

COHERENCE AND COHESION IN EFL STUDENTS' WRITING PRODUCTION: THE IMPACT OF A METACOGNITION-BASED INTERVENTION

**COHERENCIA Y COHESIÓN EN LA PRODUCCIÓN ESCRITA DE ESTUDIANTES DE INGLÉS:
EL IMPACTO DE UNA INTERVENCIÓN PEDAGÓGICA BASADA EN LA METACOGNICIÓN**

**COHÉRENCE ET COHÉSION DANS LA PRODUCTION ÉCRITE D'ÉTUDIANTS EN ANGLAIS
LANGUE ÉTRANGÈRE : L'IMPACT D'UNE INTERVENTION PÉDAGOGIQUE BASÉE SUR LA
MÉTACOGNITION**

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Mark Briesmaster

Ph.D. in Intercultural Education, Biola University. Professor at Education Faculty, Universidad Católica de Temuco, Chile. Director of Master's Program in Teaching English as a Foreign Language (TEFL) at Universidad Católica de Temuco, Chile. Mailing address: Rudecindo Ortega 02950, Temuco, Chile. E-mail: briesmaster@uct.cl

Paulo Etchegaray

Master of Arts in Teaching English as a Foreign Language (TEFL), Universidad Católica de Temuco. Professor at Education Faculty, Universidad Católica de Temuco, Chile. EFL teacher at Fundación del Magisterio de la Araucanía, Chile. Mailing address: Rudecindo Ortega 02950, Temuco, Chile. E-mail: petchegaray@proyectos.uct.cl

ABSTRACT

The objective of this action research study was to identify the impact of metacognitive training on the development of coherence and cohesion in the writing production of EFL learners at paragraph level. The participants included 19 students from an 8th grade Chilean public school who took part in a 9-week class intervention. These classes focused on teaching the students to write paragraphs in English by using metacognitive techniques such as planning, monitoring, and evaluating their own production while paying particular attention to coherence and cohesion. As instruments for data collection, L2 writing pre- and post-tests were utilized. Additionally, two qualitative research techniques were employed to identify the metacognitive writing procedures used by the students before and after the metacognitive intervention. The results suggest that the EFL students used more metacognitive procedures when writing after having received the intervention. Moreover, a slight improvement was observed in the area of cohesion. For this reason, the EFL classroom should increase opportunities for writing and reflection activities when producing in the L2 within a more extensive intervention.

Keywords: EFL, metacognition, L2 writing, coherence, cohesion

RESUMEN

El propósito de este estudio de investigación acción fue identificar el impacto de las prácticas metacognitivas en el desarrollo de la coherencia y cohesión asociada a la escritura de estudiantes de inglés como una lengua extranjera. Los participantes fueron 19 estudiantes de octavo año pertenecientes a un establecimiento público de educación básica en Chile. Los sujetos de investigación participaron en una intervención de clase de nueve semanas, la cual estaba enfocada en la escritura de párrafos en inglés a través de las prácticas metacognitivas como planificación, monitoreo y evaluación con particular atención en coherencia y cohesión. Para determinar el nivel inicial de los participantes y sus mejoras posteriores, fueron considerados un pre y post-test sobre escritura

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en la lengua inglesa. Adicionalmente, dos técnicas de investigación cualitativa fueron usadas para identificar los procedimientos metacognitivos de escritura considerados por los participantes antes y después de la intervención. Los resultados sugieren que los estudiantes que participaron en el estudio emplearon más procedimientos metacognitivos considerando su escritura en inglés posterior a la intervención. Adicionalmente, se observó una leve mejora en su producción, la cual estaba asociada al área de cohesión. Por esta razón, las clases de inglés deberían incrementar las oportunidades destinadas a que los estudiantes escriban y desarrollen actividades de reflexión al producir en una intervención pedagógica que dure más tiempo.

Palabras clave: inglés como lengua extranjera, metacognición, escritura en inglés, coherencia, cohesión

RÉSUMÉ

L'objectif de cette recherche-action était d'identifier l'impact des pratiques métacognitives sur le développement de la cohérence et cohésion associées à la production écrite, chez des apprenants d'anglais langue étrangère. Dix-neuf participants, élèves de huitième année d'une école chilienne, ont participé à une intervention menée en classe pendant neuf semaines, orientée vers l'écriture de paragraphes en anglais à travers des pratiques métacognitives telles que la planification, le monitorage et l'évaluation avec une attention particulière portée sur la cohérence et la cohésion. Pour déterminer leur niveau initial et le comparer avec le progrès réalisé, ils ont été soumis à un test de production écrite en anglais avant et après l'expérimentation. Nous avons eu recours en plus a deux techniques de recherche qualitatives afin d'identifier les processus d'écriture métacognitifs appliqués par les étudiants avant et après l'intervention. Les résultats suggèrent que les étudiants utilisaient plus de compétences métacognitives dans leurs écrits à la fin de l'intervention. En outre, on constate un léger progrès en ce qui concerne à la cohésion. C'est la raison pour laquelle les classes d'anglais devraient donner davantage de possibilités aux étudiants d'écrire et de développer des activités de réflexion, en produisant une intervention pédagogique plus durable.

Mots-clés : anglais langue étrangère, métacognition, production écrite en anglais, cohérence, cohésion

Introduction

English as a foreign language (EFL) is a compulsory subject in the Chilean educational system. In this context, students are required to develop comprehension and productive skills in the L2 as well as achieve an intermediate level of English language proficiency upon completion of their secondary studies (Ministry of Education of Chile & British Council, 2012). This is equivalent to B1 in terms of the Common European Framework of Reference for Languages (CEFR), meaning that Chilean students are expected to be independent users of the foreign language when reading, listening, speaking, and writing.

Despite the fact that EFL is a requirement in Chile, only 25% of 11th grade high school students passed a national L2 reading and listening examination at the basic level (Gobierno de Chile, 2015). According to this report, Chilean students appeared to have some serious limitations related to their L2 linguistic knowledge and abilities, which may hinder their comprehension of ideas in written/oral texts in English and the way they express meaning to others by speaking or writing in the L2.

Regarding the scenario in which the present action research study was set, the 8th grade participants easily mastered conceptual content in terms of the English language; however, they failed when developing and applying language skills in the L2. This could be due to their early exposure to traditional classroom procedures, which may have focused only on the transmission of content and memorization (Inostroza, 2005; Ruffinelli et al., 2012). In order to promote 8th grade writing skills, students from an at-risk school in southern Chile participated in a metacognition-based intervention. It was performed in the learners' normal EFL classes for a duration of nine weeks.

According to Mistar, Zuhairi, & Nuryatin (2014), metacognitive procedures such as planning, monitoring, and evaluating one's own production should be taught explicitly through

classroom activities. Metacognition also helps students to be strategic and reflective writers, allowing them to improve by controlling and monitoring their own learning (Negretti, 2012). Consequently, students will more likely apply these metacognitive skills when solving their real-life problems (Díaz, 2013).

Concerning studies within the Chilean educational context, different specialists have concluded that metacognition may reinforce L1 acquisition (Spanish), which has led to metacognitive activities being implemented as pedagogical tools to help Chilean learners develop literacy (Navarro, 2000; Cornejo, 2002; Peronard, 2005). Nevertheless, there is still a lack of research regarding this area in terms of EFL learning in Chile.

The general objective of this research project was to identify the impact of a metacognition-based intervention on the coherence and cohesion of EFL students' writing production. The expectation was that, by taking part in EFL lessons focused on how to think about productive activities, the students could improve the coherence and cohesion of their written production in English. Moreover, the participants were expected to consider more metacognitive procedures when writing in the L2 after completing the pedagogical program.

Research questions

General research question.

What is the impact of the L2 metacognition-based writing intervention on the 8th grade students' written coherence and cohesion performance?

Specific research questions.

What are the writing procedures employed by the 8th grade students before and after the metacognition-based intervention?

What are 8th grade students' written performance results concerning coherence and cohesion before and after the metacognition-based intervention?

Theoretical framework

Metacognition.

According to Flavell (1979, 1987), the term metacognition means knowledge about cognition. Flavell argued that it is a system that acts as a control center, allowing learners to regulate their own learning. In other words, it is a process whereby the learners evaluate the effectiveness of the cognitive strategies implemented when carrying out a task.

Metacognition is a personal process useful for modifying, redirecting, or improving actions, knowledge, or thought procedures (Vandergrift & Goh, 2012). These changes are made by monitoring and reflecting on one's own weaknesses in terms of learning or the applications of knowledge and skills (Zimmerman & Moylan, 2009).

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Different authors have stated that the process of metacognition has two main components (Serra & Metcalfe, 2009; Larkin, 2010). The first of them is related to metacognitive awareness, which is connected to the learners' consciousness of diverse strategies for advancing their own learning. This dimension involves three aspects: a) declarative knowledge, recognizing the strategies used to accomplish specific tasks; b) procedural knowledge, being conscious of how to apply these strategies; and c) conditional knowledge, being aware of when and why to apply these strategies. The second component of metacognition is monitoring. This aspect is related to learners' identification and assessment of their own weaknesses (Proust, 2013).

In the context of English language learning (ELL), O'Malley and Chamot (1990) have asserted that students, in order to develop metacognitive processes when learning, should consider the following stages: a) planning, in which learners determine the goals, strategies, and actions they will carry out in order to perform a task successfully; b) monitoring, in which students apply the strategies or actions considered in the first stage;

and c) evaluating, in which learners reflect on the effectiveness of the strategies or actions implemented, adjusting the plan if it was not helpful.

Relationship between metacognition and adolescence.

According to Piaget (1973), learners between the ages of 11 and 16 experience the cognitive development stage of formal operations. Individuals at this stage use formal operational thought by thinking about the future and more abstract and hypothetical issues. At this stage, individuals start thinking theoretically or scientifically and reasoning deductively (McInerney, 2014). They are thus able to consider a diversity of ways to solve a problem.

The development of metacognition during adolescence is a gradual process (Kuhn & Dean, 2004; Van der Stel, 2011). Additionally, the construction of strategic knowledge begins to occur by the onset of this stage of development. In this sense, individuals are able to manage connections between memory variables specifically related to the features of a learning activity, strategies to be implemented, and how much effort to make (Schneider and Lockl, 2002). According to these authors, novice learners can be aware of their cognitive performance by identifying whether they are successful or not at performing a particular activity. They also become aware of the level of difficulty of a particular task, which in return activates their ability to monitor their performance. From this perspective, the level of difficulty of a particular task is related to the learner's prior knowledge.

Second language writing.

Writing is a productive language skill. Specifically, it is the act of forming letters or characters on writing materials in order to communicate ideas (Harmer, 2004; Hyland, 2004). It follows, then, that learners are able to produce written pieces of work once they are successful at listening, speaking, and reading (Cassany, 2005).

Being a successful L2 writer involves making the right decisions in order to express meaning in a foreign language (Nation, 2009). From a cognitive point of view, this consists of employing different mental operations, such as reflecting, preparing, making mistakes, and considering alternative ways to solve problems (Hinkel, 2015). Additionally, when individuals produce a written text, they activate different types of knowledge. These are mainly related to the nature and purpose of the text, grammar and vocabulary, topics addressed, and the culture of the audience (Hedge, 2005).

Writing was initially seen as a product, an approach that pays exclusive attention to managing linguistic knowledge, such as grammar and vocabulary, successfully (Kroll, 2001). For this reason, its procedures are commonly associated with traditional methodologies for language teaching whose main purpose is accuracy and writing at the level of words or sentences (Larsen-Freeman & Anderson, 2011).

On the other hand, writing is also perceived as a process. In this vein, Flower & Hayes (1981) have pointed out that writing is a complex task which involves applying a wide range of cognitive procedures. Multiple mental operations are carried out by the writer in order to successfully solve problems when producing a manuscript. These cognitive procedures are coherent with the met cognitive strategies of planning, monitoring, and evaluating.

Based on the cognitive model proposed by Flower & Hayes (1981), different authors have divided a writer's mental operations into pre-, while-, and post-writing activities (see, for example, Hyland, 2003; Cushing Weigle, 2014). Firstly, writers choose a topic, brainstorm ideas about it, and organize the information into an outline (planning). Secondly, they write an early version of their production by considering the text's structure and all the ideas they find necessary to include (drafting). Thirdly, writers proofread their production, looking for possible mistakes concerning language form and meaning, in addition to coherence

and cohesion (revision). Finally, they edit their production for the purpose of publishing it (re-writing). According to Manchón, Roca de Larios and Murphy (2009), process writing can be considered recursive rather than linear, meaning that writers, when they believe it is appropriate, can move back and forth between stages.

Writing coherence and cohesion.

Academic writing in English involves producing texts, which are appropriate for formal contexts, such as schools and universities (Oshima & Hogue, 2007). These authors have suggested that English academic texts may differ from those written in other languages regarding words, grammar, and organization. As a result, EFL/ESL learners should develop study skills like writing for academic purposes (Hyland, 2006). According to this author, it is necessary for them to learn how to produce academic texts in order to express ideas to other users of the L2. For this reason, textual coherence and cohesion are essential components of academic writing.

On the one hand, a written text needs to be coherent to be understood by a reader. Hyland (2006) defined coherence as: "The ways a text makes sense to readers through the relevance and accessibility of its configuration of concepts, ideas and theories" (p. 311). From this point of view, coherence involves logical connections at idea level (topic). Thus, so as to facilitate the reader's comprehension, all the sentences that make up each paragraph have to be logically arranged by following a continuous order based on the message they are trying to convey (Hinkel, 2004). Within this framework, coherence is important in writing as it relates to expressing consistent and understandable ideas in a text.

On the other hand, cohesion has been defined as "joining a text together with reference words (e.g. he, theirs, the former) and conjunctions (e.g. but, then) so that the whole text is clear and readable" (Bailey, 2011, p. 115). In other words, cohesion

refers to the logical connections of a text at sentence level. This term involves grammatical and lexical relationships between the elements of written production (Grabe & Kaplan, 2014). Some examples of cohesion are reference through personal or possessive pronouns, substitution or ellipsis, connectors to link the sentences of a paragraph, synonyms to avoid lexical repetition, and punctuation (Ferris & Hedgcock, 2014).

Cohesion plays an important role in academic writing because it affects the interpretation of a writer's discourse. According to Halliday & Hasan (2013), "it is the continuity provided by cohesion that enables the reader or listener to supply all the missing pieces, all the components of the picture which are not present in the text but are necessary to its interpretation" (p. 299). Therefore, writers should correctly produce cohesive texts to ensure others understand their messages.

Pedagogical intervention

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The experimental student group attended EFL classes focused on a metacognition-based writing intervention. In them, the learners had to carry out

one writing task a week which consisted of reacting to a prompt by producing one paragraph in English. The level of these activities was A2 according to the CEFR (elementary level). The topics covered were culture and traditions as suggested by the Chilean curriculum for the EFL subject level.

The learners were asked to produce their tasks in three stages every week by following the cognitive writing model proposed by Flower & Hayes (1981) (see Figure 1 below). The stages were planning (pre-writing), monitoring (while-writing), and evaluating (post-writing), which are metacognitive writing procedures. First, in pre-writing, the students were taught to brainstorm ideas and write the outline of their draft by considering paragraph structure. In the while-writing stage, the learners produced their draft by monitoring their text, which involved revising it constantly in terms of coherence and cohesion. They then had to carry out the post-writing step, which consisted of proofreading, receiving feedback from the teacher, and editing in terms of textual coherence and cohesion. It is worth noting that the students had the opportunity to repeat a previous stage when they found it necessary.

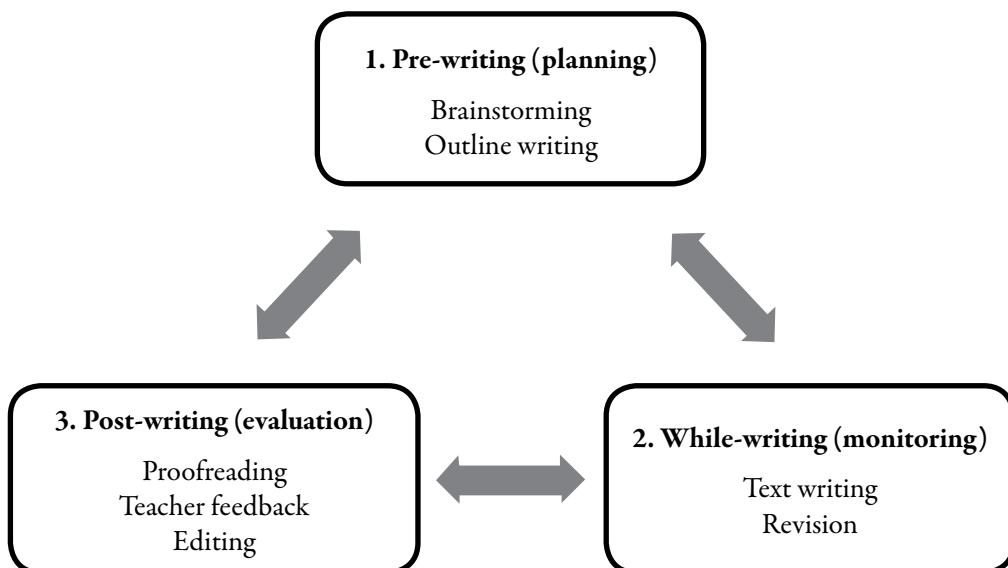


Figure 1. Stages of the metacognition-based writing intervention

The metacognition-based writing intervention was carried out in three teaching periods every week (45 minutes each). It lasted nine weeks and was performed by one of the researchers.

Methodology

The research methodologies this study employed were both qualitative and quantitative. A qualitative approach was utilized when collecting information related to the metacognitive procedures the participants stated they used when writing. Qualitative research matched the purposes of this study well because it was used to collect intangible/subjective data from the ELLs' oral discourse, such as personal knowledge and thinking processes (Stake, 2010).

Conversely, the quantitative approach was employed for gathering data through L2 writing pre- and post-tests taken by participants. The teacher, who was also one of the researchers, needed to utilize this method in order to identify how well the participants managed coherence and cohesion in their writing production before and after the teaching intervention.

The characteristics of the study were related to two research designs. First, an action research design was implemented because the teacher researcher gathered data concerning the students' learning strengths and weaknesses when writing. This was useful for him to explore his own teaching context by taking a self-reflective, critical, and systematic approach (Burns, 2010). Second, it incorporated characteristics of experimental studies because the performance of two groups of participants, one which receives treatment and another which does not, was compared (Phakiti, 2014). This was accomplished by analyzing the results of the pre- and post-research stages.

Participants.

Two groups of 8th grade students participated in this research project. First, an experimental group

of 19 subjects was studied. They took part in EFL classes focused on a metacognition-based writing intervention implemented by one of the researchers.

A control group of 10 students who did not receive any special intervention was also considered in the study. The reason for this was to identify the successfulness of the metacognition-based intervention on the experimental student group's performance. This was done by comparing the progress of both groups of subjects in terms of their pre- and post-writing production, specifically in the subskills of coherence and cohesion.

Regarding the characteristics of all research subjects, they were part of two Chilean public schools and were aged thirteen to fourteen. They often experienced disadvantages in their EFL classes due to their lack of L2 proficiency. The reason for this might be that the participants had had only limited weekly exposure to English during the previous three years.

Both experimental ($n=19$) and control ($n=10$) groups were chosen due to their similarities. Both schools were located in rural areas of southern Chile (specifically in the Araucanía Region). Another similarity was that the EFL teachers of both groups had the same years of experience and graduated from the same university. They had also worked in these schools for an average of three years. Additionally, the school settings and groups were selected because of access, which is often limited due to the fact that school administrators in Chile are sometimes reluctant to authorize such experimental studies in their classrooms.

Techniques for data collection.

To collect data concerning the students' L2 writing proficiency, the experimental and control groups took a writing pre- and post-test which consisted of the production of one paragraph. These instruments were equivalent to the A2 level of English based on the CEFR (elementary level).

As achievement tests, they were the best way for “assessing an individual’s knowledge or proficiency in a given content area” (Glanz, 2014, p. 130). Subsequently, the learners’ written paragraph was assessed by the teacher researcher, who referenced the criteria of a rubric (see Appendix A). For the purposes of the study, the assessment was focused on coherence (logical organization of ideas) and cohesion (linking devices, relationship between sentences and their parts, paragraph structure, and punctuation marks). The indicators of this instrument were 1 (poor performance), 2 (good performance), and 3 (excellent performance). The rubric’s criteria were based on assessment dimensions included in instruments designed by Tankó (2005) and Aalto University (2014).

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In order to identify the initial metacognitive procedures the participants stated they would implement when writing a paragraph in English, the entire experimental group took part in a focus-group discussion before the research intervention started (see Appendix B). The focus group procedures gave the research subjects the opportunity to share their points of view and opinions orally about specific questions (Krueger & Casey, 2009).

A semi-structured interview (see Appendix C) was used to identify the L2 metacognitive writing procedures the students in the experimental group acknowledged having learned after the intervention. This research technique was suitable for the study because the teacher researcher could interact with the interviewees by promoting the topic’s flexibility and allowing a flow of verbal information (Wilkinson & Birmingham, 2003). The control group students did not take part in the qualitative data collection procedures focused on metacognitive strategies. This was because these learners did not participate in the intervention (they were not explicitly trained on how to carry out these metacognitive writing procedures).

Both focus-group discussion and semi-structured interview procedures were carried out in the students’ mother tongue (Spanish). This was done so

the experimental students could freely answer the questions and provide meaningful information to the study. Afterward, the teacher researcher transcribed and translated the learners’ answers into English for research purposes.

All data collection techniques used in this study were validated under expert judgment because few techniques exist for such a study on metacognition and L2 writing. Three Chilean professors, all experts in EFL and linguistics, contributed to the process. In order to validate the qualitative and quantitative instruments, they evaluated the preliminary versions and provided feedback concerning their limitations. Afterward, the researchers improved the instruments by taking the experts’ observations into account.

Data collection procedure.

Before the metacognition-based writing intervention.

Before the intervention took place, the parents of all the 8th grade students read and signed an informed consent form. This document stated that the students’ participation was voluntary and that their identity would not be made public.

Prior to starting the pedagogical intervention, the teacher researcher carried out a focus group discussion with the students in the experimental group (see Appendix B). The purpose of this was to identify the metacognitive procedures the students initially decided to employ when writing in English. Afterward, this data was codified, categorized, and analyzed through ATLAS.ti qualitative analysis software.

Following this, both experimental and control group students took an A2 level pre-test focused on L2 writing. This task consisted of producing one paragraph in English, and its purpose was to identify the students’ initial writing performance. Later, the teacher researcher graded the learners’ written text by referencing a rubric containing criteria and indicators specifically associated with coherence

and cohesion (see Appendix A). The scores were then processed by means of SPSS software in which descriptive statistics were employed.

After the metacognition-based writing intervention.

The teacher researcher interviewed each student in the experimental group, focusing on the metacognitive procedures they acknowledged using when writing paragraphs in the L2 (see Appendix C). Afterward, the collected data was codified, categorized, and analyzed through the ATLAS.ti qualitative analysis software.

Next, both experimental and control group students took an A2 level writing post-test, in which they once again had to produce one paragraph in English. After these data were collected, the teacher researcher assessed both groups' writing production. The same rubric on coherence and cohesion used for the pre-test was employed (see Appendix A). The teacher researcher then compared the results of both groups, identifying the

learners' performance in terms of coherence and cohesion in L2 writing. This information was processed by means of SPSS software in which both t-tests for independent samples and repeated measures analysis of variance (rANOVA) were used.

Results

Writing procedures employed by the EFL students prior to the metacognition-based intervention.

The conceptual network for writing procedures employed by the EFL students prior to intervention is displayed in Figure 2 below. It includes the subcategories of *pre-writing*, *while-writing*, and *post-writing*, which were based on student responses in the focus-group discussion carried out with the experimental group before the pedagogical intervention took place.

From the oral data collected in the initial focus-group discussion, in the context of the writing procedures employed by the EFL students prior

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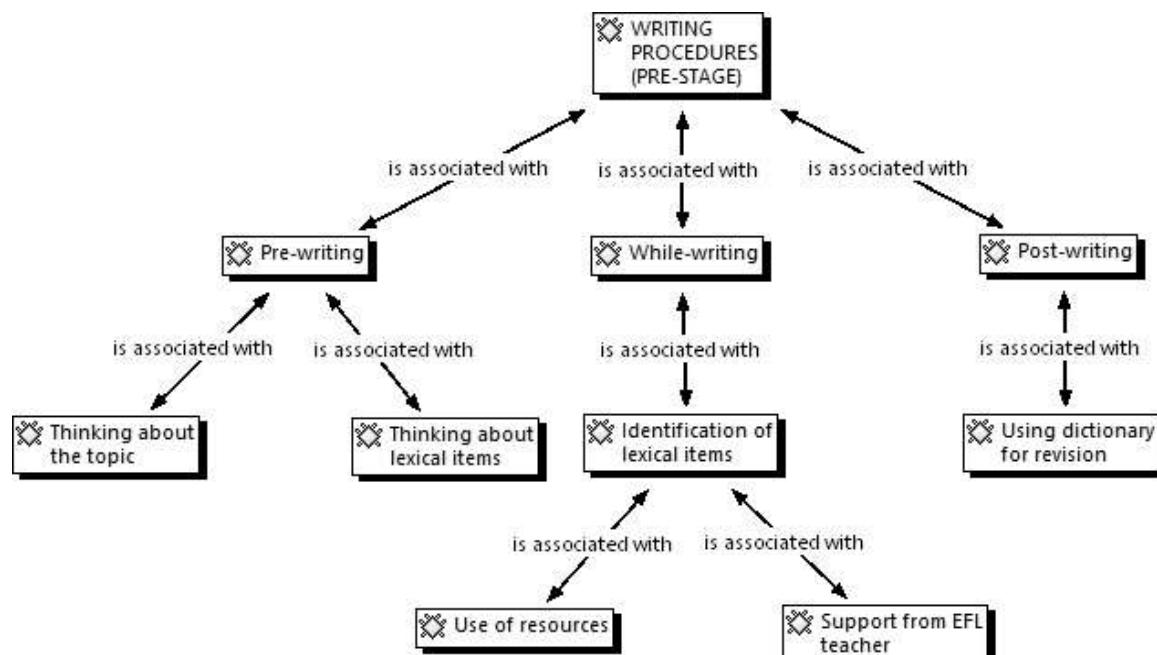


Figure 2. Conceptual network for writing procedures employed by EFL students prior to the metacognition-based intervention

to the intervention (see Figure 2 above), the participants of this study stated that they did, in fact, undertake certain *pre-writing* activities, such as *thinking about the topic*. One of the early tasks they said they carried out before producing a written text was activating their prior knowledge related to their production's main idea. With respect to this, one student made the following comment: "We have to think about the ideas we're going to write. We can't start without doing that" (Participant 07 [32:32]). Another EFL learner had a similar perspective: "Before I start writing, I try to remember everything I know about the topic for the task" (Participant 12 [42:42]).

Regarding the *pre-writing* activities chosen by the EFL learners, *thinking about lexical items* was another task they utilized before they wrote a text. According to their responses in the focus-group session, the research subjects declared that they activated prior knowledge concerning English spelling. One of the participants explained: "When I start writing, I need to know how to spell the words I'm going to put in my text" (Participant 09 [110:110]). Along the same line, another learner pointed out that this was performed in order to overcome the difficulties she usually experienced in EFL class: "Writing in English is really hard because it isn't written the way it's pronounced. That's why I have to carefully remember the way some words are written" (E15 [09:09]).

The EFL students also indicated that they developed certain *while-writing* activities. One of these tasks involved the *identification of lexical items*. As stated by one of the learners: "While I'm writing a text in English, I need to look for the words I want to use" (Participant 06 [44:44]). Furthermore, the participants affirmed that they *used resources* to include words in their written production. This is evidenced in the following excerpt: "When I need to write something, the only material I use is an English dictionary. I don't know the words of this foreign language" (Participant 07 [118:118]). Other participants likewise acknowledged the use of online translators while they wrote a text

in English, with one of the learners asserting, "English class is sometimes hard for me, so when I write I use a web page that translates text from Spanish to English" (Participant 11 [52:52]).

Further examination of the students' oral answers in the initial focus-group discussion revealed that the *identification of lexical items* while the students wrote a text also employed *support from the EFL teacher*. From the point of view of the EFL students, they asked for the teacher's assistance while writing in English in order to verify correct spelling. Evidence of this is corroborated by one of the learners: "I asked the English teacher about the words to be included in my text" (Participant 06 [48:48]). Another learner made a similar comment: "I sometimes do not know how to spell certain words in English, so I show my writing to the teacher, and he tells me if I am writing them well or if I am making mistakes" (E19 [57:57]).

When the participants took part in the initial focus-group discussion, they also made reference to *post-writing* activities, confirming their *use of a dictionary for revision*. According to the EFL learners' responses, the use of this resource was also focused on identifying the correct spelling of the words in English. The following excerpt is an example of this view: "When I finish writing a text in English, I use a dictionary to make sure the words I wrote are correct" (Participant 10 [124:124]).

Writing procedures employed by the EFL students after the intervention.

The conceptual network for writing procedures employed by the EFL students after the intervention is displayed in Figure 3 below. This includes the subcategories of *pre-writing*, *while-writing*, and *post-writing*, which were based on the students' answers in the interview carried out with the experimental group after the pedagogical intervention took place.

In the context of the writing procedures employed by the EFL students after the intervention (see

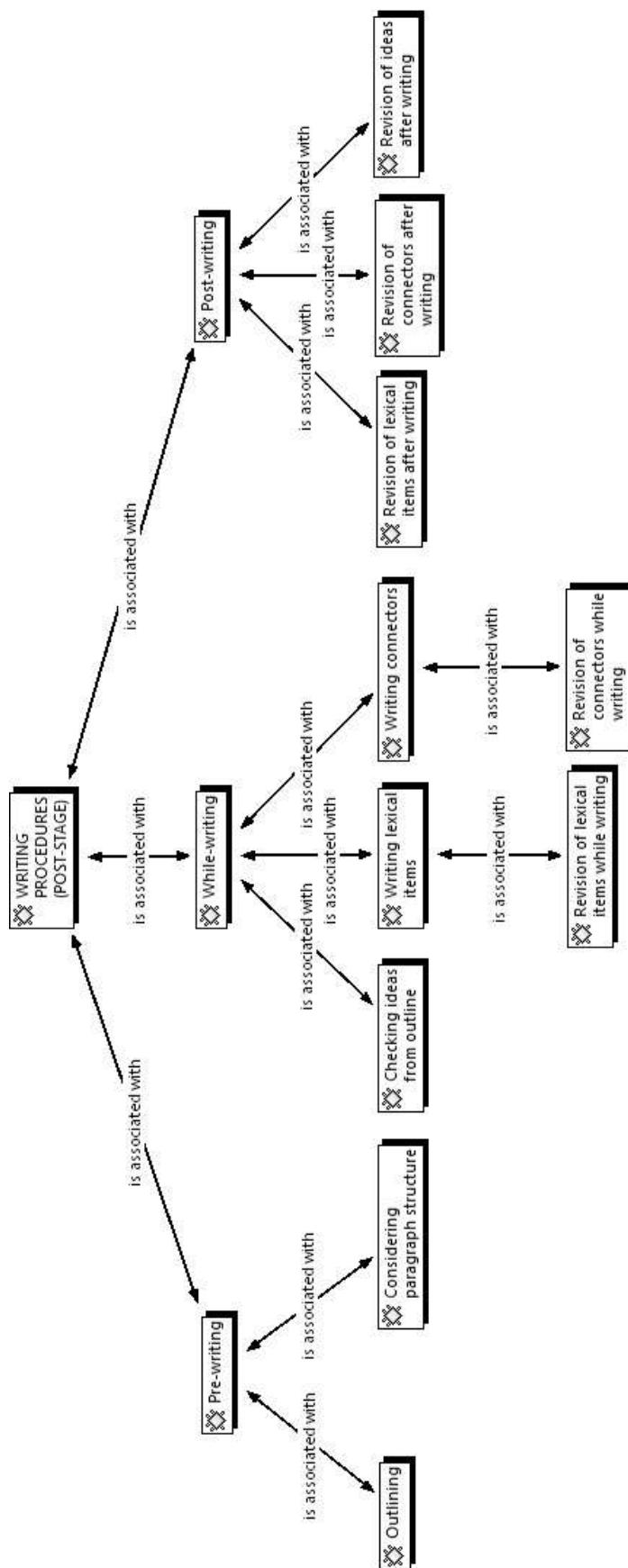


Figure 3. Conceptual network on writing procedures employed by EFL students after the intervention

Figure 3 above), the participants of this study explicitly stated that they developed certain *pre-writing* activities, such as *outlining*. This consisted of making a list of the main points to be covered in their production, which helped the learners to organize their ideas. One of the interviewees stated, "Before I start, I write an outline to make the text's ideas easier to understand" (Participant 01 [03:03]). Another student explained why this procedure was helpful for him: "Writing an outline beforehand helps me to be organized when it comes to writing a text" (Participant 03 [04:04]).

As *pre-writing* activities, some of the participants also pointed out that they *considered paragraph structure*, indicating that they had to activate prior knowledge concerning the main components of a basic paragraph (topic sentences and supporting details) and how it is written. One of the students acknowledged, "First, you have to write a sentence that includes the general idea of the text. This helps to give context. Then, I write three sentences including details" (Participant 04 [07:07]). Another interviewee reported a similar perspective: "I think about all the information I will put in the text. First, you need a title, then the first general sentence, and afterward three sentences with details" (Participant 05 [07:07]).

In examining the answers reported by the participants of the study in the post-interview, it was found that most of them expressed that they engaged in *while-writing* activities. One of these tasks involved *checking ideas from the outline* done prior to writing, meaning that the learners based their production on the general points included in the initial list they made. Regarding this, one of the students stated, "While writing, I read over all the ideas I included in the outline I made. This helps me to write a better organized paragraph" (Participant 11 [07:07]). Another interviewee presented a similar point of view: "I check the outline I made before so I know what I'm going to write about" (Participant 19 [07:07]).

An additional procedure implemented by the students while they were producing a text in English

was *writing lexical items*. For this dimension the learners expressed that they specifically focused their attention on writing words during text production. They also indicated that they were very concerned about language accuracy when producing, especially in terms of vocabulary spelling. An example of this was reported by one of the participants: "I include vocabulary words when I write my paragraph. I'm very careful to spell them correctly" (Participant 07 [11:11]). Another interviewee made reference to a resource used to implement this task: "I write words in the text during the task. If I don't know one of them, I use the dictionary" (Participant 06 [07:07]).

Due to the learners' concern about spelling words correctly, they expressed that the *revision of lexical items while writing* was needed. They stated that, during their writing tasks in English, they confirmed they were not making mistakes in terms of vocabulary spelling in the L2. An example of this was shared by one interviewee: "I revise everything I write by looking in the dictionary" (Participant 05 [15:15]). Likewise, another learner asserted: "We write and, at the same time, we revise by checking that every word is spelled right" (Participant 18 [07:07]).

Concerning *while-writing* activities, the participants also considered *writing connectors*. For this dimension they pointed out that they focused their attention on the use of linking words –useful for joining ideas from one sentence to the next–during the production of their texts. One of the EFL learners stated, "While I write, I connect the ideas in the paragraph by using connectors" (Participant 09 [07:07]). Likewise, another student explained the reason why connectors should be used during writing: "When you write a text, you have to organize what you write. You can do that by thinking about linking devices" (Participant 08 [07:07]).

In the context of *writing connectors* while producing a text, the participants also mentioned the necessity to *revise* the inclusion of these elements while they were writing. According to the research

subjects, this is done in order to verify the correct usage and spelling of such linking words. One example of the students' answers was the following: "I revise while I write a text to see if I used the connectors correctly. This helps me to tell if my writing is well organized" (Participant 07 [15:15]). Another learner reported how he revised these elements: "While I write, I'm worried about revising the connectors. Sometimes I check to see if I spelled them correctly by using a dictionary. Other times I tend to verify whether they make sense within the text" (Participant 13 [07:07]).

In their oral responses in the final interview, the students also exhibited the use of *post-writing* procedures. One of them was related to the *revision of lexical items after writing*: the EFL learners indicated that, after having written their texts, they made sure there were no mistakes in terms of how they spelled the words. This is illustrated in the following interview excerpt: "When I finish writing a text in English, I check the dictionary to confirm all the words are spelled correctly" (Participant 02 [15:15]). Another participant held a similar point of view: "I have to make sure all the words are spelled right after I finish the text. The reader or the teacher might not understand what we wrote" (Participant 08 [12:12]).

The students who took part in this study also identified the *revision of connectors* as a *post-writing* activity. According to them, this was implemented to avoid making mistakes concerning the spelling of the linking words in English, as stated by one of the interviewees: "Before I hand in my paragraph to the teacher, it's really important for me to make sure the connectors were spelled right and that they make the ideas in the text logical" (Participant 08 [11:11]). With a similar perspective, another participant reported: "In order to make the text cohesive, I check how I included the connectors in the text, and the punctuation" (Participant 13 [15:15]).

A final *post-writing* activity identified by the learners in the post-stage interview was the *revision of ideas*. The interviewees stated that, once they had

finished their production, they verified that the ideas included in their paragraphs were coherent and could be understood by other readers. An example of this can be found in the following excerpt: "After I wrote my text, I checked the ideas in it, and whether they were coherent from one to the other" (Participant 09 [11:11]). Another participant held a similar perspective: "When I finish writing, I usually read my paragraph before handing it in. I do this to make sure all the ideas I wrote make sense to the readers" (Participant 12 [18:18]).

Coherence and cohesion results in students' writing production.

Table 1 displays the mean (M) and standard deviation (SD) for each independent variable related to coherence and cohesion as taken from the writing pre-tests for both control and experimental groups.

Table 1. Coherence and cohesion pre-test results in EFL students' writing production

Subcategory	Group	M	SD
Logical organization of ideas	Control	2.90	0.316
	Experimental	2.84	0.375
Paragraph structure	Control	1.80	0.422
	Experimental	1.89	0.809
Relationship between sentences and their parts	Control	1.70	0.675
	Experimental	1.89	0.567
Punctuation marks	Control	1.20	0.422
	Experimental	1.47	0.612
Linking devices	Control	1.00	0.000
	Experimental	1.00	0.000

In Table 1, both the control and experimental groups scored similarly on the writing pre-test focused on coherence and cohesion. Although both groups seemed to manage the *logical organization of ideas* in their production, they were weak in other areas, especially *linking devices*. This was

evidenced by the fact that the mean score was a 1.00 with no standard deviation.

The EFL students' writing performance was analyzed in a post-test after nine weeks to identify the effects of the metacognitive intervention on the way the learners in the experimental group used coherence and cohesion in a text. For this purpose, independent t-tests were considered.

Table 2 shows the mean (M), standard deviation (SD), and *p*-value (Sig.) for each independent variable related to coherence and cohesion in the writing post-tests for both control and experimental groups.

Table 2. Coherence and cohesion post-test results in EFL students' writing production

Subcategory	Group	M	SD	Sig.
Logical organization of ideas	Control	2.80	0.632	0.172
	Experimental	3.00	0.000	
Relationship between sentences and their parts	Control	2.00	0.471	0.793
	Experimental	2.05	0.524	
Paragraph structure	Control	1.60	0.516	0.082
	Experimental	2.16	0.898	
Linking devices	Control	1.00	0.000	.001
	Experimental	2.16	0.958	
Punctuation marks	Control	1.00	0.000	.000
	Experimental	1.89	0.658	

The post-test on coherence and cohesion in the EFL students' writing production showed improvement in the results of the experimental group. The participants who received metacognitive training in writing achieved the maximum score in the area of *logical organization of ideas* ($M = 3.00$). Additionally, they improved their use of *linking devices* ($M = 2.16$) and *punctuation marks* ($M = 1.89$).

Furthermore, after the intervention, the experimental group presented a modest improvement in some

other coherence and cohesion areas. The dimensions in which the students who received metacognitive training in L2 writing scored slightly higher were *relationship between sentences and their parts* ($M = 2.05$) and *paragraph structure* ($M = 2.16$).

Table 2 illustrates that there were some statistically significant differences between the control and experimental groups. These were shown in areas associated with *linking devices* (*p*-value .001) and *punctuation marks* (*p*-value .000). However, there was no evidence indicating that the metacognitive training was effective for other dimensions related to cohesion.

A second level of analysis was employed to compare each group with themselves in the pre- and post-stages. For this purpose, an rANOVA approach was used, and it indicated that there were only statistically significant differences for those dimensions related to *linking devices* and *punctuation marks*.

Concerning *linking devices*, the results showed that there were statistically significant differences ($F(1.27) = 14.351$, *p*-value = .001) for the experimental group in the post-test (M pre = 1.00; M post = 2.16). Similarly, the experimental group also presented statistically significant differences ($F(1.27) = 6.669$, *p*-value = .016) in the *punctuation marks* subcategory after the intervention (M pre = 1.47; M post = 1.89).

Discussion of results

Prior to the intervention, it was possible to determine that the EFL students who participated in this research project were more familiar with cognitive procedures than metacognitive ones. The only "learning about learning" strategies the students implemented were *thinking about lexical items* before writing a text and *using a dictionary for revision* after producing. These were mainly focused on vocabulary knowledge.

The learners' limited awareness of metacognitive L2 writing strategies might have been caused by

their lack of previous training in them. Therefore, the novice writers needed more directive scaffolding concerning these procedures. This type of support is related to the sociocultural theory of learning (Vygotsky, 1978), which posits that the teacher is a more experienced/capable person who can guide another in their effort to achieve their potential development. From this view, the role taken on by teachers or more capable peers as mediators is essential when learning to write in a foreign language.

After the pedagogical intervention, the students who participated in the study claimed to include more metacognitive rather than cognitive procedures when writing a text in English. These specifically involved planning in that participants recognized the need to write an outline and think about paragraph structure before producing. In the next stage, learners acknowledged monitoring their productive performance by revising the words and connectors they included in their paragraph. Afterward, they reported evaluating their finished writing production in terms of vocabulary, connectors, and ideas. Having said this, it is possible to infer that there was a certain degree of stability as the students' cognitive and metacognitive writing procedures were still focused on the accuracy of lexical items in the intervention post-stage. The students may have been influenced by their past schooling experiences, which have a history of perceiving ELL as the transmission of information, memorization of lexical items, and habit formation (Blázquez & Tagle, 2010; Tagle, Díaz, Alarcón, Quintana, and Ramos, 2014). For this reason, the subjects' epistemological beliefs might still have been related to learning English as a way to retain and transmit conceptual data rather than using it for communicative purposes in everyday life.

On the other hand, while according to the participants in this research project, the last stage of their writing process did involve revising their own production, in analyzing their oral discourse, they did not report developing writing processes related to

editing and modifying their production. Thus, these students might not have achieved higher levels of critical thinking involving reflection and creation (Marzano, 2001; Krathwohl, 2002). It has been indicated that metacognition requires large blocks of time (Schraw & Moshman, 1995). For this reason, some authors point out that thinking about thinking is a difficult process and it needs to be developed gradually in the language classroom (Ormeño, 2009; Díaz, 2013). From this view, if students are asked to implement problem-solving strategies in a limited period of time, they may not see immediate learning results. This fact may also overwhelm them and make them lose their focus when trying to construct new knowledge autonomously.

The post-test results for the production of participants who took part in the metacognition-based writing intervention focused on coherence and cohesion indicated that they significantly improved the way they included *linking devices* and *punctuation* in their texts. These research subjects also achieved the maximum score in the *logical organization of ideas* subcategory.

Conversely, the writing post-test also revealed that the students saw only a slight improvement in the areas of *relationship between sentences and their parts*, *paragraph structure*, and *punctuation marks*. One possible explanation might be that, even though the metacognitive writing intervention was focused on coherence and cohesion, the students indicated they were still worried about vocabulary accuracy at the action research post-stage.

Another factor which might have affected the students' improvement in some cohesion areas may be their level of proficiency in Spanish. According to some authors, second language learners depend on their mother tongue in order to write a text in the L2 (Hussein & Mohammad, 2011; Nooshin, Behjat, & Rostampour, 2014). Therefore, they first need to overcome limitations and learn necessary aspects related to their L1.

The students' linguistic problems regarding cohesion might also be related to their possible perceptions of the metacognition-based writing intervention. It can be inferred that the participants in this research project might have felt comfortable when carrying out cognitive activities which did not involve much effort, such as checking a dictionary. They likewise might have disliked those activities which involved higher critical thinking processes, such as creating their own ideas, using connectors when writing, or revising their written production. In this sense, Lo & Hyland (2007) state that EFL students should take part in activities which increase their engagement and motivation. Their opinion is that EFL and ESL writing programs should consider tasks focused on topics and activities that coincide with the students' interests and their particular stage within cognitive and human development.

Another factor which might have affected the students' performance in cohesion is their possible perceptions of their own writing performance. It can be inferred that writing was a challenging task for the subjects because of their lack of proficiency in the English language, and that their self-perception within this context is related to beliefs about self-efficacy. Hence, it follows that if students perceive themselves as weak learners in different areas, contents, or skills, they will likely have poor achievement levels in them (Bandura, 1995; Pajares, 2006). This view can also be related to the interdependence between learners' metacognitive awareness and their perception of a task (Negretti, 2012). This author has therefore concluded that what learners think of a writing activity can influence the way they perform on it, which may be why the experimental participants did not get involved in those tasks that require higher critical thinking skills, such as punctuation, in order to continue carrying out those which require lower level cognitive efforts.

As EFL students might have experienced difficulties on a personal level when taking part in the L2 writing activities, their positive progress

throughout the pedagogical intervention should have been reinforced. According to some specialists, learners might improve their language weaknesses if positive reinforcement is used on emotional and/or affective aspects in the classroom (De Andrés, 1999; Pinel & Csizer, 2015; Briesmaster & Briesmaster-Paredes, 2015). From this point of view, helping EFL students to feel comfortable with their progress might be a point of departure with which to begin teaching them a higher level of critical thinking.

Conclusions

The participants in this study improved the metacognitive procedures they employed when writing in English. However, the actions they implemented before, during, and after producing remained focused almost exclusively on the accuracy of lexical items. This indicates that, despite the intervention, the learners perceived ELL as a mechanical process involving the transmission of linguistic content rather than the application of L2 skills.

Because metacognition might be one of the keys to helping students bridge the gap between mechanical views of the ELL process and functional L2 communication skills, the EFL classroom should increase opportunities for writing and reflection activities when producing in the L2. Students, under proper supervision, might then eventually be able to develop higher critical thinking skills and act as self-regulating learners.

In light of the writing post-test showing only a modest increase in certain areas, it can be inferred that, regarding the effects of metacognitive training on coherence and cohesion in student production, the factors which might have influenced these results are the learners' L1 proficiency, personal issues that surface when producing, and self-efficacy beliefs as they pertain to writing. This leads to the position that learning activities devoted to producing and creating through language should be maximized in both L1 and L2 classrooms.

Time constraints were a limitation on this research. As planning, monitoring, and evaluating are complex processes, nine weeks of intervention might have been insufficient to provide adequate treatment for each stage. For this reason, it is recommended that teacher researchers conduct longer research projects over the period of a semester or full academic year. Metacognitive programs should be introduced gradually into the language classroom by considering the simplest “thinking about thinking” activities first. Then, once the learners have gained confidence in applying higher critical thinking skills, the more challenging metacognitive tasks can be introduced in a progressive manner.

Ultimately, this study sheds light on how metacognition-based activities can assist EFL students in the process of becoming better writers when such interventions are carefully aligned with a realistic appreciation of their critical thinking abilities.

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Appendix A. Rubric to assess coherence and cohesion in A2 level writing task

		Poor (1 point)	Good (2 points)	Excellent (3 points)
Aim: Coherence	Logical organization of ideas	The paragraph's ideas do not follow one another logically.	Only two ideas in the paragraph follow one another logically.	The paragraph includes three ideas. These follow one another logically.
Aim: Cohesion	Linking devices	The paragraph does not include linking devices or all of them are used incorrectly.	The paragraph includes one or two linking devices, which are used to connect sentences. However, just half of them are used appropriately.	There are a variety of linking devices (more than three) used to connect the paragraph's sentences. All of them are used appropriately.
Aim: Cohesion	Relationship between sentences and their parts	The sentences within the paragraph are not organized correctly.	Only half of the sentences in the paragraph are clearly/correctly organized in terms of sentence components (subject + verb + complement).	All of the sentences in the paragraph are clearly/correctly organized in terms of sentence components (subject + verb + complement).

		Poor (1 point)	Good (2 points)	Excellent (3 points)
Aim: Cohesion	Paragraph structure	The ideas are not organized into a paragraph.	The structure of the paragraph includes one topic sentence and only two supporting details.	The structure of the paragraph includes a topic sentence and three supporting details.
Aim: Coherence/ Cohesion	Punctuation marks	None of the simple sentences in the paragraph include punctuation marks correctly.	Most of the simple sentences in the paragraph include correctly used punctuation marks.	All the simple sentences in the paragraph include correctly used punctuation marks.

Appendix B. Protocol for focus-group discussion

- What do you usually do before writing a text in English?
- How would you plan writing a text in English?
- What do you usually do while writing a text in English?
- How would you monitor the way you write in English?
- What do you usually do after writing a text in English?
- Would you evaluate your plans concerning writing a text in English? How? / What decisions would you make after this? / Why would not you evaluate your performance?

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Appendix C. Protocol for a semi-structured interview

- What do you usually do before writing a text in English?
- What is your planning process like when writing a text in English?
- What do you usually do while writing a text in English?
- How do you monitor the way you write in English?
- What do you usually do after writing a text in English?
- Do you evaluate your plans concerning writing a text in English? How? / What decisions would you make after this? / Why don't you evaluate your performance?

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