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# EFFECTS OF A MOTIVATIONAL INTERVENTION FOR IMPROVING THE WRITING OF CHILDREN WITH LEARNING DISABILITIES

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**Abstract.** Given that affective and cognitive processes interact in writing, it is important that interventions for developing writing ability focus both on strategies for developing motivation and cognitive processes. This article provides evidence for the efficacy of an instructional program that combines training in composition processes with strategies for developing motivation to achieve. Motivational training focused on multiple attributes: value and functional character, standards of performance, expectations, beliefs, self-efficacy, self-esteem and writing-related factors. Sixty-six fifth- and six-grade students with learning disabilities were assessed on a series of measures prior to and following the motivational intervention. Compared with a control group ( $n=61$ ), trained students showed significant improvements in the quality of their writing (measured in terms of text structure and coherence) and in their attitudes towards writing. They did not, however, show significant changes in productivity (quantity of text produced), self-esteem, beliefs and expectations, or in writing-related attributions.

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Motivation is not exclusively a stable characteristic of a person, but also depends on situation, domain and context (Mayer, 2001). This provides some hope for teachers and school psychologists, since it suggests that if we modify and design curricula, lessons and schools in a different way, we can enhance students' motivation to improve their academic achievement (Linnenbrink & Pintrich, 2002).

In the past, writing processes in schools and the motivational factors associated with them received relatively little research attention (Alamargot & Chanquoy, 2001; Kellogg, 1994). However, there has been a recent boom in research in this area due, in

part, to an increased educational focus on writing through the curriculum (Elbow, 1998, 2000; Gregg & Mather, 2002; Wong, 1996). Writing ability contributes substantially to general academic success. It is important, therefore, to explore factors affecting motivation to achieve in this specific domain.

Completing a writing task involves a complex interplay among cognitive, metacognitive and emotional processes, and performance is affected by individual differences in both intellect and personality (Alamargot & Chanquoy, 2001; Butterfield & Carlson, 1994; García 2000a, 2000b, 2002; Hayes 1996; Kellogg, 1994, 1996; Rijlaarsdam, van der Bergh, & Couzijn, 1996a, 1996b;

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Torrance & Galbraith, 1999). Cognitive processes can be further divided into those that are considered to be low level (handwriting, spelling, developing syntax) and those that might be described as high level (the conscious decision making associated with setting goals and planning and structuring content) (Berninger, 1999; Brooks, Vaughan, & Berninger 1999; Graham, 1999a, 1999b; McArthur, 1999; Wong, 1998). Because of the ways in which affective and cognitive processes interact in writing (Hayes, 1996), it is important that interventions for developing writing ability focus on strategies for developing both motivation and cognitive processes (Graham, Harris, & Larsen, 2001; Klassen, 2002a; Mayer, 2001; Wolters & Pintrich, 2001).

Students with learning disabilities experience problems with writing that are rooted in both cognitive and motivational factors (Graham & Harris, 1999; Wong, 2000). Thus, compared to nondisabled peers, students with learning disabilities tend to have a less positive self-concept, lower self-efficacy, more negative motivational pattern (Tabassam & Grainger, 2002), less emotional support, lower self-esteem, more stress (Hall, Spruill, & Webster, 2002), less tendency to assume responsibility in their learning and higher academic frustration (Anderson-Inman, 1999). They tend to have a more negative general image of themselves, with dysfunctional attributional patterns and more maladaptive academic aims (González-Pienda et al., 2000).

It seems particularly important, therefore, that interventions focused on developing writing ability in students with learning disabilities not only teach strategies for self-regulation and control of the writing process but also focus on the students' motivation. Arguably, such interventions should aim to foster in students positive beliefs about their ability to manage the writing process and to produce good text. They should also aim to develop a positive emotional environment in the classroom, which would foster intrinsic writing motivation.

Further, interventions must be developed within existing educational constraints. They must take account of: student choice (Reynolds & Symons, 2001); of the goals students pursue (Church, Elliot, & Gable, 2001); motivation-enhancing conditions (nurturing functional beliefs about the nature of writing and its outcomes; fostering student engagement through authentic goals and contexts; providing a supportive context for writing; creating a positive emotional environment) (Bruning & Horn, 2000); the willingness and ability of the teacher to implement the intervention; and the characteristics of activities that are motivational for students (Alonso, 1997).

Interventions must also be adjusted to students'

developmental level (Gottfried, Fleming, & Gottfried, 2001), and adopt methods that overcome the specific problems associated with developing motivation in students with learning disabilities. Besides, from a classical approach to motivation to achieve, Mussen, Conger, Kagan and Houston (1990) have distinguished four factors: (a) importance, interest or value of the task; (b) standard of demands; (c) attitudes, expectations, self-beliefs, self-esteem, and self-efficacy; (d) and attributions about successes and failures. These considerations and factors must be balanced within an intervention that challenges students and communicates the relevance of writing as a tool for communication.

This research was based on two convictions: (a) that low-achieving students and/or students with learning disabilities can learn strategies for producing high-quality written composition; and (b) that if we motivate students and make the context in which they learn attractive, they will learn to produce better texts than would have been the case using typical classroom teaching. This, in turn, will result in increased self-esteem and in greater satisfaction with the processes of composing text.

The hypotheses underlying the study may be stated as follows: (a) students trained using the proposed intervention will show an increase in motivation towards writing greater than that of students who receive traditional instruction; (b) the written compositions of students with learning disabilities will improve significantly in quality and quantity as the students will know the processes involved and the most effective strategies to use; and (c) the measures used to assess both students' writing and their motivation will reveal positive changes after training.

## METHOD

### *Participants*

The sample comprised 127 fifth- and sixth-grade primary students with low achievement and/or learning disabilities, ranging in age between 10 and 12 years. All participants had previously been identified by either teachers or a school psychologist as having a writing-specific learning disability. We excluded students who did not attend school on a regular basis and those diagnosed by psychoeducational teams as having special educational needs, so their difficulties could not be attributed to a physical, a psychic or a sensory disability or a lack of schooling.

The sample was drawn from 23 primary schools in western Spain (20 from León and its province, 2 from Palencia, and 1 from Zamora). Participants were randomly allocated to either the experimental or the control condition. The students in the experimental group were exposed to a specific program of training in

writing motivation and how to plan their text. The control group received standard instruction. Sample characteristics are summarized in Table 1.

**Instruments**

Participants in the experimental group completed tests of writing performance and motivation both before and after exposure to the intervention. Control group participants completed these tests at the same time in the school year, and with the same interval between pre- and posttests as in the experimental condition. The different measures and instruments used are described below and summarized in Table 2.

**EPPyFPE**

Writing performance and motivational factors were assessed using a battery of tests called the Evaluación de los Procesos de Planificación y otros Factores Psicológicos de la Escritura (EPPyFPE) [Assessment of Writing Planning Processes and other Psychological Factors] developed by García, Marbán, & de Caso (2001) and validated by García (2000b). This entails the composition of three texts of increasing complexity: a description, a narrative and an essay (Cuetos, 1991). It also includes an information-integration task that measures the ability to combine different ideas into a single proposition, and two questionnaires: one assessing students' attitudes towards writing and the other assessing writing self-efficacy. The latter was adapted from a scale developed and validated by Wong, Butler, Ficzere, and Kuperis (1996, 1997) as a part of the third motivational factor (Mussen, Conger, Kagan & Huston, 1990; Valle, Núñez, Rodríguez y González-Pumariega, 2002; Wolters & Pintrich, 2001).

The written composition component of the EPPyFPE provides a measure of productivity and coherence.

Productivity concerns the quantity of text that is produced for each task, and is measured in number of determiners (in the Spanish language: definite and indefinite articles, numeral adjectives, possessive adjectives, demonstrative adjectives); number of content words (in the Spanish language with fixed referent: nouns, verbs, qualifying adjectives, interjections); and number of functional words (in the Spanish language without fixed referent: possessive pronouns, personal pronouns, demonstrative pronouns, prepositions, conjunctions) (Justicia, 1995; Wong, 1998).

Text coherence – the extent to which information is organized and structured in a way that allows the reader to understand it as a whole – is measured in the EPPyFPE in terms of the extent to which texts display “theme continuity.” Theme continuity constitutes the extent to which a text links ideas to form propositions, is composed using well-organized and thematically delineated paragraphs, and the extent to which paragraphs are organized so as to provide a consistent thread of meaning throughout the text (de Vega, Díaz, & León, 1999; Favart & Passerault, 1996; Sanders, Janssen, van der Pool, Schilperoord, & van Wijk, 1996). Texts produced in response to all three writing tasks (description, narration, and essay) are analyzed for productivity and coherence.

Narratives are further analyzed for genre-relevant rhetorical features: for frame indicators such as time, space and characters; and for episode indicators marking, for example, an initial event, responses, actions and consequences (Sánchez, 1998). These measures clearly do not exhaust the possible ways in which productivity and text can be described (Berninger, Stage, Smith, & Hildebrand, 2001; Butler & Silliman, 2002),

**Table 1**  
***Student Distribution by Group, Level, and Gender***

	5th of PS		6th of PS		Total gender/group		Total group
	Male	Female	Male	Female	Male	Female	
<b>Experimental</b>	22	12	28	4	50	16	66
<b>Control</b>	15	14	19	13	34	27	61
<b>Total gender</b>	37	26	47	17	84	43	
<b>Total level</b>	63	64					

**Table 2*****Assessed Aspects and Instruments Used in Pre- and Postintervention***

<b><i>Assessed Aspect</i></b>	<b><i>Instrument</i></b>	<b><i>Tasks</i></b>	<b><i>Parameters</i></b>
<b>Writing</b>	EPPyFPE	Description	Productivity and coherence
		Narration	Productivity, coherence and structure
		Essay	Productivity and coherence
		Integration	Score
<b>Motivation towards writing</b>	EPPyFPE	<b><i>Questionnaires</i></b>	
		Attitudes (3rd factor of motivation)	Score
	Self-efficacy (3rd factor of motivation)	Score	
	MOES I	Value (1st factor), Standards (2nd factor), Self-esteem (3rd factor)	Score
	MOES II	Attributions (4th factor)	Score
	MOES III	Value/Writing importance (1st factor)	Score
	MODEMO	Orientation	Score

*Note.* Motivation towards writing was assessed on four factors, according to the clasical model: value; standards of performance; attitudes, self-efficacy, self-esteem; and attributions. Besides, we used orientation towards the task or towards self as an additional aspect.

but we believe that they provide a measure of features that are central to successful completion of a writing task (García & Marbán, 2003).

### ***Questionnaires***

In addition to the EPPyFPE, we administered three questionnaires developed specifically for this study to measure motivational factors associated with writing. The Motivación hacia la escritura I (MOES I) [Motivation towards writing composition I] comprised subscales measuring (a) the extent to which students value being able to express themselves through written composition (four items), (b) standards of demands developed by the student (four items), and (c) writing-related self-esteem (seven items).

The second questionnaire, Motivación hacia la escritura II (MOES II) [Motivation towards writing composition II], consisting of 16 items, was designed to assess the attributions made by students about their successes and failures in their written compositions. MOES I and

II used the same response format, with students indicating the extent to which they agreed or disagreed with each item on a scale from 1=totally disagree to 5=totally agree.

MOES III measured the value and importance the students gave to learning to write compared with other school tasks and activities. Participants were asked to rate, on a scale from 0 to 10, the importance they placed on a range of school tasks, including written composition. They were then asked to rank all the tasks from least to most important. A score for writing was derived from the rank it achieved.

A final questionnaire was developed to determine the type of goals that students pursued with respect to writing, specifically whether their goals were oriented towards successful completion of the task or towards preservation of self-esteem (Church, Elliot, & Gable, 2001; McGregor & Elliot, 2002; Pintrich, 2000). Assessing this is important in the light of research

**Table 3**

**Summary of the Intervention Sessions**

<b>WRITING PROCESS</b> <i>Sessions and Focus</i>	<b>PROMOTION OF MOTIVATION</b>	<b>STRATEGIES AND TECHNIQUES</b>	<b>PLANNING OF THE TEXT (Materials)</b>	
			<i>Texts</i>	<i>Other</i>
1st Session: Writing functionality	Value of writing and attributions to effort.	Brainstorming.		A jar and chickpeas. Used in every session.
2nd-3rd Sessions: Writing involved processes	Levels of exigency. Attributions and self-esteem.	Simulation of real situations.	- Letter written by the student	An envelope for each student.
4th-8th Sessions: Writing previous processes - Collection of information and ideas (4th) - Planning the topic and thesis (5th) - Establishing the purpose (6th) - Characteristics of the audience (7th) - Organizing the material (8th)	Value and relevance of these processes, relating each phase with real experiences. Levels of exigency. Attributions to effort. Promotion of self-esteem.	A variety of activities and their connection with real experiences. Possible choices. Modeling and interactive explanation. Team work.	- "The relief of the plateau" (Knowing the environment, 5th Anaya Press). - "Before Columbus" (plan sheet 2) and "Rush Hour Association" (plan sheet 3), (Language, 6th S/M Press). - Written paragraph by the student. - Essay written by everybody	5 graphic organizers (included in plan sheet 1). Diagram of goals (plan sheet 4). Cards (plan sheet 5). Plan sheet 6 of organizing.
10th-12th Sessions: Processes directly involved in writing - Following the plan using the yo-yo approach (10th) - Types of textual structures (11th) - Paragraph composition (12th)	Value and relevance of these processes. Levels of exigency. Attributions to effort. Promotion of self-esteem.	Activation of knowledge. Novel tasks. Modeling and interactive explanation, rewarding involvement.	- Instructions about illustrations realized by the student. - Two paragraphs extracted from 5th and 6th language books - Edelvives Press - (plan sheet 9) - Paragraph written by students.	Geometrical figures (plan sheet 7). Textual structures (plan sheet 8). Diagram of modeling about "The Language."
14th-16th Sessions: Writing, revising processes - Revising structure and coherence (14th) - Revising orthography and grammar (15th) - Revising and rewriting (16th)	Value and importance of revising. Standards to realize the revision. Attribution to effort. Promotion of self-esteem.	Real experiences. Possible choices. Use of colors. Explaining rewarding involvement. Team work and brainstorming.	- "Making bread" (Language 6th S/M Press) (plan sheet 12). - Paragraph created by student in the previous session. - Newspaper cutting brought by the student.	Cards with steps of revising (plan sheet 10). Prompt cards to revising punctuation and mechanics (plan sheet 11).
9th, 13th, 17th & 22nd Sessions: Application of all writing processes	Improving self-esteem and self-efficacy. Attribution of success to effort. Success to effort attributions.	Novel games. Group discussions about students themselves.	- Essays about students written by the students themselves.	5 graphic organizers (included in plan sheet 1). Blank cards.
18th-19th Sessions: Instruction in description	Value and levels of exigency in description. Success to effort attributions.	Novel activities. Relation with real experience. Team work.	- "Matilda: the house ..." (Adapted from DAHL, Roal; Matilda Alfaguara Press) (plan sheet 14).	Objects pictures (plan sheet 13). Differentiate between description of a person and a thing (plan sheet 15).
20th-21st Sessions: Instruction in narration	Value and levels of exigency in narration. Success to effort attributions.	Involvement in explaining. Team work. Simulation.	- "Hamelin's flautist" (Sánchez, 1998). - A story made by students themselves.	Organizer for a narration (plan sheet 16).
23rd-24th Sessions: Instruction in essay	Value and levels of exigency in essay. Success to effort attributions.	Group discussion. Rewards. Challenging activities.	- Essay made by the students with a given end.	Prompt card for the essay (plan sheet 17).
25th Session: Revising all the writing processes	Value and usefulness of writing attributions and self-esteem.	Revision of acquired knowledge and projection to the future.		Organizer diagram of writing steps (plan sheet 18).

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suggesting that task orientation seems to increase memory span and results in deeper cognitive processing, increased reading comprehension and more extensive use of self-regulation strategies (Patrick, Ryan, & Pintrich, 1999). This questionnaire consisted of 16 items.

**Program of Intervention**

A program of training in writing motivation and planning strategies was developed specifically for the purposes of this research. Our intention was to develop training by which students would learn cognitive strategies that would not only facilitate writing but that would also encourage the belief that their aca-

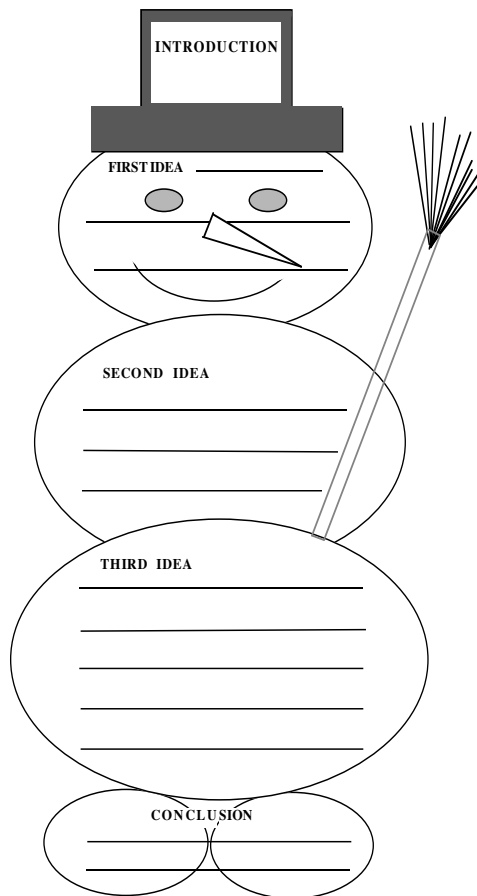
ademic success depends on their personal effort (Mayer, 2001). That is, we assumed that encouraging self-belief would also encourage students to engage fully with writing tasks.

Research and pedagogic experience suggests that students are more motivated to perform a writing task well if it is appropriately situated (Klassen, 2002a). Glazer (1999), for example, describes a task in which students write a letter to a classmate, address it, and put it in a mail box in the classroom. In more general terms, Newby (1991) suggests that motivating tasks are likely to both grasp and maintain student attention, have functional relevance, be a task that students have

**Figure 1.** Plan sheet 1. You have to write a five-paragraph essay using this graphic organizer.

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**GRAPHIC ORGANIZER A**  
(one of the five organizers students can choose in this plan sheet)



**Figure 2.** Plan sheet 17: Essay.

Your task consists of writing an essay with the topic you have chosen before. You must use the expressions assigned below. If you need to use more expressions (links, connectors, etc.), please use them.

Title: .....

If I could choose between ....., I would prefer .....

I think so because .....

Another reason to think this way is .....

....., although.....

Meanwhile .....

....., because of that .....

....., for example, .....

Finally, .....

....., as that .....

In conclusion, .....

confidence that they can complete and that gives students satisfaction on its completion. Our intervention was designed with these principles in mind.

The intervention program was directed at primary-level students in 5th and 6th grade, using texts from books that they use daily in their lessons. Specifically, the program consisted of 25 sessions, 45 to 50 minutes each. In the first session we clearly point out the functional character of writing, the “what does the student write for” component, so the values that they give to writing are part of the first motivational factor (Mussen et al., 1990; Valle et al., 2002; Wolters & Pintrich, 2001).

Table 3 outlines the content of the intervention program. As illustrated, the initial session focused on the importance and relevance of writing and, therefore, the value of developing writing ability. The next 16 sessions provided detailed instruction in the components of the writing process (as described by Sorenson, 1997), with a particular focus on the importance and varying functions of planning what is to be written, based on work by Hayes and Nash (1996), and with a particular focus on planning strategies that have been identified as useful for students with learning disabilities (Mather & Roberts, 1995; Wong, 1996, 1997; Wong et al., 1996,

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1997). The final eight sessions aimed at introducing important features of the writing genres that students are likely to be required to produce during their academic careers. In addition to this specific content, each session also targeted specific aspects of the students' writing-related motivation.

**Process planning.** The second and third sessions focused on what Hayes and Nash (1996) describe as "process planning." The purposes of these sessions were to develop students' awareness of the different subprocesses – planning, translation, realization, execution, and revision – that comprise the writing process.

Sessions 4-8 focused on planning activities that are typically, and most usefully, engaged in prior to producing full text. These include strategies of collecting information, generating ideas, developing a main point, establishing purpose, identifying audience demands and organizing content into an appropriate structure.

Sessions 10-12 focused specifically on the translation, execution and drafting phase in which planned content is realized as full text. These sessions stressed the recursive nature of writing – the fact that realizing planned content as full text can, in itself, result in the need to rethink plans and goals – and the need to consider different possible text structures. We also provided instruction in how best to construct paragraphs.

Sessions 14-16 introduced students to the importance of revision (rereading and editing) text both as a strategy for developing coherence and structure, and as a strategy for checking the accuracy of spelling, punctuation, and syntax.

The final seven sessions introduced the key genre characteristics of descriptive, narrative, and essay texts to give the students clues for how to write these three types of texts and recognize the differences between them.

The final session provided a review of the program. Four sessions (Sessions 9, 13, 17 and 22) were devoted to activities designed to reinforce the application of the process and genre instruction students had received.

**Motivational component.** The motivational component of the program, which ran alongside instruction in process and genre, was designed around the four factors identified above as important in developing students' motivation to write well (an understanding of the value and relevance of being able to compose text, an understanding of what is required, or standard of demands, the development of writing-specific self-esteem, attitudes and self-efficacy, and attribution of writing performance to the students' own efforts and not to external factors).

The first of these factors was addressed by ensuring that each session included material demonstrating the value of the content that was being delivered.

To help students develop an understanding of the required standard of performance, they were provided with graphic organizers (see Figures 1 and 3) to help them reach the exigency level, and revision lists (see Figure 2). Instructors also helped students to finish their tasks. The students' self-beliefs were specifically targeted through activities in Sessions 9, 13, 17 and 22. These included playing games and discussions and writing activities in which students talked about their own and their classmates' good qualities.

In addition to this specific intervention, throughout the program instructors repeatedly reinforced in students the belief that they were capable of performing the tasks that were assigned. Finally, as a strategy for reinforcing students' attribution of achievement to their own efforts, at the end of each session we evaluated the work that had been completed. Specifically, each student was given a jar at the start of the program. At the end of each session students (or sometimes their classmates) recalled the things that they had done well during the session. For each task or subtask that students successfully completed, they received a chickpea (a "token"). Our assumption was that as students watched their jar fill over the 25 sessions, they would be reminded of previous successes, thus increasing self-efficacy and self-esteem and help them develop a habit of attributing success to their own effort.

The writing tasks that accompanied the sessions were designed to be novel, to be completed in pairs or small groups, and sessions were designed to incorporate considerable instructor-student and student-student interaction. Students were encouraged to choose their own writing topics. All of these features were intended to promote student motivation (Linnenbrink & Pintrich, 2002).

### **Research Planning and Design**

As mentioned, we used a design consisting of experimental and control groups and pre-/posttest. Every student was assessed, even students who did not receive specific training, on the EPPyFPE and motivational questionnaires, MOES-I, II and III, and MODEMO adaptation, before and after the instruction.

Type of instruction was the independent variable (experimental group = specially designed instruction; control group = standard instruction). The dependent variables were the results obtained on the assessment devices (EPPyFPE and the motivation questionnaires), before and after intervention.

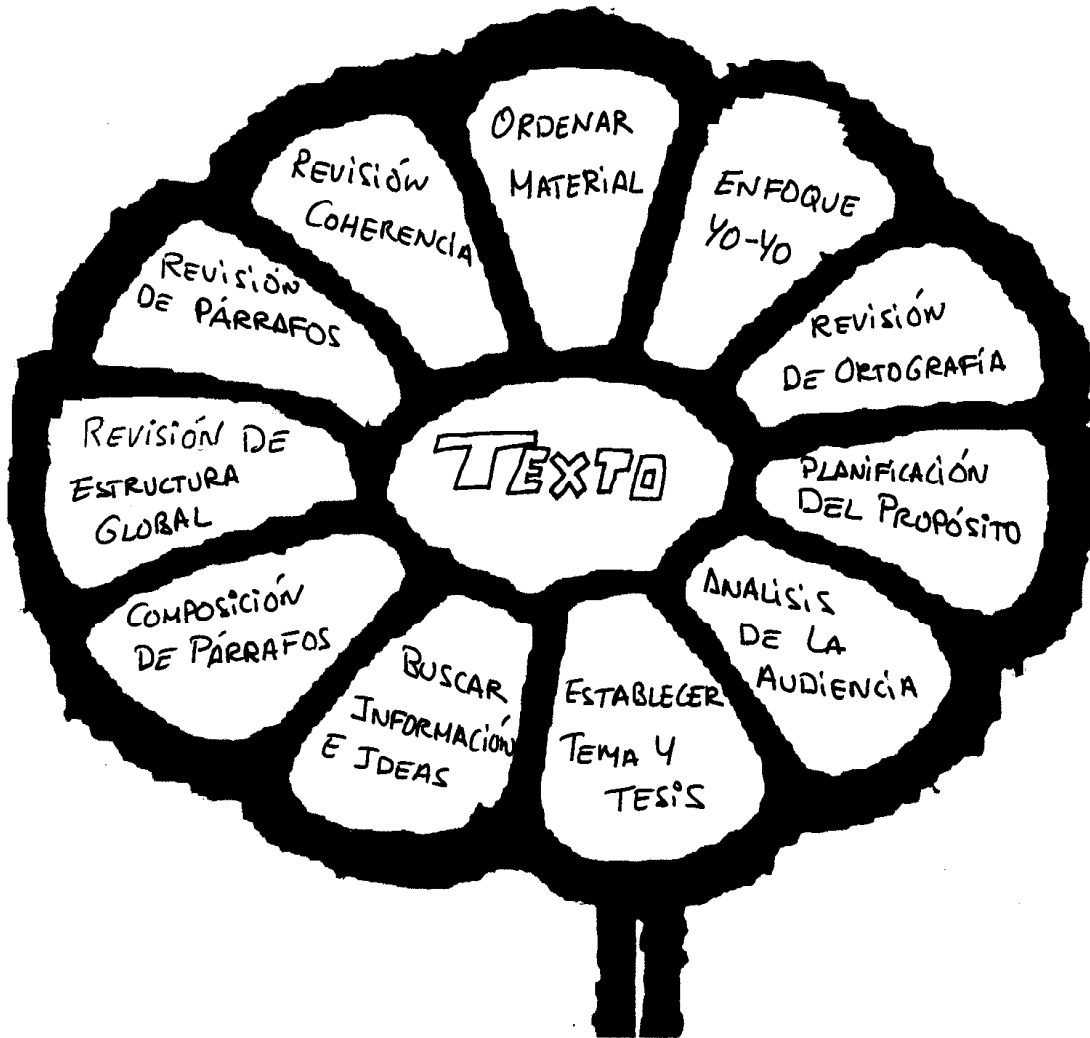
A multivariate analysis, 2 x 2 with repeated measures (factorial 2 x 2 design), indicates if the intervention has produced significant changes in the control and experimental groups after the intervention, and whether they are greater for the experimental group. That is, it



Figure 3. Plan sheet 18.

### FLOWER. ORGANIZER DIAGRAM OF WRITING STEPS

Remember and organize the steps of the writing process. To do so, you can use different colors showing every subprocess involved in each process. Then put them in order.



Note. Texto [text] = Order required = 1st Buscar información e ideas [look for information and ideas]. 2nd Planificación del propósito [establishing the purpose]. 3rd Establecer tema y tesis [establishing topic and thesis]. 4th Análisis de la audiencia [Characteristics of the audience]. 5th Ordenar el material [Organizing the material]. 6th Enfoque yo-yo [yo-yo approach]. 7th Composición de párrafos [Paragraphs composition]. 8th Revisión de estructura global [Revising the whole estructura]. 9th Revisión de coherencia [Revising coherence]. 10th Revisión de párrafos [Revising paragraphs]. 11th Revisión de ortografía [Revising ortography].

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provides information about the efficacy of the training provided. This analysis also points out if the intervention has produced changes in general due to passage of time (before vs. after intervention), or if the changes are related to the group to which the student belongs (control vs. experimental) without considering time.

### **Procedures**

**Training of instructors.** The intervention was delivered by 32 teachers who were in their final year of a master's program in psychology and pedagogy. The teachers were trained in 12 two-hour-a-week sessions for three months.

First, participants were instructed in how to apply the assessment instruments, the EPPyFPE, the MOES I, II and III, and the MODEMO, to ensure that everyone could administer the instruments in the same way, using the same criteria.

Second, participants were trained in following the intervention program session by session. Specifically, tasks were differentiated as those (a) the instructor had to complete and (b) the students had to complete.

**Implementation of the intervention.** The intervention was delivered between March and May, 2002. Pretests were conducted with both intervention and control students by the teachers in groups of between two and six children. Students in the intervention group were then exposed to the intervention three or four times a week, but never in two sessions on the same day.

The intervention was conducted in small groups consisting of two to four children in their standard school setting; all sessions occurred in the same location. Delivery conditions were carefully standardized across participating schools. Students in the control group continued with typical lessons over this period. Control groups were drawn from the same schools as the experimental ones, and were tested by the same teachers. Both intervention and control groups then received the posttest, which was comprised of the same instruments and delivered in the same way as the pretest.

Finally, we collected not just the test results but also the materials generated during the interventions. This procedure enabled the researchers to assess the fidelity of the intervention to ensure that it was administered in an equivalent manner across all participating schools.

## **RESULTS**

For the experimental group (students with learning disabilities and/or low achievement), an analysis of the data showed only statistically significant changes in the quality of texts (but not in the productivity, or quantity, of their writing) and in attitudes – an aspect

of the second factor of motivation. For the other motivational measures, in general, the results were not statistically significant.

### **Quality of Written Composition**

For students who were trained in the processes of text composition and motivation towards writing, text quality improved at the level of statistical significance and with an effect size from small to large, compared with students who only received the standard classroom instruction.

For the description task, we observed significant statistical changes that differentiated the intervention group from the control, comparing before/after in interaction with the treatment, in the indicators of relevance to show theme continuity [ $F_{(1, 125)} = 2,956$ ;  $p = 0.088$ ]; thread of the plot [ $F_{(1, 125)} = 13,024$ ;  $p = 0.0004$ ]; links [ $F_{(1, 125)} = 10,672$ ;  $p = 0.0014$ ]; paragraphs [ $F_{(1, 125)} = 13,294$ ;  $p = 0.0004$ ] and total textual coherence [ $F_{(1, 125)} = 26,54$ ;  $p = 0.0000$ ].

We also found some significant statistical changes for improved productivity on the pre- and post-measures for both groups, as shown in Figure 4. Although improvements are seen for both groups, those of the experimental group are bigger. In general, we obtained a small effect size [ranging from  $\eta^2 = 0.001$  for functional words to  $0.0023$  for relevance] except for paragraphs, links or thread of the plot where we obtained medium effect size [ $\eta^2 = 0.096$ ;  $\eta^2 = 0.079$ ; or  $\eta^2 = 0.094$ , respectively] and for total coherence where we found a large effect size [ $\eta^2 = 0.175$ ], following the Cohen rule (1988) (see Table 4).

If we exclusively focus on the variables that yielded statistical significance, in Figure 4 we see how the quality of the descriptions (measured in terms of coherence) of the students with learning disabilities in the experimental group improved markedly, going from being under the control group in the pretest to surpassing it in the posttest.

For the narration task, we again find statistically significant differences in favor of the intervention group, when we compare the before/after treatment interaction on the following indicators of structure and coherence: performance [ $F_{(1, 125)} = 6,299$ ;  $p = 0.0133$ ]; time [ $F_{(1, 125)} = 5,529$ ;  $p = 0.0203$ ]; episodes [ $F_{(1, 125)} = 3,404$ ;  $p = 0.0674$ ]; total structure [ $F_{(1, 125)} = 14,74$ ;  $p = 0.0002$ ]; link [ $F_{(1, 125)} = 3,521$ ;  $p = 0.0629$ ]; paragraphs [ $F_{(1, 125)} = 23,353$ ;  $p = 0.0000$ ]; and total coherence [ $F_{(1, 125)} = 13,128$ ;  $p = 0.0004$ ]. All of these are indicators of the quality of the text. We also find that the indicator of characters inside the structure appears to improve for both groups as time passed. In general, we obtained a small effect size [ranging from  $\eta^2 = 0.027$  for structure-events or for links, to  $\eta^2 = 0.048$  for struc-

**Table 4**  
**Results of Factorial Design 2 x 2 of Repeated Measures in Self-Efficacy, Writing Value, Standards of Performance, Self-Esteem, Attributions, Importance of Language and Writing into the School Curriculum, and MODEMO Adaptation**

Variables	INTERVENTION (N = 66)				CONTROL(N = 61)				BA x TIME		BA x TIME x GROUP		
	M-Pre	SD-Pre	M-Post	SD-Post	M-Pre	SD-Pre	M-Post	SD-Post	F <sub>(1, 125)</sub>	p	F <sub>(1, 125)</sub>	p	η <sup>2</sup>
Total self-efficacy	30.54	5.71	31.85	5.45	30.79	5.64	31.46	6.07	0.086	0.0858	0.581	0.5812	0.002
Total MOES-1	52.39	7.78	52.3	7.19	53.43	8.04	51	6.83	3.007	0.085	2.589	0.11	0.020
Success due to the ability	5.02	1.58	5.56	1.91	5.03	1.77	5.08	1.66	3.219	0.0751	2.242	0.1368	0.018
Failure due to the ability	4.69	1.97	4.39	1.89	4.56	2.12	4.08	1.74	3.362	0.0589	0.178	0.6737	0.001
Writing importance 2 (writing an essay)	5.26	2.87	6.55	2.25	4.95	2.78	5.62	2.55	14.057	0.0003	1.387	0.2411	0.011
Reading importance 1 (reading a narration)	4.47	2.59	5	2.52	5.26	2.92	4.08	2.66	1.121	0.2917	7.764	0.0062	0.058
Self-orientation	30.68	6.27	29.83	6.66	31.23	6.54	29.09	6.92	6.305	0.0133	1.168	0.2818	0.009
Task orientation	39.41	7.19	38.44	7.14	40.72	6.35	39.29	7.41	2.925	0.0897	0.106	0.7450	0.001
Total	70.09	11.46	68.27	11.69	71.95	10.07	68.39	10.35	6.936	0.0095	0.726	0.3958	0.006

Note. We include both the effect produced by time alone and the effect produced by the interaction between the repeated measure, the passage of time (before-after: BA), times the treatment (experimental and control).

We only represent the statistically significant (<0.05) or near-significance level results.

η<sup>2</sup> (eta-squared statistic) = Estimates of effect size.

The Cohen (1988) rule signals = 0.01 – 0.06 (small effect); > 0.06 – 0.14 (medium effect); > 0.14 (large effect).

ture-performance], except for paragraphs, total structure and total coherence, where we found a large and a medium effect size [ $\eta^2 = 0.157$ ;  $\eta^2 = 0.105$  and  $\eta^2 = 0.095$ ].

Figure 5 shows the observed differences for narration, the same as for description, between control and experimental groups before and after specific intervention in the variables that measure the quality of this type of text.

The differences pre-/post in interaction with the treatment (control-experimental) for the essay task again shows significant contrasts statistically on the indicators of links [ $F_{(1, 125)} = 4,057$ ;  $p = 0.0461$ ]; thread of the plot [ $F_{(1, 125)} = 8,71$ ;  $p = 0.0038$ ]; paragraphs [ $F_{(1, 125)} = 26,554$ ;  $p = 0.0000$ ]; and total coherence [ $F_{(1, 125)} = 23,907$ ;  $p = 0.0000$ ]. All of them pertain to the measurement of coherence, which assesses the quality of written essays. In general, we obtained a small effect size [ranging from  $\eta^2 = 0.000$  for content words to  $\eta^2 = 0.031$  for links], except for paragraphs and total coherence, where we found a large effect size [ $\eta^2 = 0.175$  and  $\eta^2 = 0.161$ ], following the Cohen rule (1988), and for "thread of the plot" a medium effect size [ $\eta^2 = 0.065$ ].

Figure 6 illustrates the effects of the program on the quality of essays (in terms of coherence) written by students with learning disabilities and/or low achievement.

Specifically, students in the experimental group improved notably more than those in the control group.

Observing the three previous figures (4, 5, and 6) and the indicators that yielded statistically significant results, it is logical to anticipate that the total structure-coherence of the written tasks would be significant too [ $F_{(1, 125)} = 46,061$ ;  $p = 0.0000$ ]. This supports the important improvement of the quality of texts written by the students after the intervention in writing processes and motivation towards writing, compared to the students who did not receive specific instruction.

### Motivation Towards Writing

To analyze the improvement in students' motivation towards writing, we conducted another multivariate analysis of variance with repeated measures, taking into account the same variables (within-between) with the same values each (before-after; control-experimental). This analysis involved the MOES I, II and III questionnaires and the other two questionnaires assessing attitudes and self-efficacy towards writing (both from the EPPyFPE), two components concerned with the third motivational factor as both depended on our beliefs and expectations.

The MOES I measures the value that students give to

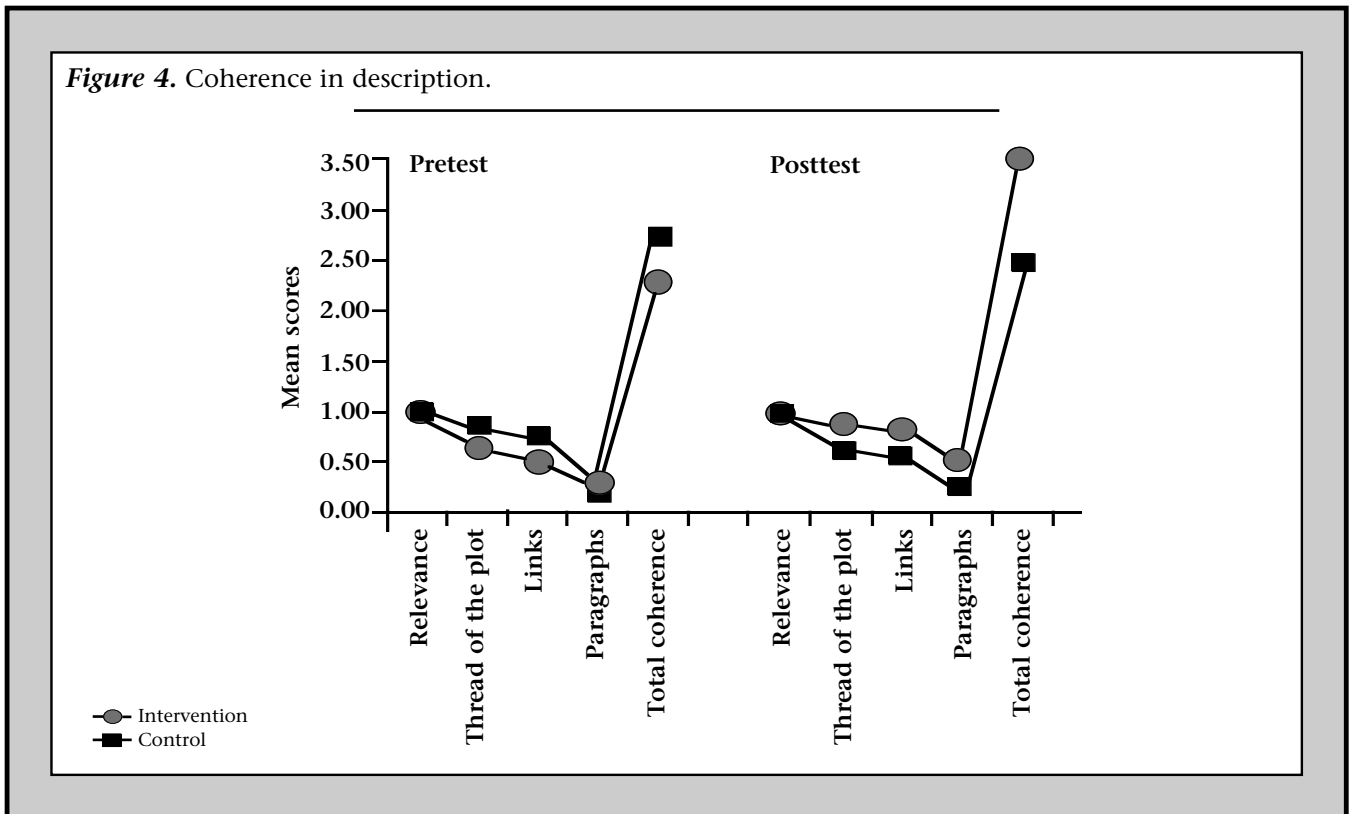
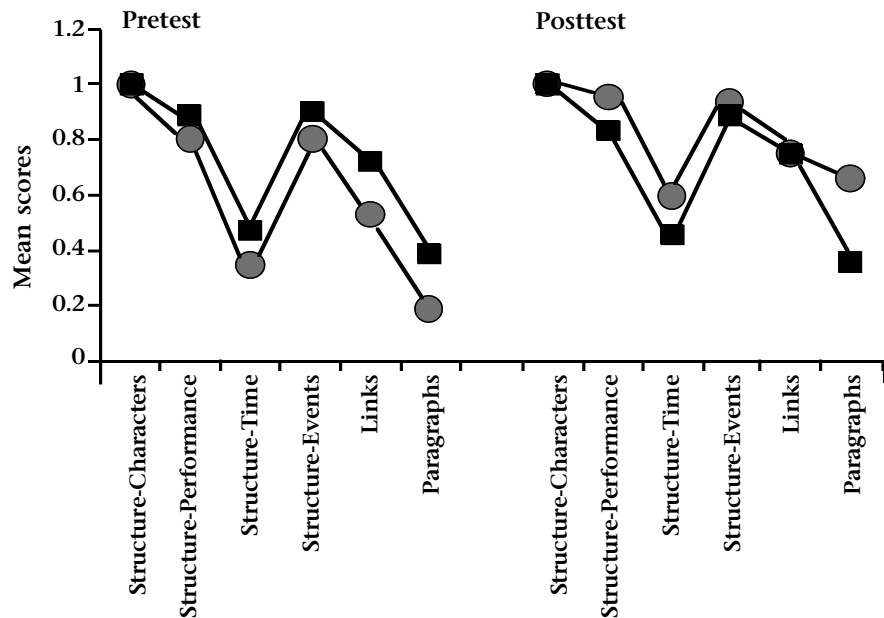


Figure 5. Structure/coherence in narration.



writing tasks (first motivational factor), standards of performance (second motivational factor) and self-esteem, the other element of the third motivational factor besides attitudes and self-efficacy. The MOES II assesses attributional style, the fourth motivational factor. The MOES III deals with the first motivational factor as it shows students' preferences of writing tasks. Finally, we used the adapted MODEMO, which determines if the students have self-orientation (to preserve their self-esteem) or task orientation (to learn by learning), two components that are not included in the four classical factors of motivation.

For the attitudes towards writing questionnaire, the contrasts of the interaction before-after with the treatment (differences between the control group and the intervention group) indicate significant statistical differences in Item 5 "me cuesta mucho trabajo encontrar el momento de ponerme a realizar los ejercicios escritos" ["it is hard for me to find the moment to proceed to realize writing exercises"] [ $F_{(1, 125)} = 5,179$ ;  $p = 0.0246$ ]; Item 7 "escribir redacciones es una pérdida de tiempo" ["writing essays is a waste of time"] [ $F_{(1, 125)} = 3,289$ ;  $p = 0,0721$ ]; Item 8 "no encuentro nada agradable en escribir redacciones" ["I do not find anything

agreeable writing essays"] [ $F_{(1, 125)} = 2,972$ ;  $p = 0.0872$ ]; and Item 9 "con escribir lo que me mandan considero que he cumplido, no me esfuerzo por hacerlo bien" ["I consider that I have accomplished with what is assigned to me, I do not strain to do it well"] [ $F_{(1, 125)} = 3,542$ ;  $p = 0.0621$ ].

In total, results for attitudes were statistically significant [ $F_{(1, 125)} = 6,814$ ;  $p = 0.0102$ ] in favor of the experimental group. While the students who were specifically trained improved their attitudes towards writing, the students who were not specifically instructed in writing processes and in motivation towards writing tended to decrease their attitudes towards writing, as shown in Figure 7. In general, we obtained a small effect size.

As for the rest of the factors that assessed motivation, it does not seem that the experimental group improved more than the control group, except in the order that they gave to the first reading task of the MOES III "reading a narration." The mean of the experimental group increased from 4.47 to 5 on a scale from 1 to 10; the mean of the control group decreased from 5.26 to 4.08 [ $F_{(1, 125)} = 7,764$ ;  $p = 0.0062$ ]. In general, we obtained a small effect size (see Table 4).

Although no differences were found between groups (control-experimental) in interaction with the factor of time (before-after) in the rest of the dimensions of motivation, there do appear to be statistically significant differences between the pre- and the posttest of the students as a whole (trained and not trained) on different indicators as shown in Table 4.

If we study the means, we see total self-efficacy increasing for the whole sample, but this gain is slightly greater for the experimental group, where it increased from a mean of 30.54 to 31.85, whereas for the control group it only increased from a mean of 30.79 to 31.46, making the total improvement nearly significant statistically [ $F_{(1, 125)} = 0,086; p = 0.0858$ ].

The same trend is found for the attribution to success due to ability [ $F_{(1, 125)} = 3,219; p = 0.0751$ ], because the experimental group mean increased from 5.02 to 5.56, while the control group only increased from 5.03 to 5.04. These results are related with the fact that we found a decrease in the same proportion in the attribution of failure due to the ability [ $F_{(1-125)} = 3,362; p = 0.0589$ ]. This improvement of the attribution to success due to ability and the decrease of the attribution to failure due to the ability are symptoms of greater motiva-

tion so, as Linnenbrink and Pintrich (2002) note, these two trends make students more adaptive to school achievement, and these attributions are essential determinants of motivation.

Finally, contrary to expectations, we found that motivation assessed through MODEMO decreased significantly on the posttest compared to the pretest for every student [ $F_{(1, 125)} = 6,936; p = 0.0095$ ]; namely, both the self-orientation and the task-orientation decreased from the pre- to the posttest.

## DISCUSSION AND IMPLICATIONS FOR PRACTICE

In this study we tried to verify the effects of an instructional program based on training in writing processes and motivation towards writing in students with learning disabilities and/or low achievement. Our analysis suggests that the effects of the intervention did not meet all of our expectations. To gain a more complete understanding, we will analyze each hypothesis underlying the study.

The first of the hypotheses would suggest increased motivation towards writing in students who were specifically trained in the instructional program. This was not fully proven. As motivation was assessed based

Figure 6. Coherence in essay task.

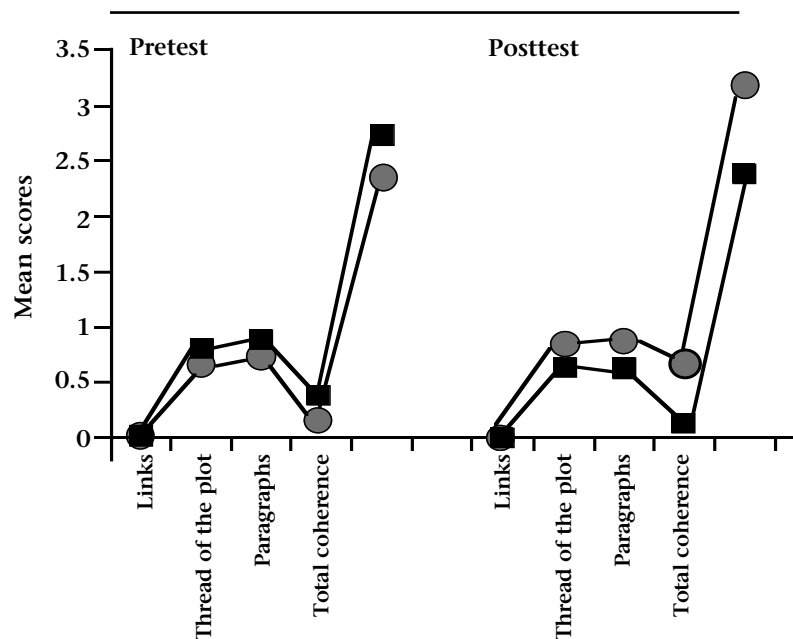
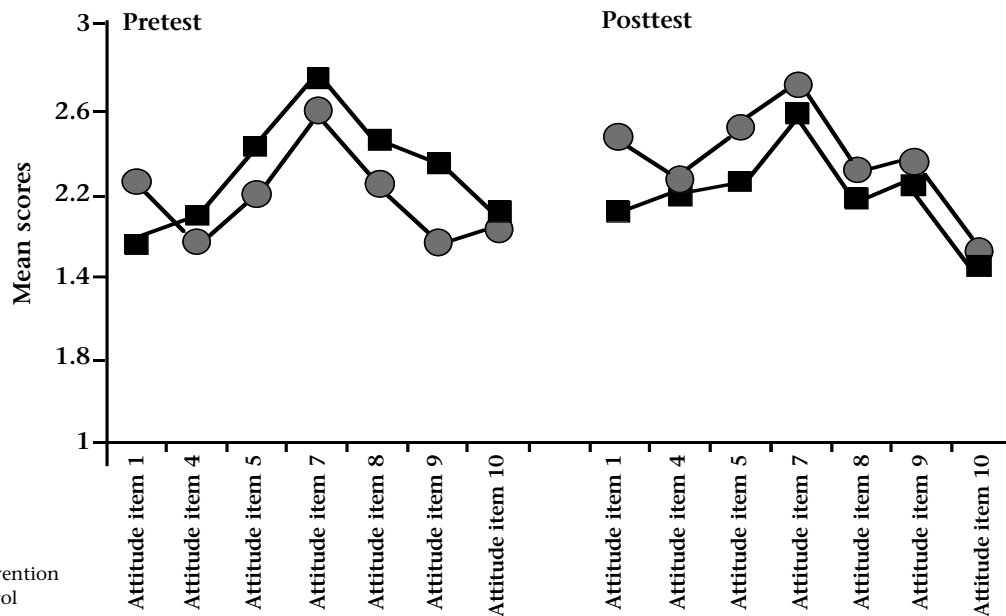


Figure 7. Attitudes towards writing.



on the four classical determinants or components (García & de Caso, 2002a; Mussen et al., 1990; Valle et al., 2002; Wolters & Pintrich, 2001), we observed that the motivational components did not change significantly, except the attitude towards writing. Putting effort into solving a task does not necessarily mean that a person will be more motivated to perform the task in the future since other motivational factors, such as the value we give to the task, have to be taken into account as well. So, to have adequate attributions, to have a good self-esteem and a reasonable self-efficacy, is necessary for being motivated but is not enough to make one want to do a given task.

For students who only received the standard instruction, their attitudes towards written composition decreased, which is congruent with the results of other studies showing that negative attitudes towards writing increase with age in students with and without learning disabilities without training (García, Marbán, de Caso, & Fidalgo, 2001). However, for students trained in the program focused on writing processes and motivational components, their attitudes towards written composition increased significantly. This finding highlights the efficacy of the intervention to modify the attitudes of

students with learning disabilities and/or low achievement, enabling them to develop a more positive attitude towards writing. This outcome appears to increase their interest in the task and, therefore, to improve motivation since attitudes are part of the third motivational factor, as our attitudes depend on our beliefs concerning with efficacy. That is, if our self-efficacy is good, we will be more inclined to do the task the next time because we are almost sure we will be successful.

Nevertheless, we did not find significant differences in self-efficacy between the two groups. This appears consistent with the results of a study by Pintrich and Anderman (1994), who found no significant differences in self-efficacy between students with and without learning disabilities. It appears that the motivational beliefs of students with difficulties are as positive as those of students without difficulties. In our study both groups (experimental and control) consisted of students with learning disabilities and/or low achievement, and maybe the specific intervention was insufficient to produce a higher increase (as reflected in a statistically significant difference).

Because we did not observe significant changes in any other determinants of motivation, it seems that the

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instructional program did not significantly improve students' motivation towards writing. It only produced a positive attitudinal change that, although important, is not enough to increase interest in writing.

Several explanations may be offered to better understand these results. For example, Meyer and Turner (2002) pointed out that emotion is an essential part of the study of motivation in the school context. Therefore, emotions have to be equated and added to the theory of the value expectation, the attributions and the self-efficacy. That is, we have to take into account that a task that was boring to the students (e.g., writing) was not made interesting by adding only a few details (Mayer, 2001). The material had to make sense and increase both students' cognitive and emotional interest.

We also have to take into account that motivation seems to be an element that, despite its variation from one context to another, remains relative stable beyond age 12 (Gottfried, Fleming, & Gottfried, 2001), so maybe a more prolonged intervention was needed to bring about important changes in motivation. This was the case in a preview intervention with students with learning disabilities and/or low achievement trying to improve reflexivity and to control impulsivity towards writing. Here we found an increase in the written composition but not in the reflexivity (García & de Caso, 2002b).

It is possible too, that we have to take into account other "subcognitive" mechanisms, as Kuhl (2000) suggests. Kuhl notes that analyzing beliefs and other cognitive content is not enough to explain the basis of motivation, since students may have difficulty demonstrating positive affect and intrinsic motivation in a task although we had made them believe that they would be able to do it. In such cases, it would also be important to explore the neurobiological aspect of the person. It is intrinsic motivation that teachers should look for since it is this kind of motivation that improves learning and performance (Brody & Ehrlichman, 1997). We tried to do so in this study by filling a jar with chickpeas to enable students to see how many results were due to their own effort since we did not convert their chickpeas into tangibles. However, it is not clear how students interpreted the filled the jar.

As Gottfried et al. (2001) state, intrinsic motivation refers to carrying out a task by its own merit, where the pleasure is inherent in the task itself, whereas extrinsic motivation means performing the task to get an external reward (Brody & Ehrlichman, 1997). People who have intrinsic motivation look for challenging activities that give information about their competence and capacity whereas people with extrinsic motivation do not care about the task itself.

To enhance intrinsic motivation towards writing, teachers should set high but realistic goals, and must ignore negative expectations about their students (Graham & Harris, 2002). They must also control and improve students' interventions in class and help to develop an adaptive attributional style, planning writing sessions in a way that ensure success. If not, students would note that their teacher does not care about them, which diminishes their interest and motivation not only regarding their teacher but also the subjects he/she teaches. Graham et al. (2001) have also stressed the importance of using humor in order to create a relaxed environment, and letting the students choose the topics they want to write about.

Concerning the second and third hypotheses, both have been accomplished with success by improving significantly the quality of all the three types of writing (description, narration and essay) by the specifically instructed students compared to those who only received standard instruction. Thus, even though we did not find significant changes in the productivity of students who received specific training, the quality, measured in terms of structure and coherence, improved notably, a fact that proves the efficacy of the intervention.

These findings suggest that the improvement of the quality of writing compositions reached in the present study (although it is desirable to refine our measures in the sense of, for example, Gregg & Mather, 2002) was due to both the writing composition strategies proposed by Mather and Roberts (1995) and Sorenson (1997) used in this research, and the attitudinal change experienced by specially trained students. This guarantees the efficacy of the combination of cognitive strategies with the motivational aspects, as Graham et al. (2001), Klassen (2002a), Mayer (2001) and Wolters and Pintrich (2001) pointed out.

Improving the quality of writing in students with learning disabilities and/or low achievement could produce a future adaptive attributional change in those students. It is possible that if they write better, their history of failures will decrease and their expectations of success will improve. That is, they will keep attributing their success to their effort and ability, which are favorable internal attributions to improve academic success, because they can control them (Linnenbrink & Pintrich, 2002; Tabassam & Grainger, 2002).

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### NOTES

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