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Graphic Organizers Support Young L2 Writers' Argumentative Skills¹

Los Organizadores Gráficos apoyan las habilidades argumentativas de los jóvenes escritores en segunda lengua.

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Abstract

This qualitative study had the objective of analyzing the influence of graphic organizers on the development of written argumentative tasks in a group of sixth-grade Colombian L2 English learners. Learners are increasingly required to analyze information presented in languages other than their first critically to form reasoned opinions and solve problems. It is thus urgent to develop their argumentation skills, needed not only for academic success but also later professional life—and, indeed, by participant citizens in democratic societies. Although there has been some increased interest in teaching argumentation at primary and secondary levels, this remains relatively unexplored Colombia, certainly when considering writing in a second language. For the present study, data were collected through a questionnaire, a survey, a focus group, a teachers' journal, and students' written artifacts and analyzed through the grounded theory approach. Findings revealed that using graphic organizers influenced learners' argumentative writing skills positively, specifically through supporting strategic information planning and argumentative linearization during the pre- and while-writing stages. These understandings, which show that younger learners can develop complex argumentative writing skills in a second language, offer significant lessons for teachers of language—and content—in both the first and additional languages.

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Resumen

Este estudio cualitativo tuvo como objetivo analizar la influencia de los organizadores gráficos en el desarrollo de tareas argumentativas escritas por un grupo de estudiantes de inglés colombianos de sexto grado. Para los autores, se requiere cada vez más que los estudiantes analicen la información presentada en idiomas distintos de su lengua materna para consolidar opiniones razonadas y resolver problemas. Por lo tanto, es urgente desarrollar sus habilidades de argumentación, necesarias no solo para el éxito académico sino también para la vida profesional y, de hecho, para lograr ser ciudadanos participantes en las sociedades democráticas. Aunque ha habido un cierto interés en la enseñanza de la argumentación en los niveles de educación primaria y secundaria, éste sigue siendo en Colombia un campo relativamente inexplorado, ciertamente cuando se considera escribir en un segundo idioma. Para el presente estudio, los datos se recopilaron a través de encuestas, cuestionarios, grupos focales, un diario del maestro y varios artefactos escritos por los estudiantes, los cuales se analizaron a través del enfoque de la teoría fundamentada. Los hallazgos revelaron que el uso de organizadores gráficos influyó positivamente en las habilidades de escritura argumentativa de los estudiantes, específicamente a través del apoyo a la planificación de la información estratégica y la linealización argumentativa durante las etapas previas a la escritura y durante el proceso mismo. Estos hallazgos, que muestran que los aprendices más jóvenes pueden desarrollar complejas habilidades de escritura argumentativa en un segundo idioma, ofrecen lecciones significativas para los profesores de lengua (y contenido) tanto en el primer idioma como en los idiomas adicionales.

Palabras claves: escritura, argumentación, organizadores gráficos, idioma adicional, tareas basadas en problemas

Resumo

Este estudo qualitativo teve como objetivo analisar a influência dos organizadores gráficos no desenvolvimento de tarefas argumentativas, escritas por um grupo de estudantes de inglês Colombianos de sexta série. Para os autores, cada vez mais se requer que os estudantes analisem a informação apresentada em idiomas diferentes da sua língua materna para consolidar opiniões razoadas e resolver problemas. Portanto, é urgente o desenvolvimento de suas habilidades de argumentação, necessárias não só para o sucesso acadêmico, como também para a vida profissional e, de fato, para conseguir serem cidadãos participantes nas sociedades democráticas. Mesmo que tenha existido certo interesse no ensino da argumentação nos níveis de educação primária e secundária, o mesmo continua sendo na Colômbia um campo relativamente inexplorado, sem dúvida quando se considera escrever em um segundo idioma. Para o presente estudo, os dados foram recopilados através de enquetes, questionários, grupos focais, um diário do professor e vários artefatos escritos pelos estudantes, os quais foram

analisados através do enfoque da teoria fundamentada. As descobertas revelaram que o uso de organizadores gráficos influiu positivamente nas habilidades de escrita argumentativa dos estudantes, especificamente através do apoio ao planejamento da informação estratégica e a linearização argumentativa durante as etapas prévias à escrita e durante o processo em si. Estas descobertas, que mostram que os aprendizes mais jovens podem desenvolver habilidades complexas de escrita argumentativa em um segundo idioma, oferecem lições significativas para os professores de língua (e conteúdo) tanto no primeiro idioma quanto nos idiomas adicionais.

Palavras chaves: escrita, argumentação, organizadores gráficos, idioma adicional, tarefas baseadas em problemas

Introduction

The need to teach content and cognitive skills in the second-language classroom has increased considerably in recent years. Learners are increasingly required to examine current societal, political, behavioral, and cultural issues critically to form reasoned opinions and find solutions to local and global problems. Thus, there is an urgent need for educational systems to develop the argumentation skills students need not only for academic and professional success (Graff, 2004; Hillocks, 2010, 2011) but as citizens in democratic societies (Hillocks, 2011, pp. xv–xvi; Neff-van Aertselaer, 2013).

Argumentative writing is recognized as more cognitively demanding than other types of writing (Freedman & Pringle, 1984), but complaints about poor argumentative writing skills are common (Applebee, Langer, Mullis, Latham, & Gentile, 1994; Kuhn, 1991). Yet though writing skills are developed principally between childhood and adolescence (Kuhn, 1991), younger learners seldom engage with argumentative writing practices even in their first language; opportunities to develop argumentative writing skills in an L2 (second language) are even less common (Neff-van Aertselaer, 2013). This can be simply because many teachers are required to teach a set, traditionally oriented curriculum that does not contemplate the development of lifelong “soft” or “21st-century” skills (Binkley et al., 2012; Collins, Doyon, McAuley, & Quijada, 2011; Scott, 2015) such as argumentation. Yet argumentation is a critical lifelong skill—required for academic success and integral to forming learners’ beliefs and judgments (Jonassen & Kim, 2010). Effective instruction in the early years can help learners modify their existing cognitive and metacognitive learning strategies, preparing them for later academic challenges. Learning to approach argumentative texts by middle school can help students better organize their ideas and support their own opinions (Antolini & De Bernardi, 2006). Moreover, although writing argumentatively in the L2 may well be “one of the greatest challenges many English language learners (ELLs) are likely to face” (Hirvela & Du, 2013, p. 67), failing to address this challenge may leave such learners unprepared to produce or even analyze arguments presented through the L2—potentially a serious barrier in higher educational contexts or professional and civic life.

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The present study examined the fostering of argumentative writing skills in a group of Colombian sixth-graders with A1 CEFR level (Council of Europe, 2001) L2 English using webbing graphic organizers (Brovero, 2004) in the planning and writing stages of problem-based writing tasks, with a focus on helping learners express

and support their points of view to help develop maturity in their thinking and writing processes (Dent-Young, 1993).

Theoretical considerations

Graphic organizers.

Graphic organizers (GOs, hereafter) are visual devices that can be used to depict information in various ways (Ellis & Howard, 2007), thereby providing visual representations of knowledge and ways of structuring information or arranging essential aspects of an idea or topic into a pattern using labels (Bromley, Irwin-DeVitis, & Modlo, 1995). They have become familiar tools for engaging with, developing, and scaffolding reading and writing skills, including argumentative writing skills (Ellis & Howard, 2007; see also papers in Kirschner, Buckingham Shum, & Carr, 2003). Using GOs can help direct writers' attentions to their tasks, particularly regarding the details and specific ordering of ideas needed to write proficiently (Miller, 2011). GOs can also provide a preliminary organizational plan of the ideas students select as most meaningful, connections between these ideas, and supporting details (Ruddell, 2001). GOs can reduce cognitive load (Adcock, 2000), helping learners concentrate on comparing, diagnosing, and operating on aspects of rhetorical problem they are addressing (Flower & Hayes, 1981). GOs can help writers focus on a topic, keeping their ideas in front of them as they are writing and information in the desired sequence (Meyer, 1995).

In the present study, webbing GOs (Brovero, 2004) were used because their simple and user-friendly structures were easily managed by the target population and helped them develop both global and specific structures in planning and writing (linearizing) a basic argumentative composition in which they proposed a solution to a problem and presented arguments in support of their chosen solution (see the Argumentative writing section). Webbing graphic organisers are structured with a large circle in the center of a page, with smaller circles branching off, connected to the central circle by lines or arrows (thus giving the appearance of a web). The larger, central circle in the web holds the main idea or the topic; the smaller, outer circles hold details related to the main idea or topic. This design helps writers with the two main elements of a basic argumentative text: the *claim* (the solution for a problem-based task) in the larger central circle, and the supporting *evidence* (arguments support a solution) in the surrounding smaller, connected circles.

Argumentative writing.

The ability to write argumentative texts requires writers to follow an underlying model of two basic processes: *conceptual or referential planning* and *translating* (Coirier, Andriessen, & Chanquoy, 1999). *Conceptual/referential planning* has three sub-processes: *idea generation and retrieval*, *idea selection and evaluation*, and *idea organization*. *Translating* (as understood here) has two sub-processes: *linearizing* and *linguistic coding* (Hayes & Flower, 1980).

Conceptual/referential planning (Coirier *et al.*, 1999) is concerned with outcomes from the planning process and the specific characteristics of the knowledge to be retrieved. In the present study, this process was supported by webbing GOs (Brovero, 2004; see also the Graphic organizer section) during the pre-writing stage to generate, select, and organize information strategically and during the while-writing stage to recover specific information. *Idea selection and evaluation* essentially involve using appropriate criteria to select and evaluate arguments relevant to the task's goals, and (in the present study; see the Pedagogical intervention section) participants used GOs when selecting and evaluating arguments. *Idea organization* involves relating concepts in a hierarchical structure as the basis for a coherent text structure, and in the present study participants used GOs to generate visual schema that were intended to help them develop both the micro- and macro-levels of compositional structure for their texts.

The *translating* process (Coirier *et al.*, 1999) involves transposing the *conceptual/referential plan* through *linearization* into a grammatically correct and pragmatically appropriate linear text. *Linearization* refers to the expression of a cognitive representation (i.e. the visual representation of information developed in the GOs) into a linearly sequenced flow of information (i.e. the argumentative written text). In the present study, participants *linearized* their selected arguments (as planned in the GOs) by placing them in the order that they would appear in the actual text (see the Pedagogical intervention section). They then *linguistically coded* the resulting sequences by identifying relationships between arguments to form a coherent structure of sentences. *Linguistic coding* is a complex process of relating successive sentences through textualizing operations (Apothéoz, 1990) and organization devices (Boscolo, 1995) involving syntax, punctuation, and connectives. This process is crucial for the linguistic structure and realization of the text plan.

Previous research on graphic organizers supporting argumentative writing.

Numerous studies (for example, Capretz, Ricker, & Sasak, 2003; Delrose, 2011; Lancaster, 2013; Meyer, 1995; Miller, 2011; Myrick & Siders, 2007) have examined the use of GOs to help learning writers (especially younger learners) organize their ideas. Other studies (for example, Dowell, Tscholl, Gladisch, & Asgari-Targhi, 2009; Nussbaum & Schraw, 2007) have specifically examined how GOs can aid the construction of argumentative texts, particularly amongst L1 writers, though such studies with L2 writers have mostly considered older learners (for example, Hirose, 2003). While studies on the use of GOs with L2 learners in Colombia have focused principally on reading (for example, Roa Pinzón, 2012) or more general writing (for example, Reyes, 2011), few, if any studies—certainly in Colombia or Latin America more generally—have focused specifically on the use of GOs to support argumentative L2 writing amongst younger learners. Moreover, despite studies on the use of other strategies to foster argumentative writing in either L1 or L2 contexts (Antolini & De Bernardi, 2006; Belland, 2010; Harland, 2003; Morgan & Beaumont, 2003), little specific attention has been given to the significance of structuring basic argumentative texts as a basis for more complex written productions.

Research objective and question

The present study had the objective of examining how webbing GOs affect the development of basic aspects of argumentative writing amongst sixth-grade Colombian L2 English learners, specifically putting forward opinions and supporting these with arguments (Newell *et al.*, 2011; Toulmin, 2003), as a foundation for development of more complex written argumentative skills. This approach aligns with pedagogical trends for preparing self-regulated learners (familiar with various strategies and tools that assist their own learning) in critical 21st-century competences (such as argumentation) through an L2. The research question that guided the study was: How does use of GOs in problem-based tasks influence the argumentative writing skills of sixth graders with A1 (CEFR) L2 English?

Method

Participants

The present study was conducted with a group of 20 sixth-grade students (12 females and eight males) with A1 CEFR L2 English, aged 10-11, from backgrounds of upper-middle socioeconomic status, in the same classroom group at a private school in Chia, Colombia. Therefore, in terms of age and stage in the learning process, sixth graders represent a good target population for the development of argumentative writing skills. Informed consent was obtained from both participants and their legal guardians, and the study followed all standard ethical procedures for qualitative studies (Cohen, Manion, & Morrison, 2007; Creswell, 2012, 2014; Dooly, Moore, & Vallejo, 2017).

Needs analysis

Needs analyses have been recognized as an important first step in developing language teaching programs (Long, 2005). A needs analysis in the preliminary phase of the present study used a survey to assess participants' perceptions about their argumentative writing skills and samples of their written artifacts. For these sample texts, participants were asked to propose and support in writing (without using graphic organizers or any other aids) a solution to a given problem at their school (in this case, bullying). Analysis of the survey responses and sample texts from the needs analysis revealed various linguistic and cognitive needs: the participants had difficulties with expressing their opinions; clarifying, organizing, and connecting ideas; providing arguments, and they often lacked sufficient vocabulary to express themselves adequately in writing.

Pedagogical intervention

Consistency, coherence, and creativity are critical for successful use of GOs (Baxendell, 2003), as are training and modeling if learners are to learn to use them independently and effectively (Lee, 2007; Sakta, 1992). Training familiarizes learners with GOs' form and function (Lee, 2007), while modeling provides examples of realistic usage. However, before expecting learners to use GOs, instructors must first help them understand the main idea and supporting details of a topic (Sakta, 1992). For this, the present study followed a three-step process for problem-based learning approaches (Jonassen & Kim, 2010): 1) introduction to the problem, 2) exploring what is/is not known about the problem, and 3) generating viable solutions to the problem.

In the first step, the participants listed the most common problems they identified at their school. Through discussion, they formed a consensus and selected 4 problems on which to focus (bullying, littering, food waste, and bad language). At the same time, the participants were provided with examples of the type of GO used in the present study. Although they could customize details of the GOs, too much choice in GO design or structure can lead to frustration and confusion (Capretz et al., 2003) and, indeed, students can benefit from routine and structure (Baxendell, 2003); thus, an essentially unified GO design was retained throughout the present study's pedagogical intervention (see the Graphic organizers section in Theoretical considerations). The instructor modeled use of the GO to help write a paragraph about solutions to problems and the arguments needed to support a proposed solution. Thereafter, participants started to work more independently as they became acquainted with working on problem-based tasks.

In the second step, learners familiarized themselves with a chosen problem and used a checklist to select information and ideas for inclusion in their GOs. The checklists were read aloud, and questions were discussed with the whole class. Once the participants understood what was expected, they moved on to the third step: completing their own GOs, generating solutions for the problems, and selecting supporting arguments. Participants then used another checklist to identify elements for inclusion in their written texts; these checklists were likewise read aloud and discussed in class. Finally, using the information from their GOs, participants wrote their solutions as linear texts.

Data collection and analysis

After the participants' GOs had been produced, these and the accompanying written artifacts, as well as instructor journal entries made throughout the participants' training and artifact creation processes, were collected. Additionally, a questionnaire, a survey, and a focus group were used to reassess participants' perceptions on how using the GOs had affected their argumentative writing. Artifacts serve as physical, concrete evidence of what the participants do, produce, or carry out in their contexts (Lankshear & Knobel, 2004). Questionnaires gather data about participants' opinions through their responses to a set of questions, and surveys typically collect factual or demographic, behavioral, and attitudinal (Burns, 2010). Focus groups are a structured group process for exploring participants' thoughts and feelings so as to obtain detailed information about a particular topic or issue (Cameron, 2005). Instruments and procedures were validated and piloted in

advance to ensure reliability of data (Cohen, Manion, & Morrison, 2007; Creswell, 2012, 2014; LeCompte & Goetz, 1982). Through this multi-instrumental approach, different perceptions and examples of the influence of GOs on argumentative writing skill could be compared and contrasted for a richer analysis (Creswell, 2012, 2014). The collected qualitative data were organized in digital charts for each instrument to facilitate management and analysis. The artifacts were stored together and an analysis of each participant's artifacts was organized in a digital chart as well. All participants' responses and artifacts were anonymized to maintain confidentiality. Qualitative data were analyzed through the grounded theory approach, which seeks uses an inductive process of data collection and analysis to construct theory about issues of importance in participant's lives (Corbin & Strauss, 2015).

Results

The coding processes (Corbin & Strauss, 2015) resulted in the establishment of preliminary categories, from which emerged two subsequent categories that produced the core category (see Table 1).

Table 1. Development of core category from categories and preliminary categories.

Preliminary categories.	Categories.	Core category.
Focusing skills.	Planning argumentative texts.	Development of strategic information planning and argumentative linearization.
Analyzing skills.		
Organizing skills.		
Positioning and supporting a claim.	Producing argumentative texts.	
Supporting coherence and cohesion.		

As shown in Table 1, the core category (*development of strategic information planning and argumentative linearization*) emerged from two mid-level categories: *planning argumentative texts* (derived from preliminary categories representing the information processing skills of *focusing*, *analyzing*, and *organizing*), and *producing argumentative texts* (derived from the preliminary categories of *positioning and supporting a claim*, and *supporting coherence and cohesion*).

Influence of graphic organizers on planning argumentative texts

Data analysis showed that the process of planning an argumentative written text using webbing GOs was influenced by three types of information processing skills (Marzano *et al.*, 1988): *focusing*, *analyzing*, and *organizing* skills.

Focusing skills.

Using GOs helped the participants select the most important information by focusing on one possible solution and a maximum of four supporting arguments, as exemplified in Excerpt 1.

Excerpt 1. Focus group.

For me, they [GOs] helped to be focus on what you had to write on the organizer. (Participant E)

The example in Excerpt 1 suggests that GOs reduced cognitive demand by helping participants concentrate on writing precise and concrete information. Similarly, Ellis (2004) argued GOs help learners separate important information from interesting but not essential information, keeping their ideas in front of them and helping them stay on topic (Meyer, 1995). Furthermore, focusing skills directed participants' attention to choosing the most appropriate words to express their ideas, as demonstrated in Excerpt 2.

Excerpt 2. Final survey.

It was easy to write the arguments because we already had more vocabulary for the solutions, and we already had the right vocabulary. (Participant E)

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Thus, GOs helped participants select key words (related to their main idea) that served as semantic cues, activating participants' lexical backgrounds to help recall word meanings. Similarly, Miller (2011) argues that key words used in GOs assist learners with focusing on meanings, thereby facilitating acquisition of knowledge as well as vocabulary.

Analyzing skills.

GOs supported participants' abilities to define, clarify, and concretize their ideas when planning solutions, arguments to support their solutions, and ways of organizing those arguments. Thus, GOs helped participants analyze their existing information and decide how to use it in their argumentative texts, as shown in Excerpt 3.

Excerpt 3. Final survey.

It was easy to write the solution because I had the concept clear on the organizer. (Participant C)

The example in Excerpt 3 shows how participants understood GOs as effective pre-writing tools that helped them focus their ideas. Similarly, Marzano *et al.* (1988) observe that analyzing skills are used to clarify existing information by examining parts and relationships, although only a minority of participants in the present study performed such examinations. Most arguments proposed in support of solutions were mere extensions or descriptions of those same solutions or, in other cases, entirely different solutions. This may have occurred because the participants lacked experience with distinguishing the arguments supporting solutions from the solutions themselves.

Organizing skills.

GOs supports participants' creations of structures for their solutions and arguments in sequenced and consistent ways. Similarly, Marzano *et al.* (1988) note that "through organizing skills, we impose structure on information and experience by matching similarities, noting differences, or indicating sequences" (p. 93). Participants became familiar with the GOs' easily parsed structure, which also helped them sequence their arguments based on relevance or relationships. Likewise, Jiang and Grabe (2007) observe that GOs' organizational patterns provide beneficial scaffolding devices for, especially beginning, writers.

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Influence of graphic organizers on producing argumentative texts

GOs influenced the structure of participants' written argumentative texts by providing an organized and consistent sequence of information

comprising a claim (here, a solution for a problem) and supporting evidence (arguments that justified that solution; Toulmin, 2003). These findings support the notion that awareness of argumentative written discourse is characterized by a capacity to distinguish an opinion about a topic and the justification of such an opinion through reasoned argument (Dent-Young, 1993).

Positioning and supporting a claim.

GOs helped participants concretize specific positions on a topic for which there were no fixed answers but also encouraged participants to focus on identifying a solution for a given problem as a first step toward contextualizing and defining their main ideas in writing. In alignment with the findings of Nippold, Ward-Loneragan, and Fanning (2005), participants in the present study found argumentative writing requires one to embrace, present, and defend a particular point of view. Likewise, Harland (2003) has argued that presenting a clear thesis or position provides writers with a context.

GOs also helped participants develop more appropriate arguments to justify their chosen solutions, perhaps because GOs supported the identification of concrete and precise main ideas. This, in turn, seems to have helped participants decide what further information was needed, as well as how to organize their arguments visually in a logical sequence, as illustrated by Excerpt 4.

Excerpt 4. Final survey.

The organizers did help me write the solution because they already had the arguments organized, their main idea. (Participant N)

Similarly, Ellis and Howard (2007) have argued that GOs contribute to the structuring of written discourse. Structure helps learners improve their texts by supporting the visualization of their arguments (see further in papers in Kirschner et al., 2003). In this sense, GOs encouraged recognition of the need for supporting explanations, as exemplified in Excerpt 5.

Excerpt 5. Focus group.

Now, we have something more concrete to write a paragraph and you can ask me why I chose that solution and I can tell you because it is like that and I can explain. (Participant E)

Results showed that GOs supported participants in identifying and selecting the most appropriate words for their intended purpose, helping make their opinions and arguments more understandable. In this sense, GOs facilitated participants' abilities to retrieve words when reconstructing linear texts by activating their attentional processes, helping them recall word meanings by strategically selecting specific key and cue vocabulary that supported this recovery process. These results recall Coirier, Andriessen, and Chanquoy's (1999) suggestion that "at the level of retrieval, getting one precise idea thus will often be supposed to get the precise words which allow specifying this idea" (p. 16).

Supporting coherence and cohesion

The findings show that GOs helped participants organize their ideas in relation to a supportive solution for each problem and write logical sequences of ideas with clear meanings based on their sequential structural characteristics. This finding aligns with Santangelo and Olinghouse's (2009) suggestion that GOs encourage the generation of ideas and improve the organizational structure of students' writing, as well as Bamberg's (1984) definition of *coherence* as the ability to organize the overall structure, plan, or schema of the writer's propositions and ideas into an integrated whole.

Results also showed that using GOs seem to have encouraged the use of lexical cohesive ties, such as enunciative markers and linkers, and the use of transitional expressions and other devices (cohesive cues), helping participants compose more understandable messages about how the parts of their compositions—in these cases, their claims (the solutions) and their supporting evidence (arguments)—were connected and related to one another. This result aligns with van Eemeren, Grootendorst, and Snoeck Henkemans's observation (2002) that the use of discourse markers as linkers provides guiding information on the relationship between an argumentative structure and its constituent elements. In addition, this finding relates to Halliday and Hasan's (1976) understanding of *cohesion* in writing as the ability to use lexical ties to

create connections between sentences and ideas. These two elements—*coherence* and *cohesion*—are important properties of argumentative written texts (Coirier et al., 1999; Connor and Lauer, 1988). They help participants structure planned and arranged pieces of writing with sequenced, logical, and connected ideas that help express and support their opinions, as well as translate visual information (from the GOs) into comprehensible linear texts by using appropriate expressions to connect ideas.

Discussion

This study examined how the use of webbing GOs affect the development of basic aspects of argumentative writing amongst Colombian sixth-graders with A1-level (CEFR) L2 English in terms of their abilities to plan and execute problem-based argumentative writing tasks. The structure of these tasks required participants to execute two main abilities effectively: *planning* and *translating* (Coirier et al., 1999). The main results (see the Results section) show that webbing GOs supported participants in becoming more strategic argumentative writers by helping them first plan their ideas and then translate those plans into the production of linear argumentative texts.

Webbing GOs supported participants in both the pre-writing and while-writing stages. In the pre-writing stage (planning), participants used organizers to help them generate ideas, find a focus, decide what to write about, develop and organize their ideas, and try out language (including vocabulary) through which to express (and further organize) those ideas. These findings align with previous research in which GOs were found to be effective pre-writing tools that encourage more effective planning and preparation before writing a final piece (Emerson & Maxwell, 2011; Lancaster, 2013; Reyes, 2011); they may also mitigate against Ong and Zhang's (2010) findings, which suggest that too much planning can have negative effects on fluency in written task performance.

During the pre-writing stage, GOs supported participants' information processing skills, such as focusing, analyzing, and organizing. These skills helped participants strategically search for, find, and select appropriate words needed to specify their ideas, focus on a concrete idea, analyze what information might be relevant, and arrange that information in a sequenced way. This conclusion aligns with findings from a number of different studies in which GOs were found to help learners increase word usage (Myrick & Siders, 2007) and keep ideas in the correct sequential order while improving organizational

writing skills (Capretz et al., 2003; Meyer, 1995; Miller, 2011), but, again, seems to contrast with Ong and Zhang's (2010) findings that wider word retrieval can be inhibited in free-writing conditions (without pre- or while-task conditions).

In the while-writing stage (linearization), GOs assisted participants by helping them develop visual representations of their thoughts, illustrating how information was organized and connected. These visual aids facilitated the process of writing argumentative texts strategically by retrieving, selecting, and relating different pieces of information (and vocabulary) when transforming that information into linear texts (linearization) and following or rearranging the sequential ordering of information constructed in the GOs. Indeed, considering that the organization of information forms the basis for a coherent text structure (Coirier et al., 1999), GOs seem to have provided a particularly appropriate means for participants to produce suitable organizational structures. Moreover, GOs assisted in generating a repeating writing strategy (Victori, 1995) through which participants were able to repeat chunks of language (key words and phrases) while composing, when either transcribing ideas or reviewing their texts. Throughout the while-writing stage, GOs helped participants develop their argumentative written discourse and make its structure more accessible to them when writing (Hawkins, 2011) by prompting them to make a claim (in the case of the particular tasks used in the present study, to think of possible solutions for certain problems in their context) and identify evidence to support their claims (in this case, to provide arguments to support their preferred solutions). Thus, with simple GOs, participants were better able to develop logical, sequential, organized pieces of writing that converged towards their main communicative goals: to put forward a coherent, cohesive, and well-supported arguments in support of a claim.

One of the key elements that favored strategic information-planning and argumentative linearization was the use of GOs that, although user-customizable in domestic senses, were uniformly based around a simple, user-friendly, and consistent structure. This structure, focused on core idea in the center of the GOs with supporting arguments ranged around that core idea, seemed to help participants explore and transform conceptual information through personalization, enhancing autonomy, motivation, confidence, and self-efficacy. This conclusion aligns with some similar findings (Emerson & Maxwell, 2011; Reyes, 2011), and contrasts with studies in which participants lacked knowledge about GOs and how to use them (Lee & Tan, 2010), which can inhibit a cohesive flow of ideas to the resultant texts being produced.

Limitations

In the training phase of the present study, time constraints may have limited the effectiveness with which participants were eventually able to use the GOs. As in most learning situations, learners need sufficient time to explore, familiarize themselves with, and incorporate a strategy or tool into their learning routines. Similarly, training in and familiarity with the use of GOs need to be developed over time (Alvermann & Boothby, 1986; Mannes & Kintsch, 1987; Robinson & Kiewra, 1995). Nevertheless, effective and consistent modelling of the GOs' usage can help make the best use of available training time. To ensure learners understand what a graphic organizer is, how it works, and what is expected from learners when using them, modelling should be provided to learners before they move on to actually developing and using the GOs.

Moreover, the need to write information on the GOs itself can place considerable vocabulary demands on learners. In the present study, some participants seem to have felt that they had a clear idea of what they wanted to communicate but that they lacked the necessary vocabulary to express it through writing in the target language. Accordingly, learners should be provided with cognitively based (for example, through the use of dictionaries, in which learners may also need training) and/or memory-based (for example, through making lists of unknown words) vocabulary-learning strategies, as appropriate.

Likewise, during training phases, participants may need explicit support in the understanding of what a *solution* is and what *arguments* are until they are better able to differentiate one from the other and, accordingly, better able to plan concrete solutions with clear supporting arguments. This issue can be addressed through training exercises such as matching, unscrambling, inserting, separating, connecting, completing, comparing, contrasting, correcting, classifying, evaluating, identifying, and organizing. Such exercises can also be used to help learners better understand and differentiate between *claims* and *arguments*—for example, by using a color-coding strategy (in which learners use one color to underline a *claim* but a different color to underline each *argument* supporting the claim) in the GOs (and/or in their written texts).

During both the training and implementation stages, learners should be provided with both immediate instructor feedback and opportunities for peer-assessment to help them identify their own strengths and weaknesses in relation to the structure of the GOs and the structure of basic argumentative written texts. Instructor feedback should

focus on two main aspects of the larger tasks: presenting a solution, and supporting that solution. Learners should have the opportunity to make drafts and improve them by taking feedback into account. If feedback is given after the initial drafting process, learners may be more willing to accept comments and to make changes improving the content and organization of their GOs (and, thus ultimately, the texts they produce). Such formative assessment processes can help learners develop a broader scope to compare and contrast what they think they can do and what they actually do, as well as to design action plans for improving their GOs' contents and the written structure of their argumentative texts. Moreover, self- and peer-assessment and effective formative feedback can encourage learners to set their own goals, supporting the development of self-regulated learning (see, for example, papers in Schunk & Zimmerman, 2008).

Additionally, there are many opportunities to explore the additional benefits of using digitally based drawing and graphic design tools (particularly in terms of motivation and engagement; see, for example, papers in Oblinger & Oblinger, 2005) to develop GOs. Similarly, computer-based tools (such as word-processing software) could be used to facilitate the composition and revision of argumentative written texts, while other online tools could be used to support collaborative writing and learning strategies.

Conclusions

The present study helps fill a gap in the research, where relatively little attention has been given to the need to develop effective argumentation skills, especially in additional language learning contexts, and even more especially with younger learners in such contexts. It also offers one approach to implementing a scaffolded process in which modelling of, training in, and implementation of GOs can support the development of younger learners' argumentative writing and cognitive skills in L2 contexts. Despite the clear *linguistic* difficulties participants revealed when planning their ideas using the organizers and writing the argumentative texts, these difficulties in fact concealed the most significant *cognitive* issues related to participants' abilities to write basic argumentative texts that included a claim and corresponding supporting arguments. Indeed, it would seem that, in many contexts, students are often expected to develop linguistic and communicative competences that require little more than lower-order thinking skills (Anderson et al., 2001; Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956), such as *remembering* or *describing*. Considering that

“argumentation strategies will not only help students attain academic achievement but will also prepare them to take up more critical roles as active citizens in democratic societies” (Neff-van Aertselaer, 2013, p. 199), the present study additionally highlights the need to ensure contemporary educational approaches adequately provide for the development of learner’s higher-order thinking skills.

The language-teaching, and indeed wider educational, community should consider integrating strategies, tools, and topics that encourage the development of argumentative and rhetorical skills and competences within syllabuses and at the lesson-planning stage. Moreover, further research should investigate the transfer of knowledge about using GOs between L1 and additional-language argumentative writing contexts, as well as how cognitive skills developed through one language might be transferred to situations in which the other language is used. Indeed, the development of argumentative writing skills through both the L1 and L2 concurrently, fostering not only improved communicative skills but lifelong cognitive skills, should be examined through cross-linguistic studies. In many current contexts, lack of experience with argumentative writing through the L1 may compound the challenge of doing so through an L2 (Hirose, 2003; Neff-van Aertselaer, 2013). Renewed focus on the development of communicative and cognitive competences in and through multiple languages would benefit both language- and content-learning practices, especially in contexts (such as Colombia’s), where current L1 and L2 language-teaching and educational policies have historically neglected such issues.

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