO ENTRE PAÍSES*).
(Una vez hayan acabado de escribir). *Podéis continuar hasta la siguiente parte. Aquí deberéis responder a una pregunta.* *Clicad en el botón azul "Submit" para entregar la tarea.*	La instrucción sobre la pregunta post-redacción que los alumnos encontrarán en la pantalla es la siguiente: - Ahora que has acabado de escribir vuelve a ponerte una nota de 0 a 10 según cuánto sabes de este tema. Si algún alumno comenta que se pondría una nota distinta, hay que dejar bien claro que es aceptable: *Claro, ponte la nota que te parezca.*

SESIÓN 3 - 2 horas de clase (seguidas o separadas)

Objetivo: Obtener información sobre el tema sobre el cual deben escribir, argumentos a favor y en contra, evidencias, conclusiones.

En esta sesión se lleva a cabo una lectura compartida, el análisis de un texto y la redacción del texto 3B sobre el tema *Libertad de desplazamiento entre países*. Los alumnos habrán recibido un correo de agradecimiento de los directores del proyecto para resaltar la presencia de audiencia para los textos y motivar la redacción de un segundo texto sobre el mismo tema.

El propósito es que las preguntas del profesor provoquen muchas respuestas (evitar largas explicaciones del profesor) y que el profesor oriente las respuestas hacia el contenido, la organización de los textos que se leen y la formulación lingüística.

Para evitar dudas presentamos el siguiente esquema general de la sesión:

(1) Lectura silenciosa individual del Texto 1. >>> (2) Lectura en voz alta por parte del profesor del Texto 1 (si hay preguntas sobre vocabulario mientras se lee, el profesor responde y/o deja que otros alumnos respondan). >>> (3) Lectura silenciosa individual del Texto 2. >>> (4) Lectura en voz alta por parte del profesor del Texto 2 (si hay preguntas sobre vocabulario mientras se lee, el profesor responde y/o deja que otros alumnos respondan). >>> (5) Retomar dudas sobre vocabulario de los dos textos. >>> (6) Comentarios y debate del grupo clase sobre vocabulario, gramática, estructura, diferencias entre texto 1 y texto 2. >>> (7) En parejas, los alumnos detectan y marcan en los textos argumentos, evidencias, etc. >>> (8) Se presenta la ficha y más copias de los textos; los alumnos en parejas completan la ficha con los textos que ya han marcado delante (al acabar, el profesor recoge todo el material). >>> (9) El profesor lee el correo de agradecimiento de los directores del proyecto. >>> (10) Los alumnos redactan el texto 3B.

Como producto de esta sesión los alumnos deberían tener una primera aproximación *en uso* a los apartados que luego aparecerán en la rúbrica: punto de vista, evidencias, vocabulario y oraciones.

Lo que se dice en clase	Explicaciones adicionales
Vamos a leer juntos unos textos que tratan sobre el tema que redactamos. *Son dos textos que se han escrito sobre la libertad de desplazamiento entre países, pero*	**Grupal, grupo clase** **1 minuto** Es importante dejar al alcance de los alumnos hojas de papel por si quisieran anotar algo

aunque son sobre el mismo tema veréis que hay algunas diferencias.	mientras leen, y marcadores o lápices de distintos colores para subrayar.
Primero <u>leed en silencio</u> y con atención el primero de los textos. Podéis <u>subrayar</u> aquello que os llame la atención, alguna reflexión sobre el tema, algún dato que aporta el autor, alguna palabra difícil… También podéis señalar las razones que da sobre lo que piensa… *Podéis <u>subrayar</u> algo que no se entienda.* *Ahora os voy a <u>leer yo el texto en voz alta.</u>* (Si no han preguntado nada sobre vocabulario.) *¿Hay alguna palabra o alguna expresión que no entendéis?* *Pasemos ahora al segundo texto. Como hemos hecho antes, leedlo primero vosotros en silencio. Podéis subrayar también lo que os parezca interesante o algo que no entendáis.* *Y ahora os leo yo este segundo texto.* (Si no han preguntado nada sobre vocabulario.) *¿Hay alguna palabra o alguna expresión que no entendéis?*	**Grupal, grupo clase - LECTURA** **20 minutos** Cada alumno recibe una copia de los dos textos. **(1) Lectura silenciosa individual del texto 1.** **(2) Lectura en voz alta por parte del profesor del texto 1.** **(3) Lectura silenciosa individual del texto 2.** **(4) Lectura en voz alta por parte del profesor del texto 2.** Al leer en voz baja los alumnos suelen preguntar sobre vocabulario (significado de las palabras). El profesor debe tratar de responder a esas y a cualquier otra pregunta que hagan los alumnos. Fomentar el intercambio sobre los textos tratando de que sean los alumnos los que intervengan y respondan a las preguntas, pero continuar con la lectura.

	El profesor no debe dar ninguna explicación sobre el tipo de texto ni sobre similitudes o diferencias con textos ya trabajados en el aula.
¿Alguna palabra o alguna expresión que no entendéis?	**5) Retomar dudas sobre vocabulario** de los dos textos y solicitar apreciación.
¿Qué os parece el vocabulario de los textos?	Es una pregunta diferente a la anterior sobre palabras que no entienden; aquí se solicita una evaluación, una apreciación del vocabulario. Como respuestas a la segunda pregunta se esperan caracterizaciones como: *difícil, variado, rico, "palabras muy justas"* (cita de un niño, suponemos que se refería a 'precisas').
¿Y las oraciones? ¿Están bien formadas?	**(6) Comentarios y debate del grupo clase sobre gramática, estructura, diferencias entre texto 1 y texto 2.** Aquí se solicita una evaluación, una apreciación de las oraciones. Preguntamos por las oraciones porque tendrán que evaluarlas en la rúbrica y nos interesa saber cómo las califican.
¿Qué diferencias notáis entre los dos textos?	**Grupal, grupo clase** **6 minutos** INTENCIONALMENTE COMENZAMOS A INTRODUCIR METALENGUAJE A partir de las aportaciones de los alumnos queremos llegar a que puedan decir que los textos *tienen distintos puntos de vista*, *perspectivas*

	(**si <u>no</u> lo dicen** se lo dirá el profesor).
Responderemos ahora a algunas cuestiones sobre los textos, pero en parejas. *¿Por qué decís que tienen distintas perspectivas/puntos de vista? ¿Cómo os habéis dado cuenta?* *Buscad en el texto <u>qué dicen</u> para expresar su punto de vista/perspectiva Y MARCADLO.* (Sugerir que si ya está subrayado lo hagan en otro color.)	PARA ARGUMENTOS (**7**) **En parejas, los alumnos detectan y marcan <u>en los textos</u> argumentos, evidencias, etc.** Los alumnos trabajan en parejas con los textos delante (LOS TEXTOS QUE TAL VEZ HAYAN SUBRAYADO). **10 minutos** Detección en el texto de argumentos a favor. Por ejemplo: *La idea de no ofrecer premios o recompensas ni de aplicar castigos favorece la auto-motivación y la auto-disciplina en el niño.* Detección en el texto de argumentos en contra.
En los textos, los autores no solo dicen si están a favor o en contra, también dan ejemplos, resultados de encuestas, opiniones de expertos, estadísticas, hechos, estudios que se han realizado... Toda clase de <u>pruebas o evidencias</u>, que sirven para apoyar/defender su punto de vista.	PARA EVIDENCIAS **10 minutos** Los alumnos trabajan en parejas con los textos delante. Detección en el texto de: *ejemplos,* *hechos* a favor o en contra, *razones,* *pruebas* que se presentan en los textos para defender/sostener/apoyar un argumento.
Ahora vamos a completar una ficha de análisis para cada texto.	FICHAS DE ANÁLISIS (**8**) **Se presenta la ficha y más copias de los textos. Los alumnos en pareja completan la**

Aquí tenéis la ficha y copias de los textos. Si alguna pareja lo ve necesario, puede coger otra copia de los textos para completar la ficha.	**ficha con los textos que ya han marcado delante.** **10 minutos** (Ver ficha adjunta.) Marcan cada uno de los elementos en los textos con un recuadro o color o con un número y escriben al lado qué es (punto de vista a favor; argumento a favor o en contra, evidencia…). Los profesores **no intervienen en el trabajo por parejas**. Una vez hayan completado las dos fichas, el profesor recoge todo el material (textos, fichas y cualquier otra hoja que hayan podido utilizar para tomar notas). Cuando redactan el tercer texto los alumnos no deben tener delante ni los textos leídos ni las fichas.
Tengo una noticia: hemos recibido una carta de los directores del proyecto. Se han enterado de que ya hemos comenzado a redactar textos sobre la libertad de desplazamiento entre países, y piden que les enviemos una copia. Os la voy a leer.	**(9) El profesor lee el correo de agradecimiento de los directores del proyecto.**
Así que ahora que hemos leído, comentado, analizado argumentos a favor y en contra, evidencias y conclusiones, podréis redactar un nuevo texto. Tenéis oportunidad de escribir un texto mucho mejor que el anterior. *Debéis tener en cuenta que la gente que va a leer vuestros textos **no** ha leído el anterior. Ellos no saben lo que habéis escrito, así que tenéis que poner todo lo que podáis sobre el*	**(10) Los alumnos redactan el texto 3.** PRODUCEN EL TEXTO 3B Reiteramos: cuando redactan este texto no han de tener delante ni los textos leídos ni las fichas. Debemos dejar bien claro (y motivar) que tienen que hacer una redacción completa sobre

tema de la libertad de desplazamiento entre países. *Acceded al enlace y ya podéis empezar a escribir.*	el mismo tema, no referirse a lo que ya han escrito. Lo recalcamos porque algunos chicos, en el piloto, se limitaban a decir que seguían pensando lo mismo.

SESIÓN 4 - 1 hora de clase

Se lleva a cabo una coevaluación del texto 3 B en la cual se aplicará una rúbrica de evaluación.

Objetivo 1: Reflexionar sobre los textos escritos aplicando lo que han aprendido en la lectura colaborativa.

Objetivo 2: Obtener una nota (acordada por parejas) para cada texto.

Los alumnos recibirán los textos que han redactado en la sesión 3 (en la última parte de la clase 3) sobre el tema *Libertad de desplazamiento entre países*, digitalizados, con la ortografía corregida. En la rúbrica no se evalúa ortografía. En los textos se han corregido solamente los errores de ortografía; los errores morfológicos o sintácticos, las expresiones incorrectas o en otra lengua, etc. no se han corregido.

Cada pareja de alumnos recibe **dos** textos diferentes. Cada uno de los miembros de la pareja tiene que evaluar primero un texto y luego el otro; una vez los han evaluado individualmente, deben llegar a una nota consensuada para cada uno de los aspectos de la rúbrica en cada uno de los textos.

Los textos deben ser anónimos y se repartirán al azar; por lo tanto, hay que avisar: "*Si alguno ha reconocido su propio texto, que avise, se lo cambiaremos*".

En caso de que haya más alumnos que textos, se hace una fotocopia extra de un texto (o de los que sean necesarios) al azar. Sucederá, entonces, que uno o más textos serán evaluados por dos parejas distintas.

En caso de que haya más textos que alumnos, se busca una pareja voluntaria (o las parejas voluntarias que sean necesarias) para evaluar los textos adicionales (un texto más como máximo para cada pareja, de forma que una misma pareja evaluará tres textos). Para introducir los datos de este tercer texto adicional en el enlace, se rellenan los datos correspondientes al primer texto y en el espacio del segundo se puntúan todos los valores con un 1.

Lo que se dice en clase	Explicaciones adicionales

Cuando leímos los textos sobre la libertad de desplazamiento entre países, nos dimos cuenta de que mostraban distintos puntos de vista, aunque todos trataban sobre el mismo tema. *Vimos también que los autores aportaban evidencias para apoyar sus argumentos a favor o en contra.*	Breve reflexión sobre la actividad de lectura colaborativa para "refrescar": punto de vista, evidencias, vocabulario, oraciones. El objetivo es preparar la evaluación que harán de los textos que escribieron. **Grupal, grupo clase** **5 minutos**
Hoy vais a evaluar los textos que vosotros habéis redactado. *Veamos qué aspectos vamos a valorar/ evaluar.* *Fijaos, hay varias notas posibles para cada aspecto (1, 2, 3 y 4). Leamos la descripción de cada una de las notas que aparecen en cada aspecto a evaluar para que nos ayude a decidir qué nota poner en cada caso (van leyendo cada aspecto de la rúbrica por filas y lo explican).*	Presentación de la rúbrica **Grupal, grupo clase** **15 minutos** SE DA A CADA ALUMNO UN EJEMPLAR DE LA RÚBRICA INDIVIDUAL. - Comentar cada uno de los aspectos de la rúbrica para explicar los términos –a qué se refieren: conocimiento sobre el tema/punto de vista/evidencias/organización/oraciones/ vocabulario
Para evaluar los textos, primero cada uno de vosotros pondrá su nota a un primer texto en la rúbrica individual que os hemos dado; luego os intercambiaréis los textos y evaluaréis el nuevo texto también de forma individual. *Una vez hayáis terminado, consensuaréis con el otro miembro de la pareja para decidir una nota común para cada texto, que pondréis en la rúbrica de la pareja.* *No olvidéis poner el código del texto evaluado, no el vuestro. En el formulario, únicamente hay que introducir la nota consensuada.*	Evaluación **En parejas** **30 minutos** SE DA A CADA ALUMNO UNA COPIA DE LOS DOS TEXTOS QUE TIENE QUE EVALUAR (LOS DOS MIEMBROS DE LA PAREJA RECIBEN LOS MISMOS TEXTOS), Y SE LES DA LA RÚBRICA PARA LA PAREJA (LA RÚBRICA INDIVIDUAL YA LA HABRÁN RECIBIDO PARA COMENTAR LOS DISTINTOS ASPECTOS).

Solamente tendrá que hacerlo uno de los alumnos de cada pareja.	Los profesores tendrán que hacer las copias de los textos corregidos que recibirán vía electrónica (dado que puede haber poco tiempo entre las sesiones 3 y 4, pedimos a los profesores que hagan estas copias; todos los demás materiales se entregarán desde la coordinación del proyecto).
	Los textos se repartirán al azar, por eso hay que aclarar: *Si alguien ha reconocido su texto, que avise para que podamos cambiarlo.*
	RESUMEN DEL PROCEDIMIENTO:
	En pareja.
	1. Cada miembro de la pareja lee y evalúa <u>un primer texto</u>. Completa la rúbrica individual.
	2. Se intercambian los textos y cada uno evalúa <u>el nuevo texto</u>.
	3. Se ponen de acuerdo los dos miembros de la pareja en dar una valoración consensuada a cada uno de los aspectos de la rúbrica para ambos textos.
	4. Se introducen las notas en el ordenador (POR LO TANTO, CADA TEXTO TENDRÁ UNA SOLA PUNTUACIÓN POR ASPECTO DE LA RÚBRICA).
	Los resultados se cargan directamente en un formulario y se obtiene una tabla de doble entrada para la próxima sesión.
	Los alumnos entregan los textos que hayan evaluado.
	Al acabar la sesión el profesor recoge todos los textos y las rúbricas.

SESIÓN 5 – 1 hora de clase

En esta clase se lleva a cabo un análisis conjunto de los resultados de las evaluaciones.

Objetivo 1: Reflexionar sobre la calidad de los textos.

Objetivo 2: Comparar lo que ha hecho cada uno con lo que otros han hecho. "¿Qué características tiene ese texto que ha recibido más nota?", "¿Qué pasa en el texto que tiene la peor nota?"

Objetivo 3: Obtener información de textos no verbales (en este caso, una tabla de doble entrada con los resultados de la evaluación realizada).

Lo que se dice en clase	Explicaciones adicionales
¿Y qué es esto? *En la primera columna aparecen los códigos de los textos que habéis redactado, en las demás columnas la notas que habéis puesto a cada uno de los aspectos de la rúbrica* (leer los nombres de cada columna). *Vamos a ver qué podemos aprender de estos números.* *A ver, ¿en qué aspectos lo hemos hecho mejor? ¿En qué aspectos tenemos que mejorar?* (Tratar de que se relacionen con las características del grupo y no solo con los resultados individuales.)	Se presenta una tabla de doble entrada con las notas obtenidas por cada alumno en la rúbrica (la nota consensuada por la pareja). Se repasan los aspectos evaluados leyendo los nombres de las columnas de la tabla. La tabla se obtiene a partir del Excel de respuestas que genera el propio formulario. El profesor deberá preparar ejemplos: - De <u>fragmentos concretos</u> de textos, pero siempre los presentará contextualizándolos en el texto completo. Textos que tienen un claro punto de vista, o un vocabulario rico, variado y preciso, oraciones bien estructuradas… También puede ofrecer ejemplos de textos problemáticos.
Fijaros en cuantos 'cuatros' hay en … Esto quiere decir que la mayoría…. *Veamos un ejemplo de un texto que ha obtenido un 4 en ….* (leer uno o dos ejemplos). *Qué pocos 'unos' hay. Esto quiere decir que …* *Tenemos que trabajar más …*	Exploración conjunta, al principio muy guiada por el profesor. Dejar luego que los alumnos digan qué observan en la tabla. Comentar los ejemplos escogidos por el profesor.

Estamos muy bien en …	

<table>
<tr><td colspan="2" style="background:purple;color:white">SESIÓN 6 – 1 hora de clase</td></tr>
<tr><td colspan="2">En esta última sesión se llevará a cabo la redacción del texto 4B, pero antes se mostrará y comentará el vídeo recibido. Además, se anunciará la redacción de otro texto al cabo de un mes, aproximadamente.</td></tr>
<tr><td>Lo que se dice en clase</td><td>Explicaciones adicionales</td></tr>
<tr><td><i>Hemos recibido un vídeo de los directores del proyecto; veréis que nos agradecen mucho los textos que les hemos enviado… ¡y nos piden una versión definitiva! Porque esta vez no los leerán solo ellos, sino que los pasarán a todos los profesores que forman parte del proyecto.</i></td><td>Se proyecta el vídeo.</td></tr>
<tr><td><i>Ahora que hemos trabajado sobre las características de un buen texto, hemos visto ejemplos de oraciones bien construidas, vocabulario rico y variado, vamos a escribir un último texto sobre la libertad de movimiento entre países; seguro que este os saldrá mucho mejor. Hemos visto también en los textos distintos argumentos y evidencias. Espero que apliquéis todo esto al redactar vuestros textos.</i></td><td>Si los alumnos preguntan <i>¿Podemos repetir? ¿Podemos usar lo que dijimos en los otros textos?</i>, dejar claro que sí pueden usar lo que han dicho antes, PERO en una nueva redacción completa (se les puede recordar que los que leerán estos textos no han leído los anteriores).

LOS ALUMNOS PRODUCEN EL TEXTO 4B.</td></tr>
<tr><td><i>Muchas gracias por haber participado con tanto entusiasmo en estas clases.</i>

<i>Dentro de un mes aproximadamente redactaremos otro texto, pero esta vez sobre</i></td><td></td></tr>
</table>

otro tema para que podáis aplicar todo lo que habéis aprendido.	

SESIÓN 7 – 1 hora de clase

En esta última sesión se llevará a cabo la redacción del texto 5C, el último de la secuencia didáctica.

Lo que se dice en clase	**Explicaciones adicionales**
Como recordaréis, hace un mes participamos en un proyecto en el que redactamos textos sobre temas importantes, que generan debate, como si la gente debe ser libre de moverse de un país a otro sin trabas. No solamente redactamos, también leímos textos sobre ese tema, y los analizamos, evaluamos los textos de nuestros compañeros y estudiamos los resultados. Bien, ahora tendréis oportunidad de demostrar todo lo que habéis aprendido durante el proyecto. Vais a escribir lo que pensáis -vuestras reflexiones- sobre este tema: *¿Hay que utilizar premios y castigos para educar a los niños?* *Nos interesa mucho saber qué pensáis sobre este tema.*	LOS ALUMNOS PRODUCEN EL TEXTO 5C.

Appendix 2. Coding guide of the rhetorical structure

Los textos que hayan sido normalizados y segmentados en cláusulas serán codificados según su estructura retórica. La unidad de análisis es el movimiento retórico, definido como un segmento de discurso que cumple una función comunicativa concreta (Upton y Cohen, 2009). Esta unidad de análisis es la que se utilizará para **segmentar** el texto en movimientos que podrán ser de distintos tipos según la función comunicativa que cumplan. Diferenciamos entre tres tipos de movimientos: los argumentativos (MOAR), los aseverativos (MOAS), y los expositivos (MOEX). Los movimientos argumentativos (MOAR) y los aseverativos (MOAS) incluyen diversos componentes que deberán ser identificados y segmentados. A su vez, los movimientos expositivos (MOEX) se clasificarán entre diversos subtipos.

La codificación comprende dos niveles: el nivel micro y el nivel macro. En el primero, cada texto es exhaustivamente segmentado en los diferentes tipos de movimientos retóricos, se identificarán los componentes y su tipología. En el segundo nivel, se define la relación que se establece entre los distintos movimientos y se evalúa la calidad de los componentes de los MOAR y de su relación.

En lo que sigue **definiremos** cada uno de los movimientos, explicaremos detalladamente los **componentes** de cada tipo de movimiento y los **diferentes subtipos** y presentaremos ejemplos de cada uno de ellos. En segundo lugar, nos referiremos a la manera como abordamos el **análisis de las relaciones entre movimientos** y la **evaluación de su calidad**. Seguidamente, indicaremos cómo se realiza el **marcaje** de todo lo anterior en el texto, presentaremos algunas **indicaciones adicionales** y expondremos **ejemplos** de análisis.

1. Análisis micro

1.1. Movimiento argumentativo

<u>Movimiento retórico</u> que expone el posicionamiento del autor respecto al tema. El objetivo de este movimiento es modificar las creencias de una audiencia determinada. Está compuesto por un CLAIM y unos GROUNDS. Un CLAIM consiste en una aserción que funciona como núcleo del movimiento argumentativo y que refleja el posicionamiento del autor respecto al tema del texto que será debatido. Los GROUNDS funcionan como la base que sustenta la aserción y la justifica. El CLAIM funciona como una conclusión extraída a partir de esos GROUNDS. Este movimiento también puede contener otros componentes que sirven para reforzar, justificar y matizar la acción argumentativa que se lleva a cabo (se explican a continuación). El orden en el cual aparecen los componentes en un MOAR, así como su extensión es irrelevante.

Todo el mundo tiene la libertad de ir a otro país (CLAIM) *por un motivo muy importante como es la ausencia de trabajo* (GROUNDS) (MOAR) (DL14ESF3).

1.1.1. Componentes del movimiento argumentativo

- CLAIM: aserción que hace el autor que refleja su posicionamiento respecto al tema. Actúa como núcleo del MOAR.

- GROUNDS: hechos a los que se apela como sustento del CLAIM. Lo justifican, lo apoyan. Pueden ser hechos, datos, opiniones, experiencias, referencias a expertos, etc.

- QUALIFIER: indica la fuerza con la que el autor realiza el CLAIM. Habitualmente, se hacen uso de calificativos o modificadores modales (probablemente, seguramente).

- SCOPE: indica el alcance del CLAIM. El SCOPE también puede funcionar como una contraargumentación, presentando objeciones o limitaciones ante el CLAIM expuesto.

- WARRANT: establece la relación entre los GROUNDS y el CLAIM, explicita por qué esos datos aportados son relevantes para la aserción realizada.

- BACKING: actúa como respaldo del WARRANT y establece las condiciones generales en las cuales se aplica el WARRANT.

Aunque desde un punto de vista teórico consideramos la existencia de los BACKING y WARRANT, ambos componentes se excluirán del análisis y se considerará que forman parte de los GROUNDS puesto que con frecuencia se encuentran de forma implícita en los textos y son poco comunes. En consecuencia, únicamente se analizarán los componentes CLAIM, GROUNDS, SCOPE, y QUALIFIER.
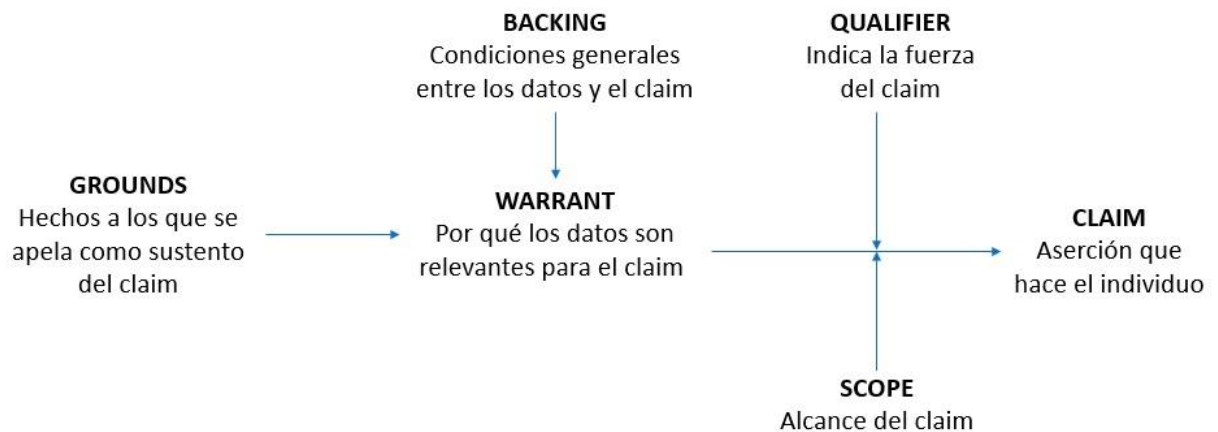
Yo pienso que la libertad de vestir está muy bien (CLAIM) *puesto que nadie tiene que condicionar tu estilo, lo que te gusta y lo que no* (GROUNDS) *pero, probablemente* (QUALIFIER)*, dentro de unos límites* (SCOPE) (DM014EUF1).

1.2. Movimiento aseverativo

<u>Movimiento retórico</u> que contiene una aserción que refleja el punto de vista del autor respecto al tema pero que no se ve sustentada por datos o evidencias (GROUNDS). Los MOAS, además de un CLAIM, pueden contener los componentes QUALIFIER y SCOPE.

Debemos tener la libertad de ir a otro lugar (CLAIM) (DL14ESF3).

1.3. Movimiento expositivo

<u>Movimiento retórico</u> que no incluye un posicionamiento respecto al tema (no hay CLAIM). Cada MOEX mantiene una coherencia temática interna. Aunque los MOEX también pueden contener distintos componentes, estos no serán analizados; en cambio distinguiremos diferentes subtipos de MOEX.

<u>Subtipos</u>

- – Datos, evidencias: el sujeto aporta datos o evidencias sobre el tema (MOEXEV).

Hay gente que es muy pobre y que no tiene donde ir o vivir llamada refugiados (DH23EPM2).

- – Preguntas retóricas: el sujeto formula una pregunta retórica relacionada con el tema pero que no se encuentra directamente vinculada con una aserción (MOEXPR). Hay que tener en cuenta que algunos CLAIMs pueden ser formulados como preguntas retóricas.

Pero ¿qué pasa ahora con el "divorcio" que está teniendo con la Unión Europea? (DM014EUF2)

– Reflexiones: el sujeto hace una reflexión sobre el tema que puede tener una función organizativa (introductoria, por ejemplo) o bien expone un posicionamiento que no se encuentra directamente relacionado con el tema sino únicamente con un subtema de éste (MOEXRE).

Un dels temes que preocupa actualment a gran part de la población és el tema de l'emigració (DG22CUF3).

También incluimos en esta categoría aquellos casos en los que el autor presente unos dados y su apreciación personal respecto a ellos.

És una llàstima que a dia d'avui moltes persones vulguin i no puguin marxar d'un lloc en el qual malauradament els ha tocat viure (DG26CUF4).

Aquellos movimientos que no puedan incluirse en ninguna de las categorías anteriormente presentadas se considerarán movimientos sin relación (MOUN). Estos movimientos pueden contener declaraciones metatextuales en las que el sujeto hace mención a la secuencia didáctica o a la organización del texto, información no relacionada con el tema, o fragmentos de texto con una función comunicativa inadecuada para el texto como fragmentos narrativos no relacionados.

Al haber leído un tema relacionado con la libertad de movimiento de las personas a países distintos al suyo me ha dado experiencia en este tema (DH26EPM3).

N'hi havia una vegada una nena que es deia Nuli (DA12CPF3).

1.4. Proceso de segmentación del texto en movimientos retóricos

1.4.1. Definir las fronteras de los MOAR y MOAS

Antes de proceder a la segmentación del texto en movimientos retóricos debemos hacer una lectura del texto completo para ubicarnos, ya que la identificación de cada movimiento es relativa al texto. Es importante tener en cuenta que los movimientos retóricos son continuos, es decir, comprenden una serie de cláusulas próximas. No consideramos parte del mismo movimiento componentes que se encuentren realizados en distintas partes del texto. La relación entre movimientos próximos o distantes en el texto se establece en el segundo nivel de análisis.

Después de la lectura completa procedemos a definir las fronteras de los MOAR y MOAS. El primer paso para identificar las fronteras de estos movimientos es identificar los CLAIMs del texto. Seguidamente, hay que identificar los GROUNDS que los sustentan, los cuales formarán parte del mismo movimiento argumentativo. En caso de que no haya GROUNDS que sustenten un CLAIM se identificará como MOAS. Puede darse el caso de que el autor presente datos que sustenten su posicionamiento pero que se encuentren en otra parte del texto y no haya establecido un vínculo directo. En este caso no se considerarán GROUNDS y su relación se estudiará en el segundo nivel de análisis.

Debemos tener en cuenta que los MOAR y MOAS pueden contener además otros dos componentes: QUALIFIER y SCOPE. En consecuencia, para definir las fronteras de los MOAR y MOAS tendremos que ver si hay otros componentes que dependen del CLAIM.

Existen diversos indicadores que pueden ayudar en la identificación de las fronteras de un MOAR:

- Dependencia respecto de un CLAIM.

- Cambio de tema del que se trata.

- Cambio en la persona o en el número y la persona.

- Posible coincidencia con la puntuación (párrafos, puntos).

- Cambio de la afirmación a la negación y viceversa.

- Utilización de existenciales o de formas sustituibles por existenciales.

- Uso de conectores y marcadores del discurso.

1.4.2. Definir las fronteras de los MOEX

Cuando hayamos identificado los distintos MOAR y MOAS, los fragmentos restantes únicamente podrán ser MOEX o MOUN. En consecuencia, deberemos diferenciar entre aquellos fragmentos relacionados con el tema (MOEX) y aquellos que no lo estén (MOUN). Los MOEX que identifiquemos serán categorizados en los diferentes subtipos como movimientos retóricos individuales.

Para ello, deberemos tener en cuenta dos aspectos:

– Coherencia temática: cada movimiento expositivo tratará de un tema en concreto. En caso de que se pase a tratar otro tema, estaremos frente a otro movimiento expositivo distinto.

– Tipología: pese a poder tratar de un mismo tema, si la tipología del movimiento expositivo cambia, se tratará también de un movimiento distinto.

Tanto en los movimientos argumentativos como en los expositivos, la longitud no resulta un criterio para definir sus fronteras.

2. Análisis macro

En este nivel de análisis se identifican las relaciones entre los distintos movimientos retóricos: MOAR, MOAS y MOEX de datos y evidencias, es decir, se define la estructura general del texto. En primer lugar, debemos ver si tras leer el texto el punto de vista del autor es claro respecto al tema. Es decir, si existe un CLAIM global que resuma su posicionamiento. Debemos tener en cuenta que dicho CLAIM global puede ser tanto explícito como implícito. En ambos casos, se incluirá al inicio del texto una anotación mediante la cual se explicite cuál es el posicionamiento del autor respecto al tema.

También puede haber textos en los que el posicionamiento del autor no sea claro, ya sea porque no incluyen movimientos argumentativos y, por consiguiente, el autor no se posiciona, o porque incluye movimientos contradictorios y no explicita cuál es su postura. En estos casos, nos encontraremos ante textos sin CLAIM global.

2.1. Textos que NO contienen un CLAIM global

Para los textos que NO contengan un CLAIM global, se identificarán las relaciones entre cada movimiento y la pregunta o tema inicial. Las preguntas/temas iniciales eran:

- Texto 1: la libertad en el vestir (en la escuela, en casa, en la vida en general).

- Texto 2, 3 y 4: la libertad de desplazamiento de las personas a países distintos del suyo.

- Texto 5: los premios y castigos para educar a los niños.

Dependiendo de esta relación, se establecen cinco categorías distintas para los movimientos argumentativos:

- Movimiento argumentativo a favor (MOARF): aquel movimiento que apoye la pregunta inicial. Debemos tener en cuenta que aquellos textos cuya postura del autor sea contraria a la pregunta inicial, tendrán MOARFs que serán también contrarios a la pregunta inicial.

- Movimiento argumentativo en contra o movimiento contraargumentativo (MOARC). Un MOARC será contrario a la pregunta inicial o al MOAR global. El hecho de que sea una negación no lo convierte en un MOARC.

- Movimiento argumentativo neutro (MOARN). Estos movimientos incluyen CLAIMs que no se muestran ni favor ni en contra de la pregunta inicial.

- Movimiento argumentativo equilibrado (MOARE). Estos movimientos incluyen CLAIMs que muestran rasgos a favor y en contra de la pregunta inicial. Pueden contener un único CLAIM o bien dos CLAIMs que funcionen conjuntamente para aportar un posicionamiento equilibrado.

- Movimiento argumentativo de conclusión o balance (MOARB). Estos movimientos resumen lo expuesto por el autor a lo largo del texto y sirven para cerrarlo. pueden incluir más de un CLAIM.

Los movimientos de aseveración también se clasificarán en cinco categorías:

- Movimiento aseverativo a favor (MOASF): este movimiento presenta una aseveración que se muestra a favor de la pregunta inicial.

- Movimiento aseverativo en contra (MOASC): este movimiento presenta una aseveración que se muestra en contra de la pregunta inicial.

- Movimiento aseverativo neutro (MOASN): este movimiento presenta una aseveración que no se muestra ni a favor ni en contra de la pregunta inicial.

- Movimiento aseverativo equilibrado (MOASE): este movimiento presenta una aseveración que se muestra tanto a favor como en contra de la pregunta inicial.

- Movimiento aseverativo de conclusión o balance (MOASB): este movimiento presenta una aseveración que funciona como conclusión o balance de todo el texto subsumiendo los argumentos ya presentados. Puede contener más de un CLAIM.

Asimismo, también se establecen cuatro categorías para los movimientos expositivos de datos y evidencias:

- Movimiento expositivo de datos y evidencias a favor (MOEXEVF): este movimiento evidencias que se muestran a favor de la pregunta inicial.

- Movimiento expositivo de datos y evidencias en contra (MOEXEVC): este movimiento aporta evidencias que se muestran en contra de la pregunta inicial.

- Movimiento expositivo de datos y evidencias neutro (MOEXEVN): este movimiento aporta evidencias que no se muestran ni a favor ni en contra de la pregunta inicial. En esta categoría podríamos incluir las definiciones que aporte el autor, a no ser que sean claramente sesgadas y ya incluyan su posicionamiento.

- Movimiento expositivo de datos y evidencias equilibrado (MOEXEVE): este movimiento aporta evidencias que se muestran tanto a favor como en contra de la pregunta inicial.

2.2. Textos que contienen un CLAIM global

Para aquellos textos que contengan un CLAIM global, el procedimiento será el mismo, pero en este caso se estudiará la relación entre cada MOAR, MOAS y MOEXEV y el CLAIM global. Debemos tener en cuenta que el posicionamiento del autor puede incluir reservas, es decir, que se muestre generalmente a favor salvo en ciertas condiciones. En estos casos, hemos de estudiar si los argumentos que aporta son recogidos por el CLAIM global. Si es así, se considerará que son a favor, pues complementan y fortalecen el posicionamiento del autor. Sin embargo, si los argumentos o datos que aporta no son posteriormente recogidos o incluidos en el CLAIM global se considerará que son en contra, pues debilitan su postura.

3. Calidad de los movimientos argumentativos

Una vez se hayan identificado los distintos movimientos argumentativos y se hayan definido las relaciones entre los distintos movimientos, se evaluará la calidad de los GROUNDS que sirven para sustentar los CLAIMS de los movimientos argumentativos y de la relación entre ambos componentes.

La calidad de unos GROUNDS depende de cuatro factores: (1) la fuente de la que se han obtenido y la explicitación de la misma, (2) su relevancia en relación con el tema (3), una ejemplificación de las razones que se dan o algún elemento que mejore la comprensión de los mismos y su vínculo con el CLAIM, y (4) la inclusión de dos o más evidencias distintas. En consecuencia, valoraremos los GROUNDS según cuántas de estas características cumplan en una escala del 0 (ninguna característica) al 4 (todas las características).

Para evaluar la calidad de la relación entre los GROUNDS y el CLAIM utilizaremos una escala del 1 al 3 según las siguientes categorías:

1. Los datos y evidencias no muestran una conexión razonable con el CLAIM que pretenden sustentar.

2. Los datos y evidencias muestran cierta relación con el CLAIM que pretenden sustentar.

3. Los datos y evidencias muestran una relación sólida con el CLAIM que pretenden sustentar. Asimismo, los datos aportados no podrían ser utilizados para soportar un CLAIM contrario.

4. Codificación

La codificación de los distintos movimientos se hará en los textos que ya estén segmentados en cláusulas usando el programa CLAN. La codificación se hará utilizando los siguientes postcodes, que se introducirán al final de cada componente o movimiento:

- CLAIM [+ CLAIM]

  - CLAIM cuya relación con los GROUNDS es valorada con un 1 [+ CLAIM1]

  - CLAIM cuya relación con los GROUNDS es valorada con un 2 [+ CLAIM2]

  - CLAIM cuya relación con los GROUNDS es valorada con un 3 [+ CLAIM3]

- GROUNDS: [+ GROUNDS]

  - GROUNDS cuya calidad es valorada con un 0 [+ GROUNDS0]

  - GROUNDS cuya calidad es valorada con un 1 [+ GROUNDS1]

  - GROUNDS cuya calidad es valorada con un 2 [+ GROUNDS2]

- o GROUNDS cuya calidad es valorada con un 3 [+ GROUNDS3]

- o GROUNDS cuya calidad es valorada con un 4 [+ GROUNDS4]

- QUALIFIER: [+ QUALIFIER]

- SCOPE: [+ SCOPE]

- MOAR: [+ MOAR]

  - o MOAR global: [+ MOARGL]

  - o MOAR a favor: [+ MOARF]

  - o MOAR en contra: [+ MOARC]

  - o MOAR neutro: [+ MOARN]

  - o MOAR equilibrado: [+ MOARE]

  - o MOAR de conclusión o balance: [+ MOARB]

- MOAS [+ MOAS]

  - o MOAS global: [+ MOASGL]

  - o MOAS a favor [+ MOASF]

  - o MOAS en contra [+ MOASC]

  - o MOAS neutro [+ MOASN]

  - o MOAS equilibrado [+ MOASE]

  - o MOAS de conclusión o balance [+ MOASB]

- MOEX: [+ MOEX]

  - o MOEX de datos, evidencias: [+ MOEXEV]

- MOEX de datos, evidencias a favor: [+ MOEXEVF]

- MOEX de datos, evidencias en contra: [+ MOEXEVC]

- MOEX de datos, evidencias neutro: [+ MOEXEVN]

- MOEX de datos, evidencias equilibrado: [+ MOEXEVE]

○ MOEX de preguntas retóricas: [+ MOEXPR]

○ MOEX sin relación [+ MOEXUN]

○ MOEX de reflexión [+ MOEXRE]

- MOUN: [+ MOUN]

5. Resumen de los pasos a seguir en el análisis

Según lo comentado anteriormente, el análisis de la estructura retórica se realizará siguiendo los siguientes pasos:

1. Localizar los CLAIMS.

2. Diferenciar entre aquellos que se vean sustentados por GROUNDS y aquellos que no.

3. Identificar aquellos fragmentos del texto que dependan de estos CLAIMS y que conformarán los MOAR y MOAS.

4. Entre los segmentos restantes, diferenciar entre aquellos que son MOEX y los que son MOUN.

5. Dividir los fragmentos MOEX en movimientos individuales.

6. Una vez hayamos segmentado el texto en MOAR, MOAS, MOEX, y MOUN, identificaremos la tipología de los distintos MOEX.

7. Seguidamente, identificaremos los distintos componentes que conforman cada MOAR y MOAS.

8. Estudiaremos la secuencia retórica. Para ello, deberemos tener en cuenta si el texto contiene un MOAR global o no.

9. Finalmente, evaluaremos la calidad de los GROUNDS y de su relación con los CLAIMS.

6. Anotaciones adicionales

-En los casos en los que un movimiento pueda ser considerado tanto global como de balance, tendremos en cuenta si realmente resume los argumentos o el posicionamiento del autor. Si hace un resumen de los razonamientos expuestos a lo largo del texto se considerará un movimiento de balance. Si no lo hace, un movimiento global. En caso de poder ser ambos, se tendrá en cuenta la posición en el texto: si se encuentra al final del texto, se considerará de balance. Si se encuentra en otra posición, global. Por último, también se tienen en cuenta los conectores: en conclusión, para terminar, en resumen, etc.

-En los MOAS y MOAR de balance podemos encontrar que haya varios CLAIMS que actúan conjuntamente para mostrar la conclusión del texto. En caso de que se vea claramente que son movimientos separados, se marcarán por separado. En caso de que los distintos CLAIMS no puedan separarse, se marcarán como un único movimiento de balance.

-En los MOAS y MOAR puede ser que el autor incluya un CLAIM y unos GROUNDS y a continuación los reformule, diciendo nuevamente lo mismo. En estos casos, se marcarán nuevamente los componentes, pero formarán parte del mismo MOAS o MOAR.

-Pese a que lo más habitual es que los componentes de los MOAS y MOAR sean continuos, podemos encontrar casos en los que el autor los interrumpa para insertar algún otro componente y posteriormente proseguir con el componente inicial. Podemos encontrar un caso así en los ejemplos al final del documento. En el primer ejemplo, uno de los MOAR empieza con unos GROUNDS, luego se introduce un CLAIM y posteriormente se sigue con los GROUNDS.

-El SCOPE puede adoptar la forma de un contraargumento dentro de un movimiento argumentativo o aseverativo.

-El SCOPE puede incluir, a su vez, datos o evidencias que lo sustenten. En este caso, se considerará que forman parte del SCOPE puesto que los GROUNDS apoyan únicamente al CLAIM.

-Únicamente se considerará que hay SCOPE si se limita el CLAIM. En caso de que el CLAIM tenga un carácter específico, no se considerará que haya SCOPE:

-La gente puede ir como quiera sin ser juzgada: no hay SCOPE.

-La gente puede ir como quiera pero con respeto: sí hay SCOPE.

-Aunque un CLAIM a favor tenga SCOPE que lo limite o que incluso actúe como contraargumento del mismo, se podrá seguir considerando un CLAIM a favor.

-Los ejemplos por sí mismos no se consideran de forma automática como GROUNDS, aunque podemos encontrarnos con casos que sí que incluyan GROUNDS y además incluyan un ejemplo. En estos casos, el ejemplo se considerará dentro de los GROUNDS.

-Podemos encontrarnos GROUNDS que incluyan varios datos o evidencias. En estos casos, se marcarán juntos y formarán parte del mismo componente.

-En caso de que el razonamiento expuesto sea circular (deberíamos poder hacer tal cosa porque tenemos ese derecho) la calidad de la relación CLAIM-GROUNDS es 0.

-Expresiones como "yo creo", "yo pienso", "considero", etc., no se consideran QUALIFIERS.

-Las expresiones formulaicas utilizadas para cerrar el texto se consideran MOUN: espero que os haya gustado, hasta aquí mi opinión, etc.

7. Ejemplos

<u>Texto 1</u>

Este es un ejemplo de un texto que NO contiene un MOAR global explícito. Sin embargo, como lectores somos capaces de resumir el posicionamiento del autor tras haber leído el texto. En consecuencia, la definición de MOAR a favor o en contra se hace en relación con el posicionamiento que expone el autor (CLAIM global) y que explicitaremos al inicio del texto.

<u>Texto original</u>

Cada uno es libre de ir o de vivir al país que a él le apetezca. Personas que tengan + de 18 años son libres de decidir dónde quieren viajar o vivir. Hay gente que es muy pobre y no tiene donde ir o vivir llamada refugiados. Estas personas que vienen a refugiarse a países como EU, España, Francia, Alemania es porque sus países como por ejemplo Siria están en guerra, y tienen derecho a estar allí y ser acogidos.

Texto segmentado y analizado

CLAIM GLOBAL: a favor

*DHP23:   cada [% mayúscula inicial] uno es libre de .

*DHP23:   ir .

*DHP23:   o de vivir .

*DHP23:   al país que a él le apetezca # . **[+ CLAIM] [+ MOASF]** *El primer postcode indica el final de un CLAIM. El segundo indica el final de un movimiento de aseveración, puesto que no hay datos o evidencias que sustenten la aserción que efectúa el autor.*

*DHP23:   personas [% mayúscula inicial] que tengan [% utiliza símbolo más] de dieciocho@n años . *DHP23:   son libres de .

*DHP23:   decidir .

*DHP23:   dónde quieren viajar .

*DHP23:   o vivir # . **[+ CLAIM] [+ MOASF]** *El primer postcode indica el final de un CLAIM. El segundo indica el final de un movimiento de aseveración, puesto que no hay datos o evidencias que sustenten la aserción que efectúa el autor. Pese a que podríamos considerar que este MOAS contiene un SCOPE, simplemente consideramos que su aseveración es más específica.*

*DHP23:   hay [% mayúscula inicial] gente .

*DHP23:   que es muy pobre .

*DHP23:   y no tiene donde ir .

*DHP23:   o vivir .

*DHP23:   llamada refugiados # .

*DHP23:   estas [% mayúscula inicial] personas que vienen a refugiarse

             [: refugiar~se] a países como e_u [% en mayúsculas] , España ,

             Francia , Alemania es . [+ CE]

*DHP23:   porque sus países como por_ejemplo Siria están en guerra , . **[+ MOEXEVF]** *Este postcode indica la frontera de un MOEX que contiene evidencias a favor del posicionamiento del autor.*

*DHP23:   y tienen derecho a .

*DHP23:   estar allí .

*DHP23:   y ser acogidos # . **[+ CLAIM] [+ MOASF***] El primer postcode indica que aquí termina un CLAIM. El segundo indica la frontera de un MOAS a favor del posicionamiento del autor.*

@End

Texto 2

Este texto, en cambio SÍ que contiene un MOAR global explícito. En consecuencia, la definición de MOAR a favor o en contra se hace en relación con el MOAR global que encontramos en el texto sin que necesitemos explicitarlo nosotros al inicio como hicimos en el primer texto.

Texto original

La libertad de desplazamiento entre países

La libertad de desplazamiento entre países es un tema muy debatido, ya que han surgido problemas a raíz de esto. Yo estoy a favor, siempre y cuando se cumplan unos requisitos que aseguren una buena migración.

La libertad migratoria debería ser un derecho humano porque todos los ciudadanos buscamos una vida mejor y muchas veces es difícil encontrarla en nuestro país, por ello viajamos a otros países con mejor calidad de vida que el nuestro. Uno de los mejores ejemplos puede ser el de los refugiados, que son personas que huyen de sus países, ya que se juegan sus vidas allí e intentan alojarse en otros lugares donde están a salvo.

Como dije en la introducción, a veces estos desplazamientos crean graves problemas, ya sean atentados u otras cuestiones perjudiciales para el país, por eso, es necesario crear algún tipo de política que controle el paso de extranjeros, y así, evitar estos problemas que causan tantas desgracias como la ocurrida recientemente en París.

En conclusión, yo creo que el desplazamiento de unas naciones a otras debe ser libre, siempre y cuando haya una identificación de toda persona que entre a un país, de esta manera evitaríamos muchas catástrofes y problemas para el mundo.

DL01ESF4

Texto segmentado y analizado

*L01: La libertad de desplazamiento entre países . [+ TIT]

*L01: La libertad de desplazamiento entre países es un tema muy

        debatido , .

*L01: ya_que han surgido problemas a raíz de esto # . **[+ MOEXRE]** *Este postcode indica la frontera de un MOEX que contiene una reflexión general sobre el tema.*

*L01: yo [% inicial en mayúsculas] estoy a favor , . **[+ CLAIM]**

*L01: siempre y cuando se cumplan unos requisitos .

*L01: que aseguren una buena migración # . **[+ SCOPE] [+ MOASF]** El primer postcode indica el final de un componente que limita la aseveración del autor; expone una condición. *El segundo postcode indica el final de un movimiento aseverativo a favor del posicionamiento del autor, puesto que no hay datos o evidencias que sustenten la aserción que efectúa el autor.*

*L01: la [% inicial en mayúsculas] libertad migratoria debería ser un

derecho humano .**[+ CLAIM2]** *Este postcode indica el final de un CLAIM. Está valorado con un 2 porque existe una relación entre los GROUNDS y el CLAIM pero esos GROUNDS podrían utilizarse para exponer un posicionamiento opuesto.*

*L01: porque todos los ciudadanos buscamos una vida mejor .

*L01: y muchas veces es difícil .

*L01: encontrarla en nuestro país , .

*L01: por ello viajamos a otros países con mejor calidad de vida .

*L01: que el nuestro # . **[+ GROUNDS2] [+ MOARF]** *El primer postcode indica que aquí terminan los datos que aporta el autor para sustentar su aserción. Están valorados con un 2 porque los datos que aporta son relevantes y porque aporta una información que nos facilita la comprensión del vínculo entre estos datos y el CLAIM, El segundo postcode marca el MOAR que está a favor del posicionamiento del autor.*

*L01: uno [% inicial en mayúsculas] de los mejores ejemplos puede ser el

de los refugiados , .

*L01: que son personas .

*L01: que huyen de sus países , .

*L01: ya_que se juegan sus vidas allí .

*L01: e intentan alojarse en otros lugares .

*L01: donde están a salvo # . **[+ MOEXEVF]** *Este postcode indica el final de un movimiento no argumentativo de datos o evidencias a favor, puesto que el autor expone unos datos que apoyan su posicionamiento.*

*L01: como [% inicial en mayúsculas] dije en la introducción , .

*L01: a veces estos desplazamientos crean graves problemas , .

*L01: ya sean atentados u otras cuestiones perjudiciales para el país , . **[+ GROUNDS2]** *Este postcode indica que aquí terminan los datos que aporta el autor para sustentar su aserción.*

*L01: por eso , es necesario .

*L01: crear algún tipo de política . *L01:   que controle el paso de extranjeros , . **[+ CLAIM2]** *Este postcode indica el final de un CLAIM. Está valorado con un 2 porque existe una relación entre los GROUNDS y el CLAIM pero esos GROUNDS podrían utilizarse para exponer un posicionamiento opuesto.*

*L01: y así , evitar estos problemas .

*L01: que causan tantas desgracias .

*L01: como la ocurrida recientemente en París # . **[+ GROUNDS2] [+ MOARF]** *El primer postcode indica que aquí terminan los datos que aporta el autor para sustentar su aserción. Están valorados con un 2 porque los datos que aporta el autor son relevantes y aporta un ejemplo para mejorar nuestra comprensión de los datos que aporta. Consideraríamos que tanto este fragmento como el que encontramos al inicio del MOAR forman los GROUNDS de este movimiento y la valoración de su calidad se hará de forma conjunta, es decir, como si fueran un único componente. El segundo indica la frontera de un MOAR a favor del CLAIM global.*

*L01: en [% inicial en mayúsculas] conclusión , yo creo .

*L01: que el desplazamiento de unas naciones a otras debe ser libre , . **[+ CLAIM]** *Este postcode indica el final de un CLAIM.*

*L01: siempre y cuando haya una identificación de toda persona .

*L01: que entre a un país , .

*L01: de esta manera evitaríamos muchas catástrofes y problemas para el

mundo # . **[+ SCOPE] [+ MOASB]** *El primer postcode indica el final de un componente que limita la aseveración del autor; expone una condición. El segundo indica la frontera de un MOAS que funciona como conclusión o balance, resumiendo el resto de movimientos del texto.*

@End

Texto 3

Este texto no tiene un CLAIM global, puesto que el autor aporta datos, pero no se posiciona en ningún momento. Por eso no encontramos ningún movimiento argumentativo ni aseverativo. En este caso, cuando hagamos el análisis a nivel macro, estudiaremos las relaciones entre los distintos componentes y la pregunta inicial que podemos encontrar en el título que escribe el autor.

Texto original

LA LLIBERTAT DE DESPLAÇAMENT DE LES PERSONES A PAÏSOS DIFERENTS DEL SEU

Existeixen una gran quantitat de països per viatjar. Acostumem a viatjar per diferents raons com ja poden ser: conèixer noves cultures i formes de pensar, per visitar família, per treball... Durant un dia hi ha milions de persones que es desplacen d'un país a un altre amb ganes de conèixer món.

Primer de tot, s'ha de tenir en compte que depenent el lloc on et vols desplaçar tens més facilitat o menys. Per sortir del nostre país i poder entrar a un altre has de presentar una sèrie de documents i passar una sèrie de controls per tal que et permetin entrar. Varia la documentació que necessitaràs si viatges a un altre país del teu continent que si surts fora d'ell. En general, si surts a un país del teu continent bàsicament necessitaràs el DNI; en canvi, per poder viatjar a països d'altres continents necessites una documentació més extensa com pot ser el passaport. A més, amb els controls no et deixen passar substàncies líquides en grans quantitats per tal de no desplaçar alguna substància il·legal a un altre. A l'hora de viatjar, et trobes que està tot molt controlat per evitar problemes com poden ser atemptats, guerres... Podem dir que per seguretat, l'entrada de persones a un país diferent del seu està ben controlat.

En segon lloc, pot variar el teu destí depenent de la teva procedència. Determinats països tenen prohibida l'entrada a altres per determinats motius. A més, sempre s'ha de tenir en compte que certs països poden ser perillosos per diferents temes que he comentat anteriorment com poden ser: guerres, atemptats... També, hem de ser conscients i tenir en compte que si viatgem a algun altre lloc podem ser infectats per determinades malalties.

Per últim, el fet de poder desplaçar-te depèn molt del nivell econòmic de cada persona. Ens podem desplaçar a través d'una gran quantitat de transports com pot ser: en vaixell, avió, tren... Depenent si posseeixes els diners necessaris, el teu viatge serà més còmode i ràpid.

En conclusió, considero que depèn del país en el que et trobes varia molt la teva llibertat de desplaçament cap a algun país diferent del teu. Nosaltres, tenim la gran sort de poder desplaçar-nos al destí que volem sense cap problema. Malgrat això, hi ha molts països que per diferents raons de pobresa, guerres... Tenen molt restringida la possibilitat de desplaçament i han de seguir patint al seu país sense poder moure's cap a un altre lloc.

Texto segmentado y analizado

*DGU26:   \<la llibertat de desplaçament de les persones a països diferents del

            seu\> [% en majúscules] . [+ TIT]

*DGU26:   existeixen [% inicial en majúscula] una gran quantitat de països .

*DGU26:   per viatjar # .

*DGU26:   acostumem a viatjar per diferents raons .

*DGU26:   com ja poden ser [% dos punts] .

*DGU26:   conèixer noves cultures i formes de pensar , per visitar família , per treball

. [+ CE]

*DGU26:   durant un dia hi ha milions de persones .

*DGU26:   que es desplacen d' un país a un altre amb ganes de conèixer món # . [+ **MOEXEVF]** *Este postcode indica la frontera de un MOEX que contiene solo evidencias a favor de la pregunta inicial.*

*DGU26:   primer_de_tot [% inicial en majúscula] , s' ha de tenir en compte .

*DGU26:   que depenent el lloc .

*DGU26:   on et vols desplaçar .

*DGU26:   tens més facilitat o menys # . [+ **MOEXEVE]** *Este postcode indica la frontera de un MOEX que contiene evidencias a favor y en contra de la pregunta inicial.*

*DGU26:   per [% inicial en majúscula] sortir del nostre país .

*DGU26:   i poder entrar a un altre .

*DGU26:   has de presentar una sèrie de documents .

*DGU26:   i passar una sèrie de controls .

*DGU26:   per tal que et permetin .

*DGU26:   entrar # .

*DGU26:   varia [% inicial en majúscula] la documentació .

*DGU26:   que necessitaràs .

*DGU26:   si viatges a un altre país del teu continent .

*DGU26:   que si surts fora d' ell # . **[+ MOEXEVN]** *Este postcode indica la frontera de un MOEX que contiene evidencias que no están ni a favor ni en contra de la pregunta inicial.*

*DGU26:   en [% inicial en majúscula] general , si surts a un país del teu continent .

*DGU26:   bàsicament necessitaràs el d_n_i [% en majúscules] [% punt i coma] .

*DGU26:   en canvi , per poder viatjar a països d' altres continents .

*DGU26:   necessites una documentació més extensa .

*DGU26:   com pot ser el passaport # . **[+ MOEXEVE]** *Este postcode indica la frontera de un MOEX que contiene evidencias a favor y en contra de la pregunta inicial.*

*DGU26:   a_més [% inicial en majúscula] , amb els controls no et deixen passar substàncies líquides en grans quantitats .

*DGU26:   per tal de no desplaçar alguna substància ilegal [% amb ela geminada] a un altre # . **[+ MOEXEVC]** *Este postcode indica la frontera de un MOEX que contiene evidencias en contra de la pregunta inicial.*

*DGU26:   a [% inicial en majúscula] l' hora de viatjar , .

*DGU26:   et trobes .

*DGU26:   que està tot molt controlat .

*DGU26:   per evitar problemes .

*DGU26:   com poden ser atemptats , guerres # # # .

*DGU26:   podem [% inicial en majúscula] dir .

*DGU26:   que per seguretat , l' entrada de persones a un país diferent del seu està ben controlat # . **[+ MOEXEVC]** *Este postcode indica la frontera de un MOEX que contiene evidencias en contra de la pregunta inicial.*

*DGU26:   en_segon_lloc [% inicial en majúscula] , pot variar el teu destí .

*DGU26:   depenent de la teva procedència # .

*DGU26:   determinats [% inicial en majúscula] països tenen prohibida l' entrada a altres per determinats motius .

*DGU26:   a_més , sempre s' ha de tenir en compte .

*DGU26:   que certs països poden ser perillosos per diferents temes .

*DGU26:   que he comentat anteriorment .

*DGU26:   com poden ser [% dos punts] guerres , atemptats # # # . **[+ MOEXEVC]** *Este postcode indica la frontera de un MOEX que contiene evidencias en contra de la pregunta inicial.*

*DGU26:   també [% inicial en majúscula] , hem de ser conscients .

*DGU26:   i tenir en compte .

*DGU26:   que si viatgem a algun altre lloc .

*DGU26:   podem ser infectats per determinades malalties # . **[+ MOEXEVC]** *Este postcode indica la frontera de un MOEX que contiene evidencias en contra de la pregunta inicial.*

*DGU26:   per_últim [% inicial en majúscula] , el fet de poder desplaçar-te [: desplaçar~te] depèn molt del nivell econòmic de cada persona # .

*DGU26:   ens [% inicial en majúscula] podem desplaçar a través d' una gran quantitat de transports .

*DGU26:   com pot ser [% dos punts] en vaixell , avió , tren # # # .

*DGU26:   depenent [% inicial en majúscula] .

*DGU26:   si posseeixes els diners necessaris , .

*DGU26:   el teu viatge serà més còmode i ràpid # . **[+ MOEXEVE]** *Este postcode indica la frontera de un MOEX que contiene evidencias a favor y en contra de la pregunta inicial.*

*DGU26:   en [% inicial en majúscula] conclusió , considero .

*DGU26:   que depèn del país .

*DGU26:   en el que et trobes .

*DGU26:   varia molt la teva llibertat de desplaçament cap a algun país diferent del teu # .   **[+ MOEXEVE]** *Este postcode indica la frontera de un MOEX que contiene evidencias a favor y en contra de la pregunta inicial.*

*DGU26:   nosaltres [% inicial en majúscula] , tenim la gran sort .

*DGU 26:   de poder desplaçar-nos [: desplaçar~nos] al destí que volem sense cap problema # . [+ CE]

*DGU26:   malgrat [% inicial en majúscula] això , hi ha molts països .

*DGU26:   que per diferents raons de pobresa , guerres # # # tenen [% inicial en majúscula] molt restringida la possibilitat de desplaçament .

*DGU26:   i han de seguir patint al seu país .

*DGU26:   sense poder moure' s cap a un altre lloc # . **[+ MOEXEVE]** *Este postcode*

indica la frontera de un MOEX que contiene evidencias a favor y en contra de la pregunta

inicial.

@End

Appendix 3. Examples of levels of scoring

Rhetorical structure 1. Score of 4. The three types of rhetorical moves

Second text of the writing treatment, by a female bilingual elementary school student.

Text	Type of rhetorical move
La llibertat de les persones a desplaçar-se a països diferents al seu 'The freedom of people to move to countries different than their own'	Title
Jo crec que tothom té dret a viatjar on vulguin perquè la gent que vol viatjar en algunes ocasions són perquè hi han guerres i lo que volen és estar en benestar i no en guerres per això volen escapar-se del seu país a un altre. 'I think that everybody has the right to travel wherever they want because people that want to travel sometimes is because there are wars and what they want is to be in comfort and not in war that is why they want to escape from their country to another.'	Argumentative
Tots tenim dret a passar de país o desplaçar-se de país 'We all have the right to cross countries or move from countries'	Assertive
i que tinguin que morir per sol estar en pau. 'and that they have to die just to be in peace.'	Expository
Hi han presidents molt dolents com Donald Trump que ha construït una muralla entre Mèxic i Estats Units perquè no accepta immigrants. 'There are very evil presidents like Donald Trump who has built a wall between Mexico and the United States because he doesn't accept immigrants.'	Expository
A mi m'encantaria que vingués gent nova de diferents llengües i diferents cultures. 'I would love that new people came from different languages and different cultures.'	Assertive
Tindrien que deixar que tot el món que volgués venir on volgués siguessin lliures 'They should let everybody that wanted to come where they wanted were free to travel.'	Assertive
i això és una injustícia. 'and this is an injustice.'	Expository

Aquesta és la meva opinió. 'This is my opinion.'	Unrelated

<div align="right">DA09CPF2</div>

First text of the writing treatment, by a female monolingual university student.

Text	Type of rhetorical move
La Libertad de desplazamiento entre países 'The freedom of movement between countries'	Title
Miguel, de origen español, abandona su país para trasladarse a Alemania y trabajar en una fábrica; allí permanecerá la mayor parte de su vida laboral. Esto sucede durante lo que denominamos la postguerra española. Como él, muchos ciudadanos españoles emigraron en esta época, con la esperanza de encontrar una vida mejor para ellos y sus familias. 'Miguel, from Spain, leaves his country to move to Germany and work in a factory; there he will remain most of his working life. This happens during what we call the Spanish postwar. Like him, many other Spanish citizens migrate during this period, with the hope to find a better life for them and their families.'	Expository
En países extranjeros ellos eran inmigrantes, al igual que hoy en día lo son miles de personas que en su mayoría proceden de zonas deprimidas, como algunos países africanos, y lugares en los que ha estallado la guerra, como es el caso de Siria. 'In foreign countries they were immigrants, as nowadays are the thousands of people that mainly come from deprived areas, such as some African countries, and places in war, as is the case of Syria.'	Expository
La Unión Europea estableció un plan de acogida de refugiados sirios en los países miembros, pero no en todos los países se está cumpliendo con rigor, e incluso si se cumple, son algunos ciudadanos de dichos países los que rechazan y culpan de exceso de ayudas a estas personas. 'The European Union established a plan to accommodate the Syrian refugees in the country members, but not all countries are obeying with rigor, and even if they do, some of the citizens from these countries reject and blame these people of being aided excessively.'	Expository

¿Acaso hemos olvidado nuestra propia historia?	Expository
'Have we forgotten our own history?'	
Los españoles hemos sido inmigrantes en otros lugares, hemos	Expository
tenido que abandonar nuestro país y a nuestras familias en	
busca de oportunidades, para ofrecerles e intentar conseguir	
una mejor vida.	
'We Spaniards have been immigrants in other places, we have	
had to leave our country and our families looking for	
opportunities, to offer them and try to get a better life.'	
Debemos facilitar la circulación de aquellas personas que,	Assertive
sufriendo catástrofes como las guerras y conflictos, huyendo de	
las condiciones precarias de vida en su país natal o	
simplemente con el deseo de poder viajar y conocer la cultura y	
costumbres de otros lugares y residir en ellos, desean poder	
tener la libertad de desplazarse entre países sin ser	
estigmatizados por proceder de un lugar distinto.	
'We should facilitate the movement of those people who,	
suffering catastrophes such as wars and conflicts, escaping from	
the precarious life conditions in their native country or simply	
with the desire of being able to travel and know the culture and	
traditions of other places and live in there, wish to have the	
freedom to move between countries without being stigmatized	
due to being from a different place.'	
No les quitemos a las personas el derecho a vivir en un lugar	Assertive
diferente al de donde nacen, no les neguemos ayuda cuando	
realmente la necesitan, no les estigmaticemos con prejuicios	
impuestos a su cultura.	
'Do not take away from people the right to live in a place	
different from where they were born, do not deny our help when	
they really need it, do not stigmatize them with prejudices	
imposed on their culture.'	
En muchos casos, estas personas son inmigrantes forzados	Argumentative
debido a diversas causas, y han tenido que dejar atrás tanto su	
cultura como a su familia, así que respetémosles.	
'In many cases, these people are forced immigrants due to	
different causes, and they have had to leave behind both their	
culture and their family, so respect them.'	

Rhetorical structure 2. Score of 3. Combines expository and argumentative moves

Fourth text of the writing treatment, by a female bilingual university student.

Text	Type of rhetorical move
La llibertat de les persones a desplaçar-se a països diferents al seu 'The freedom of people to move to countries different than their own'	Title
Un dels temes d'actualitat que és bastant preocupant és el de l'emigració. 'One of the current issues that is quite worrisome is immigration.'	Expository
A diari arriben milers de persones procedents d'altres països per instal·lar-se una temporada, o fins i tot per quedar-se a viure-hi durant un període de temps més prolongat. Moltes persones ho fan perquè es veuen obligades a marxar del seu país autòcton, per diversos motius: guerres, manca de recursos, explotació infantil… per quasi tots, aquesta fugida és realment tràgic. 'Everyday thousands of people from other countries arrive to settle down for some time, or even to stay and live there for a longer period of time. A lot of people do this because they are forced to leave their own country, for several reasons: wars, lack of resources, child exploitation… For almost all of them, this departure is really tragic.'	Expository
D'una banda, estudis realitzats per ONGs com Save The Children entre d'altres afirmen que no només amb un rescat és suficient, sinó que cal una conscienciació col·lectiva de la societat, per acollir-los de la millor manera possible. 'On one side, studies conducted by NGOs like Save the Children amongst others affirm that rescuing them is not enough we also need to raise society's awareness to take them in as best as possible.'	Expository
En els últims informes de recerca s'ha constatat que deu-mil menors d'edat arriben sense companyia adulta a territori europeu. 'The last research reports have confirmed that ten thousand minors arrive without any adult accompanying them to European territory.'	Expository
També s'ha comprovat Que aquests països que acullen als refugiats, no estan del tot preparats. D'una banda l'escassetat	Expository

de recursos existent fa que els nens contínuament estiguin exposats a perills com la malnutrició, els segrestos, els abusos sexuals… Fins i tot cal esmentar que ONGs com Metges sense Fronteres alerta que molts dels menors són víctimes de les màfies que es dediquen a l'explotació de persones.

'It has also been confirmed that these countries that take in refugees, are not completely prepared. On one side the current lack of resources causes children to be constantly exposed to malnutrition, kidnapping, sexual abuse…It is also worth mentioning that NGOs like Doctors Without Borders alert that many of the minors are victims of the mobs that are engaged in exploitation of persons.'

Per concloure, cal cercar solucions més encertades per facilitar l'acollida als països europeus per evitar que desapareguin pel camí o emmalalteixin. Però també cal trobar maneres de solucionar-ho des dels països d'origen.	Argumentative

'To conclude, we need to find the rightest solutions to ease the reception of these people in European countries to avoid that they disappear along the way or get sick. But we also need to find ways to solve the problem in their home countries.'

DG22CUF4

Fifth text of the writing treatment, by a female monolingual high school student.

Text	Type of rhetorical move
Premios y castigos 'Rewards and punishments'	Title
Los niños no tienen la capacidad de razonar, por ello debe haber diferentes estímulos que los ayuden en su desarrollo. 'Children do not have the capacity to reason, thus they need different stimuli that aid in their development.'	Expository
Es efectivo usar las técnicas de premios y castigos, porque enseñamos a los niños lo que está bien y lo que está mal, siempre que se utilice con autoridad y respetando los derechos del niño. 'It's effective to use the techniques of rewards and punishments, because we teach children what is right and what is wrong, as long as they are used with authority and respecting the children's rights.'	Argumentative

Los niños ven el mundo de una manera muy diferente de cómo lo verán cuando crezcan. Son diversos los factores que harán que estos adquieran el uso de la razón y la capacidad de dar una respuesta ante situaciones complicadas. 'Children see the world differently than how they will see it when they grow up. There are many factors that will make them acquire the use of reason and the capacity of giving an answer as a response to complicated situations.'	Expository
Mientras tanto, la educación que los niños reciben les ayuda a llegar a estar preparados para afrontar esos cambios. 'Meanwhile, the education that children receive helps them get ready to face those changes.'	Expository
Se puede apreciar la gran controversia que hay por la acción de educar a los niños a base de premios y castigos. Esto, mayormente, es causado por la confusión entre educar y abusar. 'It can be appreciated the great controversy there is due to the action of educating children based on rewards and punishments. However, this is mainly caused due to the confusion between educating and abusing.'	Expository

DI19ESF5

Rhetorical structure 3. Score of 2. Combines expository and assertive moves

Second text of the writing treatment, by a female bilingual elementary school student.

Text	Type of rhetorical move
La llibertat de les persones a desplaçar-se a països diferents al seu 'The freedom of people to move to countries different than their own'	Title
Jo crec que la immigració és un tema en el que tot el món té dret ha fer-ho. 'I think that immigration is a topic in which everybody has the right to do so'.	Assertive
En general, crec que no és dolent que la gent marxi del seu país. 'In general, I think that it is not bad that people leave their country.'	Assertive
Per què hi ha gent que això ho veu com una mala influència? 'Why are there people that see this as a bad influence?'	Expository
Jo no ho entenc.	Expository

Text	Type of rhetorical move
'I don't understand it.'	
La meva família, per exemple, molts han marxat a fora d'Espanya com: el meu pare, els meus tiets… 'My family, for example, many of them have left Spain like: my dad, my uncles…'	Expository
També, hi han persones que han de marxar del seu país perquè està en guerra com per exemple, Síria. Hi ha gent que ha de marxar perquè, com he dit abans, tenen treball però algunes persones d'aquestes no tornen perquè s'han de quedar a treballar i llavors, han de començar una nova vida allà, 'There are also people that have to leave their country because they are in war like for example Syria. There are people that have to leave because, as I said before, they have a job but some of these people never go back because they have to stay to work and then, they start a new life there,'	Expository
al meu cosí, li va passar una cosa similar, encara que sigui Espanyol viu a Miami que està a Amèrica. 'my cousin, something similar happened to him, even though he's Spanish he lives in Miami which is in America.'	Expository
També, els immigrants no poden passar per alguns dels països del món perquè necessiten documentació i com no tenen, doncs no poden passar de les fronteres dels països. 'Also, immigrants can't go through some countries of the world because they need documentation and as they don't have it, then they can't go through the countries' frontiers.'	Expository
En general, tot el món té dret a desplaçar-se pel lloc del món que vulgui. 'In general, everybody has the right to move wherever in the world they want.'	Assertive

DA02CPM2

Fourth text of the writing treatment, by a female monolingual university student.

Text	Type of rhetorical move
La Libertad en el desplazamiento 'Freedom of movement'	Title
La libertad para moverse entre países está considerada un derecho universal, a pesar de esto, hay muchas personas que no disfrutan de él.	Expository

'The freedom to move between countries is considered a universal right, despite that, a lot of people do not have it.'

Hoy en día, tal y como podemos comprobar cada vez que vemos el telediario o el periódico, es un tema muy candente enfocado a los refugiados que entran en Europa.   Expository

Today, as we can see every time we see the news or the newspaper, it's a very current topic focused on the refugees that enter Europe.'

No es difícil entender los motivos que estas personas tienen para emigrar. Los lugares donde viven están siendo destruidos a causa de guerras. En Siria cada día se producen ataques "terroristas" que acaban con la vida de muchos. Están rodeados de peligro y pobreza y ven nuestro continente como un trampolín a una nueva y digna vida.   Expository

'It's not difficult to understand the reasons that these people have to emigrate. The places they live in are being destroyed by war. In Syria there are "terrorist" attacks everyday that end the life of many. They are surrounded by danger and poverty and they see our continent as a trampoline to a new and decent life.'

No han tardado en verse las reacciones de los europeos a estos nuevos habitantes que se incorporan a sus ciudades. Traen nuevas culturas y costumbres, lo cual crea una diversidad y controversia en las opiniones.   Expository

'It hasn't taken long to see the reactions of the Europeans to these new inhabitants that join their cities. They bring new cultures and traditions, which creates a diversity and controversy in the opinions.'

Los que no están a favor, protestan por la incapacidad adaptativa de estas personas al nuevo sitio donde viven. No estamos hablando de una cuestión xenófoba, sino que se trata de que, aunque se respeten sus creencias y su cultura, el país funciona de una determinada forma   Expository

'Those who are in favor, protest for the incapacity to adapt of these people to the new place they live. We are not talking about a matter of xenophobia, but the fact that, even if they beliefs and culture are respected, the country works a certain way'

y deben acatarlo.   Assertive

'and they should comply with it.'

Nosotros ponemos nuestro granito de arena con ayudas económicas para inmigrantes, ellos deben poner el suyo por adaptarse.   Assertive

'We put our grain of sand with economic aids for immigrants, they should put theirs to adapt.'

Personalmente, creo que es necesario prestar ayuda y atención a estas personas, pero como antes mencionaba, es un trabajo de todos, tanto los europeos, como los inmigrantes debemos esforzarnos en que esta convivencia prospere. 'Personally, I think that it's necessary to give help and attention to these people, but as I previously mentioned, it's the work of all of us, both Europeans, as well as immigrants should make an effort in order for this coexistence to prosper.'	Assertive

<div align="right">DM051EUF4</div>

Rhetorical structure 7. Score of 1. Only includes assertive moves

First text of the writing treatment, by a male bilingual elementary school student.

Text	Type of rhetorical move
La llibertat de les persones en desplaçar-se 'The freedom of people to move'	Title
Crec que tothom té dret a desplaçar-se a un país que no sigui el seu. 'I think that everybody has to right to move to a country that is not his own.'	Assertive
A mi em sembla bé que vinguin refugiats a altres països, però crec que alguns refugiats els hi paguen: l'escola la llum l'aigua el menjar el transport… i que altres persones estiguin treballant 'i amb el seu diner paguin tot, sí que els refugiats han patit gana i han vist morir a persones innocents o a familiars però almenys durant un mes que intentin buscar treball.* I'm okay with refugees coming to other countries, but I think that some refugees get paid: their school, electricity water food the transport…and that other people are working and with their money they pay everything it is true that refugees have suffered from hunger and have seen innocent people and relatives die but at least for a month they should try to look for a job.'	Assertive
Tampoc em sembla bé que el president d'Estats Units cregui que és necessari fer una barrera entre Estats Units i Mèxic. 'I don't think it is right either that the president of the United States believes that it is necessary to build a barrier between the United States and Mexico.'	Assertive

<div align="right">DB23CPM1</div>

Rhetorical structure 6. Score of 1. Only includes expository moves

Fourth text of the writing treatment, by a female monolingual university student.

Text	Type of rhetorical move
Libertad en el desplazamiento entre países 'Freedom of movement between countries'	Title
Hoy en día, una de las razones por las que más se viaja entre países, es la emigración, no son los viajes de negocio o el turismo, lo que nos permite aprovechar este derecho de desplazamiento, sino la necesidad de huir de tu país de origen por falta de necesidades, por guerra o por no tener dinero o comida. Esto es lo que le sucede a millones de personas que cada día llegan a nuestro país en condiciones infrahumanas, en balsas, en pequeños espacios en los cuáles apenas pueden respirar, desnutridos o deshidratados, es por esto por lo cual muchos de estos inmigrantes no consiguen llegar con vida a su nuevo destino y muchos de los que llegan, no encuentran demasiada mejoría en su calidad de vida. 'Nowadays, one of the reasons why most people travel between countries, is emigration, it's not the business travels or tourism, what allows us to take advantage of this right to travel, but the necessity to escape from your country of origin due to lack of necessities, war or due to not having money or food. This is what happens to millions of people that everyday arrive to our country in inhuman conditions, in boats, in little spaces in which they can barely breath, malnourished or dehydrated, this is why most of these immigrants don't manage to arrive alive to their new destination and most of who arrive, they don't find much of an improvement in their quality of life.'	Expository
Es cierto que tiene que ser muy dura la situación en la que se encuentran las familias, por ejemplo las de origen sirio, para tomar la decisión de viajar con niños pequeños o con mujeres embarazadas, pero también hay que tener en cuenta a los inmigrantes que llegan a nuestro país no de una manera tan trágica, sino con contratos de trabajos falsos o cosas similares, los cuáles, se aprovechan de las ayudas económicas que nuestro gobierno les ofrece y ni siquiera se molestan en buscar un verdadero trabajo o una manera digna de llevar dinero a casa. It is true that it has to be very tough the situation these families are in, for example those from Syria, to take the decision to travel with young children or pregnant women, but we must also	Expository

consider those immigrants that arrive to our country in a not so tragic way, but with false job contracts or similar things, who advantage of the economical aids that our government offers them and not even bother looking for a true job or a decent way to take money home.'

Todo esto está despertando la ira de muchas personas de este país sobre ellos, sobre los inmigrantes en general, ya que muchos españoles también necesitan ayudas económicas y quizá la razón por la que no las pueden recibir, es porque ese dinero se destina a los de otro origen, otra raza, otra religión… 'All this is waking up the anger of many people of this country towards them, towards immigrants in general, because many Spaniards also need economical aids and perhaps the reason why they can't receive it, is because that money is destined to those from another place, another race, another religion…'	Expository
La inmigración, se está convirtiendo en un círculo entre países, ya que muchos jóvenes españoles tienen que emigrar a otras ciudades por la falta de trabajo en el lugar en el que ellos han nacido y vivido durante muchos años. Immigration, is turning into a circle between countries, as many young Spaniards have to emigrate to other cities due to the lack of jobs where they were born and have lived for many years.'	Expository

DM020EUF4