Changes in Writing Self-Efficacy and Writing Products and Processes Through Specific Training in The Self-Efficacy Beliefs of Students with Learning Disabilities

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This study aimed at verifying whether a specific program on writing self-efficacy, designed to train the four sources of self-efficacy suggested by Bandura (1997), could improve not only productivity and quality of writing composition in students with LD and their processes of writing, but also their writing self-efficacy beliefs and other motivational constructs. Sixty fifth- and sixth-grade students with LD were assessed on a series of measures prior to and following the specific training on writing self-efficacy, which was applied to 40 of the students with the remaining 20 making up a control group. Results showed that self-efficacy-trained students got better scores on most of the variables than their peers in the standard curriculum group after the instruction. This emphasizes the importance of modifying the writing self-efficacy of students with LD and shows how it can improve their written texts, not only in terms of quality and productivity but also in terms of the time they spend thinking, writing, and checking as processes of writing.

Key Words: Writing Self-Efficacy, Students with Learning Disabilities, Instructional Program on Writing, Sources of Self-Efficacy.

Bandura (1997) defined self-efficacy as beliefs in one's ability to organize and execute the courses of action required to produce given attainments. Thus, self-efficacy perceptions influence choice of activity, task perseverance, level of effort expended and, probably, the degree of success achieved (Klassen, 2002). If motivation depends on task value, personal expectations and beliefs (particularly, self-esteem and self-concept), and types of attributions (García & de Caso, 2002a; Mussen, Conger, Kagan, & Huston, 1990), the relationship between self-efficacy and motivation is established.

Several studies have investigated the relationship between self-efficacy and other motivational constructs such as self-concept (Skaalvik & Skaalvik, 2004); self-esteem (Lane, Lane, & Kyprianou, 2004); anxiety and task goals (Pajares & Valiante, 1997; Pajares, Miller, & Johnson, 1999); task value (Bandura, 1986); goal orientation (Pajares & Cheong, 2003; Sideridis, 2006); or self-regulation (Zimmerman & Risemberg, 1997). All of them found a strong relationship between the constructs. Moreover, Pajares (2003) asserts that students' self-efficacy beliefs are the principal component of academic motivation as they influence the remaining factors.

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Self-efficacy appears to depend on four sources (Bandura, 1997). The first is enactive *mastery experiences*, which are understood as experience gained from performing similar tasks; thus, the success achieved builds a robust belief in one's personal efficacy whereas failure undermines it. The second source of self-efficacy is *vicarious experience*, in that modeling serves as another effective tool for promoting a sense of personal efficacy as people appraise their capabilities in relation to the achievements of others. The third source, *verbal persuasion,* refers to the faith others have in a person's capabilities and their expression of it. Finally, the last source of self-efficacy is found in a *positive physiological and affective state*, which means that people are more inclined to expect success when they are not tense and ill at ease.

Luszczynska, Gutierrez-Doña, and Schwarzer (2005) differentiated *general* self-efficacy (i.e., belief in one's competence to tackle novel tasks and cope with adversity in a broad range of stressful or challenging situations) from *specific* self-efficacy (defined as being constrained to a particular task). They proved how general self-efficacy is related to self-esteem and academic performance as well as other constructs, and how this relationship remains stable across cultures and samples, which in turn makes self-efficacy a universal construct.

A number of authors have aimed to associate self-efficacy and academic performance in different domains. For example, Acoach and Webb (2004) found a relationship between language brokering, acculturation, biculturalism, average grades at the junior high school level and academic self-efficacy. Graham (2003) found a correlation between a student's achievement in French as a foreign language and his self-efficacy. Also, Botsas and Padeliadu (2003) demonstrated that students with reading difficulties appeared to be more performance avoidant and less mastery oriented than their peers without reading difficulties; this goal orientation is widely related to self-efficacy as a motivational construct (Pajares & Cheong, 2003). It is in the field of mathematics that a greater number of recent studies may be found, such as the studies carried out by Pietsch, Walker, and Chapman (2003), which show how self-efficacy beliefs are identified as being the most highly related to performance in mathematics and percentages, Further support may be found in the investigations carried out by Skaalvik and Skaalvik (2004), who demonstrated that the final grades in mathematics in the first year of high school were predictors of self-efficacy beliefs in this subject. This type of investigation has not been carried out related to composition, where it has been demonstrated that writing self-efficacy beliefs play an important role in predicting writing achievement (e,g., Klassen 2002; Pajares, 2003), specifically with regard to writing quality in early adolescence (White & Bruning, 2005).

With regard to writing, Pajares and Valiante (1997) stated that students' writing self-efficacy has a direct influence on their apprehension towards writing, perceived usefulness, and essay-writing performance. Early studies were conducted with college undergraduates (e.g., Meier, McCarthy, & Schmeck, 1984; Shell, Murphy, & Bruning, 1989). However, researchers soon became interested in elementary and high school students, including Graham and Harris (1989), Graham, Schwartz, and MacArthur (1993), Hampton (1998), Pajares and Valiante (1997), and Wong, Butler, Ficzere, and Kuperis (1996), as it seemed more important to intervene as early as possible with a specific program in order to modify this perceived self-efficacy with a view to improving writing composition.

Pajares and Cheong (2003) showed that students with higher self-efficacy beliefs in writing had higher task goals across the elementary, middle and high school years; this type of achievement goal is positively related to motivation indexes. In a sample of 1,266 students ranging in age from 9 to 17, the authors demonstrated how task goals decreased from elementary to middle school and then increased in high school.

Collins and Bissell (2004) found a correlation between self-efficacy and grammar ability in two surveys of students in an introductory writing course. The surveys included five sentences containing grammatical mistakes. Students were required to make the necessary corrections, and were also asked to indicate how confident they were about the corrections they had made. Other studies have demonstrated a relationship between self-efficacy and writing (e.g., Bruning, Shell, & Murphy, 1987; Spaulding, 1995; Zimmerman & Kitsantas, 1999); however, others have not found such a correlation, probably because their studies considered self-efficacy as a secondary aspect and they used insufficient self-efficacy measures. For example, Graham, Harris, and Mason (2005) only used a 5-item Likert scale.

While most children are relatively confident about their speech, some do not feel the same about writing. This may be more true in the case of children with learning disabilities (LD), who, due to their history of failure, seem to have more doubts about their ability to perform at any school task (González-Pienda et al., 2000; Tabassam & Grainger, 2002), including writing (Graham, Harris, & Larsen, 2001). Thus, in a sample of 132 students with LD compared to 705 typical 5th and 6th graders, Sideridis (2003) demonstrated that students with LD displayed a learned helplessness pattern due to their exposure to repeated failure.

There is no general consensus among researchers regarding the differences in self-efficacy beliefs between LD and normally achieving (NA) students. Similarly, various researchers have found no differences either at the university level (Blake & Rust, 2002), elementary levels (Graham & Harris, 1989), or in middle school students (Graham, Schwartz, & McArthur, 1993). On the other hand, some scholars have noted that LD students show lower social and academic self-efficacy (Gresham, Evans, & Elliot, 1988; Slemon & Shafrir, 1997) and lower scores in each of the four measures of self-efficacy (Hampton, 1998) than their NA peers. In contrast, Graham et al. (2005) reported that students with LD overestimated their capabilities.

The difficulty that students with LD have when writing in comparison with NA students is well demonstrated; for example, LD students minimize the use of self-regulatory processes such as planning, struggle with the mechanics of writing, and often have trouble finding sufficient content. Further, their revising processes are ineffective and they overemphasize the importance of production skills in their writing (Graham & Harris, 1999). Is it not possible, then, that students with LD have less writing self-efficacy beliefs as they are less efficient in writing, which results in greater failure in their writing tasks? This proposition supports the theories advanced by Margolis and McCabe (2004) and Tabassam and Grainger (2002), who found that LD students have significantly lower academic self-efficacy beliefs than their typically achieving peers.

Based on the relationship between mathematics and self-efficacy, some researchers have developed specific training programs showing that it is possible to

improve mathematical performance by enhancing self-efficacy. For example, Linares and colleagues (2005) confirmed that after training in a prevention program to promote cognitive-social-emotional skills, including student self-efficacy, participants showed gains in self-efficacy, and problem solving, and also obtained higher grades in math. Furthermore, Kerr and Robinson (2004) developed a program for talented at-risk girls focused on enhancing career identity and exploration, as well as building science self-efficacy and self-esteem. The authors concluded that self-esteem, academic self-efficacy, and future self-efficacy increased between pretest and the 3- to 4-month follow-up. It would be interesting to confirm the relationship between writing and self-efficacy through programs such as those devised for math in order to determine how an increase in students' self-efficacy beliefs about their writing could improve their compositions, especially texts written by students with LD, given that they are the ones who require the greatest assistance.

Few researchers have developed programs that address writing instruction and that are different from those focused on the cognitive processes of writing. One such program is the Self-Regulated Strategy Development (SRSD) developed by Graham and Harris (1999), who achieved improvements in the composition writing of a student with LD, Alvin. They used a program that involved teaching strategies to successfully complete this academic task and teaching knowledge of and the necessary self-regulatory processes to carry out the target strategies and to better understand the task. Also, Graham and colleagues (2005), again using this SRSD strategy, improved the writing productivity and quality of two groups of struggling students. Further examples may be found in the work of Buttler, Elaschuck, and Poole (2000), who reported three cases in which they achieved improvements in the metacognitive knowledge and self-regulatory processes of writing as a result of implementing their Strategic Content Learning program, based on teaching and practicing writing strategies to accomplish specific goals in writing.

Other researchers have developed specific writing programs concerning cognitive style (García & de Caso, 2002b) and motivation towards writing (García & de Caso, 2004) with different results, showing that it is relatively easy to modify the writing productivity and quality of students with LD but it is difficult to enhance the other emotional and affective processes of writing such as the reflexive style or motivation, even when there is evidence of its influence on writing (e.g., Alamargot & Chanquoy, 2001; Hayes, 1996). Due to the difficulty of modifying this motivational aspect of writing in a general way, it may be necessary to address it in a specific way, generating concrete writing programs to improve each motivational factor, starting with self-efficacy, which seems to be the factor of greatest influence on motivation (Pajares, 2003).

While the majority of the writing programs carried out have demonstrated the need to make the teaching of writing in the classrooms explicit in order to improve writing products, none of them has taken into account the importance of the writing processes. Only Torrance, Fidalgo, and García (in press) have demonstrated the importance of improving writing processes as well as the product of writing. To this end, they developed a writing program focusing on the metacognitive aspects of writing. By taking measures of the writing processes through a writing log record, they were able to demonstrate how a specific writing program increased the time students spent planning and revising their texts and ensured that students did not focus only on the editing

phase. Also, Braaksma, Rijlaarsdam, van den Bergh, and van Hout-Wolters (2004) asked eighth-grade writers to think aloud while producing texts, therefore taking measures of the online processes of the effects of writing training.

The aim of the research reported here was to determine whether a specific program on writing self-efficacy, training the four sources of self-efficacy according to Bandura (1997), could improve not only productivity and quality in a group of LD students and their processes of writing but also their writing self-efficacy beliefs stated to be necessary by Margolis and McCabe (2004). The idea that self-efficacy is a necessary characteristic suggests that struggling learners have low self-efficacy in academic tasks. We based our program on Bandura's theory, given that Usher and Pajares (in press) demonstrated that these four sources predict academic and self-regulatory self-efficacy, with enactive mastery being the strongest predictor in middle school students.

METHOD

Participants

The initial sample consisted of 71 fifth- and sixth-grade Spanish primary students with LD and/or low achievement (LA). Students ranged from 10 to 13 years old and attended five primary schools in relatively low socio-economic urban settings in León. The initial group was reduced to 60 because three children returned to their home countries during the instructional program, two boys moved from the school, and another six children did not attend the instructional sessions regularly and therefore did not complete the training program.

The teachers and the school principals informed us that all students enrolled in 5th and 6th grade had some degree of LA and/or LD, a fact that was verified by psychoeducational teams who assessed all the children using several methods: IQ and aptitude tests, parent and teacher reports, observations, interviews with the students, and student grades. These data cannot be presented in this study as the psychoeducational team kept the data confidential; however, they confirmed that students had LD.

Participants were randomly assigned to either experimental or control conditions as follows. Forty (four complete classes) formed the experimental group, who were trained using a 10-session writing program in which the four sources of self-efficacy were gradually incorporated. The remaining 20 students (two complete classes) constituted the control group, who only received their standard instruction. Sample details are summarized in Table 1.

Table 1

Sample Characteristics

	5th Grade		6th Grade		Total Gender/Group		Total Group
Gender	Male	Female	Male	Female	Male	Female	
Experimental	9	5	11	15	20	20	40
Control	6	5	6	3	12	8	20
Total gender	15	10	17	18	32	28	
Total level	25		35				

General Training Procedures

After the program was designed, we selected the schools from the outskirts of town and interviewed their principals to be allowed to carry out the program in the 5th- and 6th-grade classrooms. We selected five specific schools because the students were more likely to be children with LD or LA, as they were either gypsies, immigrants, or children in foster care, and also to allow all the students to benefit as the program would be carried out with the whole class. All classes comprised students with a similar profile or characteristics, as all of them were either LD or LA. The Spanish educational system does not recognize the IQ-achievement discrepancy, so both types of students (LD and LA) are considered alike. This decision was justified by researchers who have not found significant differences in the cognitive profiles based on IQ (low achievement with or without discrepancy) (Fletcher et al., 1994; Stanovich & Siegel, 1994). Indeed, some researchers have suggested that the aptitude-achievement discrepancy criterion in the LD conceptualization be eliminated (Aaron, 1997; Algozzine, Ysseldyke, & McGue, 1995; Stanovick & Stanovick, 1996).

Once the sample was established, all the participants were assessed by the second author to establish a baseline and verify that the participants in both groups (experimental and control) had the same writing level. This evaluation took place in the students' regular classrooms during two hours of Spanish language class on two different days for each group.

The next step was to train the participants in the experimental group. The program was administered in the context of the students´ regular Spanish language classes, starting in March of 2005, at a rate of two sessions per week. It was delivered by a researcher (the second author of this study) in the students' classroom during the school day. The program was delivered to the whole class, and the experimental groups comprised 10, 14, 6, and 10 students, respectively.

Once the training program was carried out, we assessed all the participants involved using the writing and self-efficacy measures that were employed at the beginning of the study. This assessment was carried out one week after the completion of the training and again after one and a half months in order to ascertain any generalization of the skills trained throughout the program.

Specific Training Program

The program was designed following the suggestions of McCabe (2003) and Bandura (1997). Purporting to enhance self-efficacy, it consisted of 10 training sessions, each lasting approximately 50 minutes. Table 2 summarizes the content of the training program.

The training program began by making explicit the processes involved in writing and training these (during the first two sessions) for the following reason: If the students did not know how to write, it would be impossible for them to perceive self-efficacy as they lacked the basic skills to be successful (Jackson, 2002). That is, you cannot believe that you are able to perform a task if you do not possess the knowledge and strategies necessary to accomplish it. The writing model used was derived from Sorenson (1997). It specifies every step the writer must follow to produce an acceptable composition. This way, the students were taught different general writing strategies such as brainstorming to generate ideas, making lists to review their texts, using graphic organizers to organize tests and to form paragraphs, and so on.

Table 2
Training Program to Foster Self-Efficacy

Session	Focus of the Session	Self-Efficacy Source Trained	Strategies
1st	To teach writing steps and skills		– Brainstorming – List making – Audience analysis
2nd	To train writing skills		
3rd	To introduce to a positive psychological and affective state	*Psychological and affective state*	– Create a pleasant work atmosphere – Schedule practice sessions optimally
4th	To consolidate a positive psychological and affective state		
5th	To introduce verbal persuasion	*Verbal persuasion*	– Attribute success to personal effort – Use progress charts and graphs
6th	To consolidate verbal persuasion		
7th	To introduce enactive mastery	*Enactive mastery*	– Use easy material – Use short and manageable sections
8th	To consolidate enactive mastery		
9th	To introduce vicarious experience	*Vicarious experience*	– Use significative models to accomplish the task – Work with peers
10th	To consolidate vicarious experience		

After ensuring that all the students in the experimental condition were familiar with the writing processes, we started to enhance their writing self-efficacy by introducing one of the four sources of self-efficacy (Bandura, 1997). Thus, we started to establish a positive psychological and affective state, not only between students and teachers but also among the students. Toward that end, we used smiles as a social reinforcement when talking to a student for any positive reason such as a question or good work, and we listened actively to students (e.g., using gestures such as nodding one's head or using their comments during a subsequent explanation). Furthermore, sessions were planned so as to take place at a time of day when students were not tired or stressed (sessions were carried out after a non-stressful class or in the first hour of the morning and before recess or some other enjoyable subjects such as music or gym). Some of the other strategies employed to create a positive atmosphere include permitting the students to sit wherever they wanted, participating whenever they wanted, and making colorful posters. One of the posters illustrated the steps everyone should follow when writing (see Figure 1). It was completed collaboratively during the third session in order to establish a good atmosphere between students and to revise the steps demonstrated in the first two sessions. The other poster made collectively was an album of pictures that the students liked (see Figure 2). From the fourth session

Figure 1. Poster of the writing process.
1= Gather information; 2=Determine the purpose; 3=Analyze audience; 4=Establish theme and thesis; 5=Organize material; 6=Get situated; 7=Follow plan; 8=Use yo-yo approach; 9=Let thought flow; 10=Check structure, emphasis, and consistency; 11= Check punctuation and grammar.

Figure 2. Poster of students' favorite images.
From the fourth session onwards, students brought their favorite images to paste on a poster below their names. Also, they had to write what the image was and why they liked it. This exercise aimed to create an adequate psychological and affective state through collaborating, and choosing a theme and a different and novel activity.

onwards and at the beginning of each session, children could bring pictures or photos to stick on the poster, writing a comment about the picture and why they liked it. The aim here was to continue establishing a positive personal state through the program. The second source of self-efficacy that was incorporated in the fifth and sixth sessions was verbal persuasion and feedback as it consolidates the positive psychological state. We introduced it through exercises with numerous parts requiring frequent feedback; this way, students had to complete the first part of the exercise by themselves and then each student had to read his/her answer while the instructor commented on the answers in turn. Then the students had to continue with the next part of the exercise, which was corrected by the

instructor as for the first exercise. The instructor indicated not only the errors made and how to correct them but also highlighted when a student had done well, attributing the student's success to his/her effort. Also, students were encouraged to complete exercises by commenting on the usefulness of the exercises in their lives through examples and real-life stories.

While continuing to carry out strategies to establish a good psychological and affective state, and to give verbal persuasion and feedback, the next source of self-efficacy introduced in the seventh and eighth sessions was enactive mastery, designed to make students aware that they could accomplish the writing tasks. This component was addressed through easy writing tasks that the students could accomplish and personal progress graphs that illustrated their improvement in writing. At the beginning of the training program students were asked to write an essay that they self-corrected with the instructor's help in session seven (the students had to mark on a graph the number of words written, the number of paragraphs, the number of verbs used, the number of commas and periods, and so on, while the instructor marked the coherence and structure of the essay in another personalized graph, graded from 0 to 10. In the eighth session students were encouraged to write another essay, which they could correct again and record on the same graph to see any improvement. Also, they were trained in self-instruction, whereby they had to say aloud what they were doing in order to promote awareness of what they were accomplishing. Finally, we introduced the concept of vicarious experience using modeling between the students in the last two sessions. Thus, the better student marks, according the teacher model of the writing task, his partner's work, who then does the same, while the initial student gives feedback to his peer.

It is important to note that students were given a choice through inquiry-oriented instruction; the students could write about any topic that interested them in an open and exploratory way. The opportunity to choose the theme is vital to enhance self-efficacy according to Walker (2003).

In Table 3 a description of a typical training session illustrates how the instructor worked with the students.

Control Group Condition

The students in the control group were not specifically trained but followed the ordinary curriculum in the general classroom setting. In Spain, a normative curriculum is used that generally sets the objectives, contents, and methodological norms for all subjects. On the whole, writing instruction in Spain may be described as adhering to a general pattern: instead of receiving any process-oriented or cognitive-strategy instruction, students receive specific instruction about the mechanical writing process such us spelling, grammar or handwriting. They also receive specific instruction about substantial characteristics of writing as structural features of different textual genres. After instruction, students practice writing different texts that are corrected by the teacher, who highlights the grades and the errors made.

Measures

Both the participants in the experimental group and the students in the control group had to complete writing tests of performance and self-efficacy. The tests were administered prior to training, and one week after completion of training and again after one and a half months to compile measures of writing productivity, coherence

Table 3
A Typical Session of the Instructional Program

6th session. Focus point of the session: To consolidate verbal persuasion

INSTRUCTOR	STUDENT	ACTIVITY	FOCUS POINT OF THE ACTIVITY	STRATEGY
Ask for personal images of pictures	Write about the image chosen and why it was chosen	To write an inscription for the picture and stick it on a mural (see Figure 2)	To create a positive psychological work atmosphere	To use a new, personal and entertaining task
Revise what had been done in previous sessions	Ask the instructor questions about what they have done	To listen to and answer the instructor	To activate previous knowledge and relate it to personal experiences	Interactive dialogue
Introduce the next activity and discuss its relevance and usefulness	Write three questions to ask a famous person	To elaborate a short interview with a famous person	To have student material so that the instructor can give feedback	Individual work about something amusing
Listen to the students' questions and give feedback	Ask the questions of a peer who imitates the famous person	To perform the interview with questions the students have made	To have a chance of giving positive feedback and improving questions	Group work about something original and funny
Explain what a description is and introduce the next activity as a game	Listen to the instructor and write a brief description of something, saying where it is, what it is like and what it is for	To write a description about any object in the classroom To have student material so that the instructor can give feedback	Individual work to make a game	Collect students' descriptions and distribute them to the students randomly
Collect students' descriptions and distribute them to the students randomly	Read the description aloud and guess what the object is	To play a game where students have to guess objects that their peers have described	To give feedback about descriptions written by students	Group work about an original and new game
Provide feedback about the descriptions and give points to the students who guess the correct object and to students who write a good description				
If there is time, suggest writing in their diaries about how they started to work on the third training session	Write about the experiences of the day in their diary	To write a diary	To create a positive psychological state	To relate writing to personal life

and processes as well as writing self-efficacy and other motivational factors. The measures and instruments used are summarized in Table 4.

Writing products. The quality of the completed texts was assessed in terms of informal, reader-based criteria, as well as more formal text-based methods.

We took measures of *productivity,* which is concerned with the quantity of text produced. Specifically, it was assessed through the number of paragraphs, sentences, verbs, content words, functional words, determinants, and total number of words that the student wrote in his essay.

We also measured *coherence*, which included seven linguistic indicators of referential or relational coherence (Sanders, Spooren, & Noordman, 1992). *Referential coherence* was assessed by the students' use of anaphoric reference (for example, "John is teacher. *He* works in a school") and lexical reference (for example, "John is a teacher. John works in a school") in the essays. *Relational coherence* was assessed through the use of metastructural ties, the phrases that link sentences or highlight previous or subsequent textual content; structural ties, the specific linguistic markers used to structure the information such as *at first, second, later,* etc.; connective ties, which refer to the linguistic markers that link the different parts of text such as *and, beside, as well as, also*, etc.; reformulation indicators, which are the linguistic markers that summarize, explain, or reiterate a point in a different way; and argumentational ties, which are linguistic marks that persuade or provide evidence such as *however* or *for example.* Finally, other aspects of coherence were measured such as pertinence, links, paragraph construction, and argumental thread.

Furthermore, we carried out a reader-based assessment of the essay quality using a 6-point scale from 1 = difficult to understand to 6 = excellent, with ratings based on the extent to which the text demonstrated (a) a clear sequence of ideas, with little or no irrelevant detail, (b) clear organization, (c) fresh and vigorous word choice, (d) varied and interesting detail, (e) correct sentence structure, and (f) accurate punctuation, capitalization and spelling (Spencer & Fitzgerald, 1993).

Writing processes. To assess the process of writing, the participants were given a blank writing log divided into seven writing activities, reduced from a longer list used with adult writers by Torrance, Thomas, and Robinson (1999). The seven activities were *reading references* – "I am reading the reference materials;" *thinking about content* – "I am thinking of things to say in my text;" *writing outline* – "I am writing a plan of what I am going to write in the text, using notes to detail the outline;" *writing text* – "I am editing my definitive text, or writing a neat or a draft copy of text;" *reading text* – "I am reading though all or part of my text;" *changing text* – "I am making changes to my text (orthographic mistakes, changing words, adding words, etc.);" or *unrelated* – "I am doing or thinking something unrelated to the text" (for example, talking to my partner, looking for a pen; looking through the window …).

While performing the writing task the students heard a one-second tone played at random with a mean interval of 45 seconds. On hearing the tone, the students had to respond by indicating in the writing log the activity in which they were engaged. These activities were marked by simple graphics to minimize the extent to which completing the log diverted students' attention from the writing task.

Writing self-efficacy. In order to assess the students' self-beliefs about their writing ability, they had to answer two questionnaires. The first was a Spanish transla-

Table 4
Assessed Aspects and Instruments Used

Assessed Aspect	Task/ Instrument	Parameters	Indicators
Writing products	To write an essay	• Productivity • Referential and relational coherence • Other aspects of coherence • Reader-based quality	• Number of paragraphs, sentences, verbs and words (determiners, content words, functional words and total) • Anaphoric and lexical ties; metastructural, structural, connectives, argumentational and reformulation ties • Pertinence, links, paragraphs and argumental thread • 6-point scale (from 1=difficult to understand to 6=excellent)
Writing processes	To identify the process they were using when listening a beep	• Reading information • Thinking • Writing outline • Writing • Reading the essay • Checking • Unrelated	• Reading information and data about the topic • Thinking about things to say in the essay • Making a plan or notes about the essay that I am going to write • Writing my essay • Reading through part or all of my text • Making changes to my writing (correcting spelling mistakes, changing or adding words …) • Doing or thinking something unrelated to the text
Writing self-efficacy	Questionnaire	• MSLQ (Pintrich et al., 1991) • Writing self-efficacy (García, Marbán, & de Caso, 2001)	• 7-point Likert scale from 1=never to 7=always. It measures self-efficacy and also intrinsic and extrinsic motivation, task value, learning beliefs and test anxiety • 15 statements to be answered in terms of agreement or disagreement; also the possibility of answering "I don't know"
Other motivational factors	Questionnaire	• Attitudes towards writing • MOES II • MOES I	• 10 statements to be answered in terms of agreement or disagreement; also the possibility of answering "I don't know" • 5-point Likert scale from 1=totally disagree to 5=totally agree. It measures causal attributions to success or failure in the writing task • 5-point Likert scale from 1=totally disagree to 5=totally agree. It measures writing task value, standard levels and writing self-esteem

tion of the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, García, & McKeachie, 1991). It consists of 32 items that evaluate not only self-efficacy but also intrinsic and extrinsic motivation, task value, learning beliefs, and test anxiety. When translating these 32 motivational items, we related them to students' language subject at school, specifying the importance of writing in each item.

The second self-efficacy questionnaire belongs to the EPP y FPE (Evaluación de los Procesos de Planificación y otros Factores Psicológicos de la Escritura [*Assessment of Planning Processes and other Psychological Factors in Writing*]) (García, Marbán, & de Caso, 2001), which was developed and widely validated by our research team at León University. It is composed of 15 items (statements) adapted and extended from Wong et al.'s (1996) self-efficacy measure. It aims to establish which kind of self-efficacy beliefs the student has towards writing. In the answer format, the student has to indicate whether he/she agrees or disagrees with each item (statement), while also being able to answer, *"I don't know."*

Some of the adapted items include: "It is very easy for me to start to write an essay;" "It is difficult for me to check the spelling when writing an essay;" "When the teacher asks us to write an essay, mine is one of the best;" "I like someone to tell me what I have to write and how I have to do it;" or "I like to show my essays to my teacher." The items were reverse-scored, so while positively stated self-efficacy items were assessed with 3 points if the student agreed, 2 points if the student did not know, and 1 point if the student disagreed, negatively stated self-efficacy items were assessed with 3 points if the student disagreed, 2 points if he did not know, and 1 point if he agreed.

This questionnaire was validated using a sample of 457 students ranging from 9 to 17 years old; we obtained a Cronbach alpha of 0.7181, which shows an acceptable level of internal consistency. (This alpha increases when we consider the entire EPP y FPE assessment, where we obtained a Cronbach alpha of 0.856 and a standardized alpha of 0.912 in a sample of 1,691 students ranging from 8 to 16 years old, which means that the instrument, administered as a whole, works effectively.)

Other motivational measures in writing. We also evaluated other motivational factors that may influence students' writing such as their attitudes towards writing, causal attributions that the students make of their successes and failures in writing tasks, writing self-esteem, task value, and standard levels in writing.

The attitudinal questionnaire used here also belongs to the EPP y FPE protocol; it comprises 10 statements with the same answer format as in the self-efficacy questionnaire; that is, students note whether they agree or disagree with each statement or whether they don't know. Some of the attitudinal items include "I like to write essays;" "I would rather read than write;" "I try to rewrite what I have done in class until I do it better;" "I avoid writing whenever I can;" or "I would rather write than solve math problems."

The causal attribution questionnaire, called MOES II (Motivation towards writing II [Motivación hacia la escritura II]), is composed of 32 statements for which students have to indicate whether they agree or disagree on a 5-point Likert scale ranging from 1 = totally disagree to 5 = totally agree. The statements are divided into eight groups of four items each. Thus, four items refer to success in writing due to capability such as "I write better than my peers because I am smarter;" four items refer to success in writing

due to effort such as "If I make the effort I can write very good stories;" four items are related to success in writing due to task facility, such as "I know how to write stories because it is easy;" four items address success in writing due to good luck such as "When I get a good grade in an essay it is because I've been lucky;" four items attribute failure in writing to capability such as "I am incapable of writing a good summary of a text;" four items are related to failure in writing due to effort as in "I don't write better because I don't want to;" four items refer to failure in writing due to task difficulty as in "Writing involves very difficult processes as planning and reviewing what you have written;" and the last four items attribute failure to bad luck as in "My teacher always says that I write bad essays because he has it in for me."

Finally, the MOES I questionnaire (Motivation towards writing I [Motivación hacia la escritura I]) is composed of 15 items of which four measure writing task value; for example, "It is more useful for my future to write than to accomplish other school tasks;" another four items measure standard levels in writing; for instance, "I look for unknown words in a dictionary;" the remaining seven statements are related to writing self-esteem such as "I feel sad when I get a bad grade in an essay that I've written." As in the MOES II questionnaire, the students mark whether they agree or disagree with each statement on a 5-point Likert scale ranging from 1 = totally disagree to 5 = totally agree.

When validating these motivational questionnaires in a sample of 457 students ranging from 9 to 17 years old, we obtained a Cronbach alpha of 0.8699, which shows adequate internal consistency, and may be interpreted as an indication of acceptable reliability.

RESULTS

Writing Products

In order to analyze the data two analyses were carried out. The first was a multivariate lineal analysis 2x1 comparing the data from the posttest. In the multivariate contrast we found that the analysis of variance in the writing task and the motivational data taken jointly was statistically significant [$F(46, 12) = 6.58$; $p < 0.001$; $\eta^2 = 0.962$], which means there was highly significant differences between the participants in the control group and those in the experimental one.

When analyzing the comparison between the groups, we found significant differences in 25 of the 28 writing variables in the inter-subjects effects of the statistical tests. Table 5 shows the variables for which we found these nearly significant or statistically significant differences between the posttests of the experimental and the control groups' writing products.

As illustrated, the experimental group yielded higher scores than the control group in every variable, with the exception of "total failed indicators," $F(46, 12) = 3.34$; $p = 0.073$; $\eta^2 = 0.055$. This is logical as it is a negative variable, so the trained participants again had better scores, probably as a result of the training program. Also, it is important to note the magnitude of these quite large effects, with effect sizes ranging from 0.145 to 0.677; only four variables had smaller effect sizes: anaphoric ties, sentence indicators, device indicators and total failed indicators; these eta-squared values (η^2) showed a medium effect size.

The second analysis was a multivariate analysis, 3x2, with repeated measures (a factorial 3x2 design where the variables were *time*: pre-, post-, and follow-up; and

Table 5

Results of Writing Products Using a 2x1 Multivariate Contrast

Variables	SELF-EFFICACY(N=40) M (SD)	CONTROL (N=20) M (SD)	F(46, 12)	p	η²
Paragraphs	3.10 (2.11)	(0)	19.64	0.001	0.26
Sentences	12.87 (5.01)	3.45 (1.96)	65.24	0.001	0.53
Verbs	19.21 (9.17)	5.75 (3.42)	39.89	0.001	0.41
Content words	56.13 (21.16)	16.5 (7.58)	65.36	0.001	0.53
Functional words	30.23 (14.11)	7.65 (6.23)	46.26	0.001	0.45
Determinants	19.44 (9.58)	4.7 (3.34)	44.25	0.001	0.44
Productivity total	227.97 (66.9)	99.4 (47.11)	58.69	0.001	0.51
Anaphoric ties	3.26 (4.06)	0.90 (0.79)	6.57	0.013	0.10
Lexical ties	2.46 (2.75)	0.15 (0.37)	13.87	0.001	0.20
Referential coherence total	5.72 (5.37)	1.05 (0.95)	14.73	0.001	0.21
Sentences indicators	0.28 (0.56)	0 (0)	5.04	0.029	0.08
Device indicators	0.87 (2.25)	0 (0)	2.98	0.090	0.05
Structural ties	3.05 (2.53)	0.6 (0.68)	17.92	0.001	0.24
Connective ties	9.05 (5.25)	1.95 (1.1)	32.13	0.001	0.36
Reformulation ties	0.33 (0.47)	0 (0)	9.66	0.003	0.15
Relational coherence total	13.69 (7.1)	2.55 (1.57)	47.65	0.001	0.46
Total coherence	19.41 (10.89)	3.6 (2.06)	41.00	0.001	0.42
Total failed indicators	1.51 (2.25)	2.70 (2.56)	3.34	0.073	0.06
Pertinence	0.97 (0.16)	0.40 (0.5)	43.05	0.001	0.43
Link	0.74 (0.44)	0.1 (0.31)	33.79	0.001	0.37
Paragraph structure	0.64 (0.48)	0 (0)	34.50	0.001	0.38
Argumental thread	0.87 (0.33)	0.1 (0.31)	74.88	0.001	0.56
Other total coherence	3.23 (0.93)	0.60 (0.75)	119.28	0.001	0.68
Number of commas	4.64 (4.32)	0.65 (1.78)	15.60	0.001	0.22
Number of full stops	6.23 (3.59)	1.15 (0.99)	38.33	0.001	0.40

Note. We only represent the statistically significant values ($p<0.05$) or those near significance levels.

η² (eta-squared statistic) = Estimates of effect size. The Cohen (1988) conventions are: 0.01 – 0.06 (small effect); > 0.06 – 0.14 (medium effect); > 0.14 (large effect).

group: experimental and control). This allowed us to confirm that the results in the first analysis were due to the specific training in writing self-efficacy as we found nearly significant or statistically significant differences in practically the same variables as in the multivariate contrast, having taken into account not only the group but also the moment (before or after training). Furthermore, the data showed that the differences between the groups a week after the training persisted a month a half after the training was completed. Table 6 shows how the totals of every aspect measured were significant, as in the first analysis.

Again, as illustrated, the differences between the participants in both groups were highly significant ($p < 0.001$ in all totals), and the effect size of the practical significances was large, as the eta-squared statistics showed (η^2).

Table 6

Results of Writing Product of a 3x2 Factorial Analysis (Time x Group)

Variables	M Pre (SD)	M Post (SD)	M Follow-up (SD)	M Pre (SD)	M Post (SD)	M Follow-up	F(2, 54)	p	η²
Total productivity	86.36 (38.56)	227.14 (65.68)	144.78 (52.96)	60.35 (32.89)	99.4 (47-11)	52.15 (27.72)	31.35	0.0001	0.54
Referential coherence	1.95 (1.69)	5.97 (5.39)	5.86 (3.24	1.75 (1.71)	1-05 (0-95)	2.05 (2.19)	11.54	0.001	0.3
Relational coherence	6.65 (4.42)	13.73 (7.2)	14.62 6.86)	4.5 3.35)	2-55 (1.57)	4.85	9.87	0.001	0.27
Total coherence	8.59 (5.21)	19.7 (10.97)	20.49 (9.44)	6.25 (4.27)	3.6 (2.06)	6.9	11.9	0.001	0.31
Other total coherence	1.68 (1.23)	3.16 (1.01)	3.19 (0.91)	1.15 (0.88)	0.6 (0.75)	0.65 (0.74)	32.85	0.001	0.54
Quality according to the reader	2.19 (0.92)	3.5 (1.13)	3.92 (1.05)	1.7 (0.66)	1.45 (0.51)	1.5 (0.61)	52.66	0.001	0.67

Note. We only represent the statistically significant values (p<0.05) or those near significance levels.

η^2 (eta-squared statistic) = Estimates of effect size. The Cohen (1988) conventions are: 0.01 – 0.06 (small effect); > 0.06 – 0.14 (medium effect); > 0.14 (large effect).

Writing Processes

To analyze the changes in writing process we used a general lineal model, in that we counted the time and the percentages that the students spent on each writing process and how many processes they used. This was achieved by comparing data not just from the pre- and posttests but also the follow-up evaluation.

Large differences were found between the pre- and posttest data and the follow-up with regard to self-efficacy between the experimental and control groups. While students in the experimental group spent on average nine beeps of 45 seconds more in the posttest and in the follow-up measures than in the pretest (10.23 beeps in pretest, 19.28 in posttest and 19.33 in the follow-up), the students in the control group behaved differently. Not only did they not increase the amount of time spent on the total writing process they even decreased the amount of time spent, $F(2, 57) = 9.93$; $p < 0.001$; $\eta^2 = 0.26$, which has a large effect size as the $\eta^2 = 0.26$. We find the same when considering all the writing processes although this particular process has nothing to do with writing, as the students in the experimental group increased from 9.93 beeps to 18.5 and 18.8 whereas students in the control group decreased from 6.35 beeps in the pretest to 4.7 in the posttest but increased to 6.55 in the follow-up condition, $F(2, 57) = 10.01$; $p < 0.001$; $\eta^2 = 0.277$. This creates large differences between the groups in the total time they spent writing. Specifically, the participants who received training spent 832.5 seconds in the posttest compared to only 446.63 seconds in the pretest, and this difference was maintained in the follow-up (846 seconds). By contrast, students in the control group spent less time in the posttest than in the pretest (from 285.75 seconds to 211.5 seconds), $F(2, 57) = 10.91$; $p < 0.001$; $\eta^2 = 0.277$. Figure 3 shows this effect.
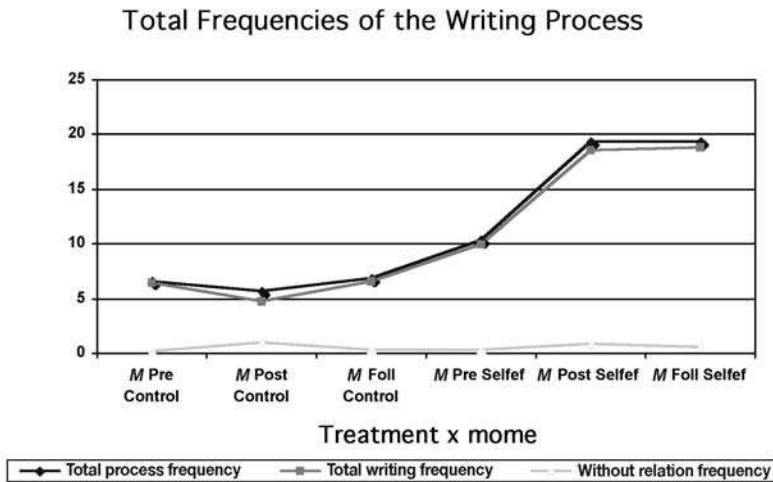
Total Frequencies of the Writing Process

Figure 3. Total frequencies.
Note. M Pre Control = Control group mean in the pretest assessment. *M* Post Control = Control group mean in the posttest assessment. *M* Foll Control = Control group mean in the follow-up assessment. *M* Pre Selfef = Self-efficacy treatment group mean in the pretest assessment. *M* Post Selfef = Self-efficacy treatment group mean in the posttest assessment. *M* Foll Selfef = Self-efficacy treatment group mean in the follow-up assessment.

Table 7 summarizes the presence of the specific categories and the time percentages in which we found significant differences between the students in the two groups. As illustrated, self-efficacy training had a notable influence on reading information and also an overall influence on writing and checking, but without changing other writing processes such as making a scheme or reading the essay.

We also carried out a multivariate analysis, 3x2, with repeated measures (a 3x2 factorial design), which yielded statistically significant differences between the groups in the process of writing a text, $F(2, 57) = 5.29$; $p = 0.008$; $\eta^2 = 0.16$. Specifically, the participants in the experimental group spent more time writing their text after the training program (pretest = 7.68, posttest = 12.88, follow-up = 13.78) than those in the control group (pretest = 5.1, posttest = 4.2, follow-up = 5.9). Moreover, statistically significant differences emerged for the process of checking, $F(2, 57) = 14.73$; $p < 0.001$; $\eta^2 = 0.34$, where, again, the students in the experimental group spent more time making changes to their texts (pretest = 0.35, posttest = 2.38; follow-up = 2.4) than those in the control group (pretest = 0.15, posttest = 0.05, follow-up = 0.1). Finally, we found nearly statistically significant differences in the process of reading information, $F(2, 57) = 2.83$; $p = 0.067$; $\eta^2 = 0.09$, where the participants in the control group spent more time (pretest = 0.15, posttest = 0.2; follow-up = 0.05) than those in the experimental group (pretest = 0.05, posttest 0.03, follow-up = 0.08).

Self-Efficacy and Writing and Other Motivational Variables

With regard to self-efficacy, we used a factorial design of repeated measures (3x2), which showed nearly statistically significant differences in total self-efficacy of the EPP y FPE protocol, $F(2, 57) = 2.67$; $p = 0.078$; $\eta^2 = 0.09$ (see Figure 4). However, we did not find any significant differences between the groups in the self-efficacy items of the MSQL questionnaire.

Table 7
Results of the Writing Process Using a General Lineal Model

| Variable | SELF-EFFICACY | | | CONTROL | | | | | |
	M Pre	M Post	M Follow-up	M Pre	M Post	M Follow-up	F(2, 57)	p	η²
Reading information frequency	0.075	0.025	0.05	0.2	0.2	0.05	2.409	0.099	0.078
Writing frequency	7.7	13.58	13.78	5.15	3.35	5.9	8.751	0.001	0.235
Checking frequency	0.35	2.38	2.38	0.15	0.05	0.1	14.59	0.001	0.339
Time percentage on reading information	0.91	0.15	0.26	3.48	7.55	0.83	2.903	0.063	0.092
Writing time percentage	73.61	71.56	67.25	86.2	68.9	88.57	3.139	0.051	0.099
Checking time percentage	3.28	12.15	11.35	1.34	1	1.67	9.684	0.001	0.254
Time percentage at 1st moment spent on reading information	2.18	0.44	0.29	6.69	12.64	2.5	0.897	0.045	0.103
Thinking time percentage at 1st moment	23.83	17.93	20.52	7.41	26.23	17.29	3.255	0.046	0.103
Writing time percentage at 1st moment	63.79	76.56	66.64	84.19	51.12	73.96	8.476	0.001	0.229
Without relation time percentage at 2nd moment	0.00	0.18	0.17	0.07	0.25	0	2.821	0.068	0.09
Writing time percentage at 3rd moment	76.19	54.18	52.06	87.64	85.22	103	5.257	0.008	0.156
Checking time percentage at 3rd moment	8.55	32.48	28.84	1.07	3	5	5.629	0.006	0.165

Note. We only represent the statistically significant values (*p*<0.05) or those near significance levels.
η2 (eta-squared statistic) = Estimates of effect size. The Cohen (1988) conventions are: 0.01 – 0.06 (small effect); > 0.06 – 0.14 (medium effect); > 0.14 (large effect).
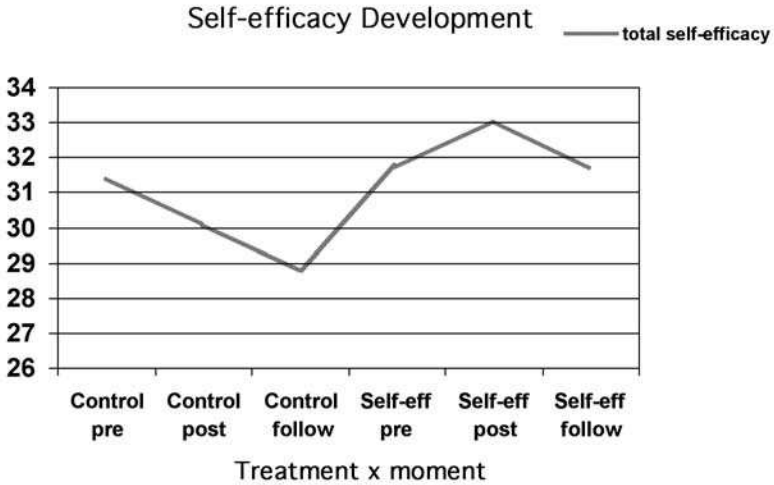
Figure 4. Self-efficacy progress in both groups.
Note. Control pre = Control group pretest measure. Control post = Control group posttest measure. Control follow = Control group follow-up measure. Self-eff pre = Self-efficacy treatment group pretest measure. Self-eff post = Self-efficacy treatment group posttest measure. Self-eff follow = Self-efficacy treatment group follow-up measure.

The differences found in self-beliefs about writing in the EPP y FPE self-efficacy questionnaire demonstrate that the students in the experimental group improved their beliefs from 31.75 at pretest to 33.03 at posttest, and maintained their initial beliefs in the follow-up evaluation (31.7). By comparison, the participants in the control group did they not improve their beliefs about their writing at all; indeed, they seemed to get worse with time (pretest = 31.4, posttest = 30.1, and follow-up = 28.8). This difference had a medium effect size of the practical significance, as the eta-squared statistics show (η^2).

If we analyze each statement of the self-efficacy questionnaire in the EPP y FPE, we find statistically significant differences in item 1, "When writing an essay, I prefer that the teacher tells me what ideas to use more than looking for them," $F(2, 54) = 6.47$; $p = 0.003$; $\eta^2 = 0.19$; item 2, "It is hard for me to organize all that I want to write," $F(2, 54) = 3.65$; $p = 0.032$; $\eta^2 = 0.12$; item 3, "It is very easy for me to start to write an essay," $F(2, 54) = 5.15$; $p = 0.009$; $\eta^2 = 0.16$; item 6, "When writing an essay, it is difficult for me to continue phrases or paragraphs that I've already started," $F(2, 54) = 4.05$; $p = 0.023$; $\eta^2 = 0.13$; and item 14, "I feel real good showing my essays to my classmates," $F(2, 54) = 3.55$; $p = 0.036$; $\eta^2 = 0.12$.

As it is illustrated in Table 8, in all these items with the exception of item 6, the participants in the experimental group improved their writing beliefs whereas the control group tended to decrease.

Table 8

Results for Writing Self-Efficacy Using a 3x2 Factorial Design (Time x Group)

Variable	SELF-EFFICACY			CONTROL			$F(2,57)$	p	η^2
	M Pre	M Post	M Follow-up	M Pre	M Post	M Follow-up			
Item 1	2.11 (0.97)	2.38 (0.76)	2.22 (0.85)	2.8 (0.52)	2.15 (0.99)	1.9 (0.97)	6.47	0.003	0.19
Item 2	2.05 (0.88)	2.24 (0.79)	2.32 (0.78)	2.35 (0.93)	1.8 (0.83)	1.8 (0.89)	3.65	0.032	0.12
Item 3	2.46 (0.8)	2.35 (0.86)	2.7 (0.62)	2.8 (0.62)	2.5 (0.83)	2.2 (1)	5.15	0.009	0.16
Item 6	2.14 (0.92)	2.11 (0.81)	2.35 (0.75)	1.75 (0.97)	2.45 (0.83)	2.1 (0.91)	4.05	0.023	0.13
Item 14	2.51 (0.73)	2.43 (0.73)	2.51 (0.65)	2.3 (0.92)	1.7 (0.92)	1.65 (0.93)	3.55	0.036	0.12
Total self-efficacy	31.75 (4.98)	33.03 (5.24)	31.7 (10.27)	31.4 (4.69)	30.1 (6.47)	28.8 (7.11)	2.67	0.078	0.09

Note. We only represent the statistically significant values ($p<0.05$) or those near significance levels.

η^2 (eta-squared statistic) = Estimates of effect size. The Cohen (1988) conventions are: 0.01 – 0.06 (small effect); > 0.06 – 0.14 (medium effect); > 0.14 (large effect).

With regard to the other motivational aspects of writing, we found nearly significant differences between the groups in total task value, $F(1, 57) = 3.49$; $p = 0.067$; $\eta^2 = 0.06$ and in total learning beliefs, $F(1, 57) = 3.78$; $p = 0.057$; $\eta^2 = 0.06$ of the MSQL when analyzing the data using a multivariate contrast with posttest measures. However, we did not find any significant differences when considering the interaction time x group (factorial design 3x2), which implies that this difference could exist in the pretest measures, and is therefore probably not an effect caused by the training program.

We only found nearly statistically significant differences between the groups in item 4 of the attitudinal questionnaire of the EPP y FPE assessment protocol, "I avoid writing whenever I can," $F(2, 54) = 5.04$; $p = 0.063$; $\eta^2 = 0,1$; this difference seemed to benefit the participants in the control group more as they showed better scores after the training program (from 1.85 in pretest to 2.6 in posttest, and 2.35 in follow-up) than participants in the experimental group (from 2.19 in pretest to 2.24 in posttest and 2.57 in follow-up). We did not find any more differences in attitudes towards writing questionnaire.

With regard to the MOES I questionnaire, which evaluates task value, achievement standards and self-esteem towards writing, we only found nearly statistically significant differences between the groups in the total of items measuring self-esteem, $F(2, 57) = 2.79$; $p = 0.07$; $\eta^2 = 0.09$, using a 3x2 factorial design. This difference illustrates that students in the experimental group improved their self-esteem one week after the training but they did not maintain this improvement in the follow-up evaluation (from 27.18 in the pretest to 27.9 in the posttest and 24.05 in the follow-up), which indicates the difficulty of modifying this personal construct. By comparison, the participants in the con-

trol group followed a decreasing trend in self-esteem towards writing over time (from 26.6 in the pretest to 24.8 in the posttest and 24.45 in the follow-up).

Finally, concerning the causal attributions, we carried out a 2x2 factorial design with repeated measures (time: pre-/post x group: experimental control) as we did not have data from the follow-up evaluation for this questionnaire. We found statistically significant differences between the groups in the attribution of success due to effort, $F(1, 58) = 3.91$; $p = 0.05$; $\eta^2 = 0.06$, while participants in both groups reduced the frequency of this type of attribution of success in their writing, the students in the control group did so to a greater extent. Thus, the participants in the experimental group had a score of 17.03 in the pretest and 16.85 in the posttest, whereas participants in the control group had 17.3 in the pretest and 15.35 in the posttest. Also, statistically significant differences were found in the attribution of task failure due to task difficulty, $F(1, 58) = 3.97$; $p = 0.05$; $\eta^2 = 0.06$, in that the participants in the experimental group decreased this kind of attribution (from 10.88 in the pretest to 9.98 in the posttest) while students in the control group demonstrated an increase (from 11.35 in the pretest to 12.4 in the posttest). We also found significant differences in the attribution of task failure due to bad luck, $F(1, 58) = 5.04$; $p = 0.029$; $\eta^2 = 0.08$, where the participants in the experimental group showed a decrease in this type of attribution processes both also self-efficacy and other motivational factors of writing of children with LD and/or LA who attend urban schools where the catchment area includes a population of low socio-economic families and other minority groups.

The Impact of Self-Efficacy Training on Writing Products

Enhancing the writing self-efficacy of fifth- and sixth-grade LD students through the four sources of self-efficacy according to Bandura (1997) had a powerful impact on the participating children's writing productivity and quality. Trained students not only wrote greater quantities of text after the training, they also wrote with improved structure and coherence, which could be translated as a great improvement of their writing. The magnitude of these effects is large as the effect sizes (η^2) account for length and quality measures across the essays written by the students.

These findings are consistent with those of other studies addressing struggling writers, such as García and de Caso (2002b, 2004), Graham et al. (2005) or Wong et al. (1996) in that there is evidence of improvement in the writing products of children with LD or LA, further supporting the necessity of making writing processes explicit to this student population.

Of all measures taken, the only cases where no differences between the groups emerged were the failed referential indicators and the failed relational indicators separately. Although we have to take into consideration that students in both groups seemed to make the same relational and referential mistakes, those who belonged to the experimental group wrote much more after the instruction, implying that they made the same number of errors in longer texts, thus demonstrating an improvement when compared to their peers in the control group. If members of the control group had produced the same quantity of text as the students in the experimental group, they would probably have more failed referential and relational indicators. Also, we did not find any differences in argumentative ties, which is probably due to the kind of text the students had to write; namely, an essay, where they had to use

less argumentative ties than in other genres such as comparative or contrastive text. Furthermore, we have to consider that these children have LD or LA, so their language acquisition could be delayed, which may explain the poor usage of this type of tie, which appears to be more difficult to use.

The Impact of Self-Efficacy Training on the Writing Processes

A successful composition has its foundations in adequate planning, which emerges from the process the student follows, so it is important to evaluate the different steps the student follows when writing. The only way to measure these processes is through the student's report of what he is doing. Given that it is complicated to evaluate this aspect of writing, as we have to trust the student's word, this would explain why few studies have considered this aspect of the writing process.

In spite of this difficulty, we decided to take measures of the processes the students followed by employing a blank writing log divided into multiple sections, each listing seven possible writing activities, and asking the students to identify what process they were heard when a randomly delivered tone. The instructor observed what students checked to ensure they were doing what was asked in order to eliminate any possible misunderstanding.

The results showed increments in thinking, writing, and checking tasks after the training program, suggesting that the improvement of writing products is positively influenced by an improvement of the students´ writing processes. However, the students did not use important writing processes such as elaborating a scheme or reading their essay, which may be due to the type of training program used, which was focused on self-efficacy sources, a personal and emotional factor of writing, and not on cognitive or conductual processes, which are more useful in teaching each step the student is to take when writing. Our intervention only taught a general writing process during the first two sessions. As a result, the processes of thinking, writing, and checking showed the greatest improvement after training; the students could not dedicate more time on elaborating a plan if they did not know how to do so.

Furthermore, although students did not mark the process of "reading their essay," it is obvious they had to do it to check their compositions, so it is possible that reading the essay and checking it could be summarized into one single process. Another process that did not improve was "reading information," which can be interpreted to mean that the students not having time to look for any additional information on the Internet, in books, or from other sources because the assessment was carried out in the same classroom within the language hour, and thus did not permit much research time.

The Impact of Self-Efficacy Training on the Motivational Aspects of Writing

As our specific intervention concentrated on the four sources of self-efficacy according to Bandura (1997), we expected that the students' self-beliefs would change after the training program. Our expectations were only partially fulfilled as the participants in the experimental group only showed modification in some thoughts in one of the questionnaires, which included statements about their capabilities to write. The implication of this finding is that training had a moderate influence on the self-efficacy beliefs of students with LD. This influence is headed in the direction of improving self-efficacy beliefs about writing, and thus supports the theories of Tabassan and Grainger (2002) and Margolis and McCabe (2004), who state

that students with LD seem to have less self-efficacy beliefs than their NA peers because of their history of failure. Therefore, it seems fundamental to improve this kind of beliefs about writing. However, there was little improvement in self-beliefs about writing, which could be due to the fact that self-efficacy seems to be a stable characteristic that may require extended attention and intervention over a longer period of time. That is, it is possible that 10 sessions is not sufficient time to produce a notable impact on most self-efficacy beliefs.

It is possible, as Graham et al. (2005) state, that students with LD do not need to improve their self-efficacy beliefs but rather adjust them to their true capabilities, which are generally overestimated. It is necessary to continue this line of investigation in order to discover the extent of influence that writing self-efficacy beliefs have in students with LD.

The training was not very effective in modifying other motivational factors such as attitudes, task value, achievement standards, or most of the causal attribution factors, which can be explained by the fact that the program was not designed to change them. Moreover, as is possibly the case with self-efficacy, these constructs may be stable characteristics of the person and, therefore, resistant to change. Nevertheless, we were able to demonstrate some concrete differences in self-esteem and causal attributions, highlighting the relationship between self-efficacy and the other motivational components (Pajares, 2003).

One of the limitations of this study is the type of control group we used. For example, it would be desirable to isolate, in a more effective way, the effects of self-efficacy treatment by using a control group that only received writing practice; if so, we would prove the real effects of self-efficacy on writing. Contrasting the results of this study with those of García and Marban (2003), self-efficacy training seems to improve more the perceptions of our students´ capabilities in writing.

Conclusions

The present study demonstrated that the writing performance of LD and/or LA students can be improved substantially by enhancing their writing self-efficacy through establishing a good psychological and affective climate, giving verbal persuasion, demonstrating their mastery, and using vicarious experience, as proposed by Pajares (2003).

Although the writing processes are a very important part in evaluating children's compositions, few studies have considered the effects of a specific training program on these writing processes as the products do not display the concrete steps and time spent on writing. With this in mind, our findings are significant as they show that students increased the time they spent planning, writing, and revising their compositions after training. Furthermore, it appears possible to modify self-efficacy beliefs about writing in students with LD even though it may be necessary to carry out training over a longer period of time as self-beliefs about capabilities are stable and, therefore, difficult to modify.

It is important to implement training programs such as the one described here as a way of decreasing the chances of educational failure of children with LD and/or LA while increasing their success, which helps promote greater achievement, which in turn foster more positive self-esteem and self-confidence.

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