

Efectos en la escritura de la intervención temprana en estudiantes españoles de Educación Infantil con riesgo de dificultades en el aprendizaje

Effects of early intervention on the writing skills of pupils who present a risk of learning disabilities within Spain's Early Years and Primary Education system.

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Citar

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Resumen

Introducción: A pesar de que hay un consenso en admitir cuáles son algunas de las bases para prevenir las dificultades específicas en el aprendizaje, sin embargo, no son tan frecuentes los estudios que aplican programas que consideran la mayoría de ellas de manera conjunta. El objetivo del estudio es analizar el efecto en la escritura de un programa de intervención del lenguaje oral y escrito en sujetos españoles con riesgo de dificultades en el aprendizaje. El programa tiene como objetivo priorizar y sistematizar la enseñanza de la lectura y la escritura, del conocimiento fonológico y del desarrollo fonológico, semántico y morfosintáctico, a través del curriculum escolar. Metodología: 56 alumnos con riesgo de dificultades en el aprendizaje son evaluados desde los cinco hasta los siete años. El diseño es longitudinal de medidas repetidas, con cuatro fases de evaluación y tres de intervención, dos grupos de sujetos (instruido vs no instruido) y dos variables de estudio (copia y dictado). Resultados: Los resultados indican mejores puntuaciones en copia y dictado en el grupo instruido. Discusión y conclusiones: Se demuestra la eficacia de la intervención temprana, sistemática y planificada del lenguaje oral y escrito como modo de mejorar la escritura en sujetos con riesgo de dificultades en el aprendizaje.

Palabras clave: problemas de aprendizaje, lectura, escritura, lenguaje hablado, educación infantil

Abstract

Introduction: Although there is consensus regarding some of the foundations for preventing specific learning disabilities, there is a shortage of studies applying

programmes that encompass most of them together. The aim of this study is to analyse the effect of an oral and written language intervention programme on the writing skills and development of Spanish pupils who present a risk of learning disabilities. The purpose of the programme is to prioritise and systematise the teaching of reading and writing, phonological awareness and phonological, semantic and morpho-syntactic development, through the school curriculum. Method: 56 pupils aged between five and seven who present a risk of learning disabilities were evaluated. A repeat-measures longitudinal design was applied, with four evaluation stages and three intervention stages, two groups of subjects (instruction vs. no instruction) and two study variables (copying and dictation). Results: findings indicate that the group that received specific instruction achieved better scores in copying and dictation. Discussion and conclusion: the effectiveness of early, systematic and planned intervention with regard to oral and written language, as a way of improving writing in subjects at risk of learning disabilities, is demonstrated.

Keywords: learning disabilities, reading, writing, spoken language; early years and primary education

Introduction

The aim of the research outlined here is to tackle the high levels of learning disabilities found in schools. For example, 50.5 % of pupils in Spain's primary education system are identified as having a slow and accurate reading profile, 31.9 % have an inaccurate reading profile, 16.5 % have a slow and inaccurate reading profile, 38.6% present arbitrary spelling problems, 43.9% writing problems owing to phonological difficulties, and 17.5% spelling and phonological difficulties (Jiménez, Guzmán, Rodríguez, & Artiles, 2009; Jiménez, Rodríguez, & Ramírez, 2009). According to studies carried out in other countries, the prevalence of learning disabilities ranges from 5% to 17.5% of school-age children (Katusic, Colligan, Barbares, Schaid & Jacobsen, 2001). These disabilities, which emerge at a young age, generally increase as the child grows (Gonzalez & Martin, 2006, 2016), and can even lead to poor academic performance or cause them to drop out of the education system altogether.

There is widespread consensus regarding the fact that when and how children learn to read and write will condition their success or failure in improving on such disabilities (Fletcher & Vaughn, 2009; Foorman, Schatschneider, Eakin, Fletcher, Moats, & Francis, 2006; González, Martín, & Delgado, 2011, 2012; González & Martín, 2017).

The majority of studies conducted in this regard show that learning disabilities can be palliated by means of early intervention. Some studies have demonstrated improvements in reading learning disabilities through early intervention in the school curriculum (González et al., 2011, 2012; González & Martín, 2017; Slavin, Lake, Chambers, Cheung, & Davis, 2009;). Given the similarity between reading and writing (Fitzgerald & Shanahan, 2000; Oslund et al., 2015), we might expect early intervention in writing to have a similar improvement with regard to such disabilities. Therefore, the earlier the intervention with children who present a risk of learning disabilities, the greater the expectation regarding their optimal recovery.

Another important question when it comes to achieving such improvements is the content of the intervention. Some studies highlight the importance of systematically prioritising the learning of reading and writing within the school curriculum in order to improve specific learning disabilities (Brand & Dalton, 2012; Brown, Scull, Nolan, Raban, & Deans, 2012; Dunphy, 2012; Elliott & Olliff, 2008; Vadasy & Sanders, 2008; Wright, Stackhoyse, & Wood, 2008). Joint intervention in reading and writing seems most likely to favour success in improving specific learning disabilities, given the two-way relationship between these two skills. Furthermore, according to some studies, specific intervention in reading can improve spelling, and specific intervention in writing can improve the reading of words and reading comprehension (Coker, Jennings, Farley-Ripple, & MacArthur, 2018; Graham, Kiuvara, McKeown, & Harris, 2012; Graham & Santangelo, 2014; Graham et al., 2017;). Along these same lines, various meta-analyses have analysed the effectiveness of intervention programmes in reading and writing among subjects with learning disabilities, finding a high level of effectiveness and gains made in the groups subjected to intervention (Graham et al., 2017; Kang, McKenna, Arden, & Ciullo, 2016).

There are also studies that point towards intervention in prior skills to improve written language disabilities. In this regard, the RTI model highlights the importance of the early detection of risk factors at a young age as a means of preventing specific learning disabilities (Burns & Gibbons, 2012; Fletcher, Lyon, Fuchs, & Barnes, 2019; Fletcher & Vaughn, 2009; Kovaleski, Van der Heyden, & Shapiro, 2013;). These skills or factors include phonological awareness, grapheme-phoneme conversion, vocabulary, and morpho-syntactic awareness, among others (Brand & Dalton, 2012; Ford, Cabell, Konold, Invernizzi, & Gartland, 2013; González et al., 2011, 2012; Hipfner-Boucher, Milburn, Weitzman, Greenberg, Pelletier, & Girolametto, 2014; National Reading Panel, 2000; Scammacca et al., 2016; Schaadt, Pannekamp, & van der Meer, 2013; Vadasy & Sanders, 2012

Although there is widespread consensus around some of the foundations for preventing specific learning disabilities, very few studies apply programmes that encompass the majority of them together. Furthermore, there is also a disconnection between research findings and what is actually done in schools. In some education systems, such as Spain's, children who are at risk of having learning disabilities are not detected until the first or second year of Primary Education. Written language learning is not systematised until after Early Years and Kindergarten Education, and the prerequisites established by research as priority instructional components are not uniformly rolled out across the board.

Hence, following on from previous research conducted by the authors of this paper, the aim here is to analyse the effects of an intervention programme on the writing skills of Spanish-speaking subjects who present a risk of having learning disabilities, through early, systematic, planned intervention with regard to oral and written language. Spanish children at risk of having learning disabilities who are given early systematic instruction in oral and written language between the ages of five and seven are expected to gain higher scores in writing than children within this age range who have not received such instruction.

Method

Participants

The study population encompassed children in Reception/Kindergarten in the province of Malaga (Spain), in state-run and grant-maintained schools located in intermediate sociocultural areas, who presented no physical or psychological disabilities.

In order to select the subjects included in the sample, the schools were classified into different sociocultural areas (high, intermediate, and low). According to the census of schools published by Andalusia's Regional Department of Education, there are twelve state-run Primary Schools in intermediate sociocultural areas in Malaga (Spain), of which five were chosen at random to take part in the research. In this area, 30% of the population is below the average level of illiteracy (González & Delgado, 2007).

In six classrooms located at three of the schools (two per school), an intervention programme was applied to subjects at risk of having learning disabilities, constituting the Group that received Instruction (I). In two classrooms at the remaining schools, the intervention programme was not applied to subjects who presented a risk of learning difficulties, and they received the regulated teaching set out in the official curriculum for Andalusia, constituting the Group that received No Instruction (NI). The five schools were assigned to the I and NI groups at random, and the number of classes in each case corresponded to the number of classrooms in each school.

A total of 56 children in Reception/Kindergarten (aged 5) who presented a risk of learning disabilities took part in this research, selected from a sample of 204 subjects from five schools chosen at random from intermediate sociocultural areas in the province of Malaga (Spain). These 56 pupils were distributed into the Group that received Instruction (I) and the Group that received No Instruction (NI) among 10 classes from the different schools. The I Group comprised 31 pupils (14 boys and 17 girls) who presented a risk of learning disabilities at the age of five ($M = 5.3$ and $SD = 0.5$). The NI Group comprised 25 pupils (14 boys and 11 girls) who also presented a risk of learning disabilities at the age of five ($M = 5.6$ and $SD = 0.5$). The groups did not present any statistically significant differences with regard to gender ($t(1,54) = 0.797$ and $p = .429$).

The pupils included in the two groups were Spanish speakers, did not present any physical, mental or sensory deficits, had a normal intellectual level, and presented a low performance in terms of oral language, reading or writing, according to the educational psychology evaluation reports carried out by the school psychologists. Learning disabilities were evaluated using the Academic Performance Evaluation Test (Test de Evaluación del Rendimiento Académico - TERA) used by Spanish primary teachers to evaluate academic performance (Moya, González, & Delgado, 2010), specifically the reading and writing evaluation tests included in this instrument (González & Delgado, 2006; González et al., 2011, 2012), and the Navarre Oral Language Test (Prueba de Lenguaje Oral de Navarra - PLON) (Aguinaga, Armentia, Fraile, Olangua, & Uriz,

1989), respectively. In both groups, only subjects who obtained a score below the twentieth percentile in all tests were taken into consideration, in accordance with the criterion used in other studies (Fletcher et al., 2004; Welsch, 2007). Hence, subjects who obtained scores below the twentieth percentile in all the tests were deemed to be at risk of having learning disabilities. Initially, no significant differences were found between the groups in the different tests mentioned ($F(1,54) = 2.73$ and $p = .10$, $F(1,54) = 3.73$ and $p = .06$, $F(1,54) = 3.71$ and $p = .06$ and $F(1,54) = 2.92$ and $p = .08$, respectively).

Instruments

Writing ability was evaluated by means of the Copying (REC) and Dictation (RED) tests (González & Delgado, 2007; González et al., 2011).

The REC test evaluates the number of letters copied down correctly out of a total of seven (vowels and consonants), the number of words correctly copied out of total of eight, including words of different lengths and frequency (two and three syllables, direct and blended, familiar and infrequent), and the accuracy with which two sentences are copied down (made up of three and five words, respectively). The maximum scores for each of the subtests were the total item scores for each one, and the maximum test score was the sum total of all the item scores. The mean score achieved in the total test for each age corresponds to the mean number of correct answers in each assessment and school year, indicated in Figure 1. Regarding the validity of the test, it presents a one-dimensional structure and a saturation index greater than .33, with explained variability of 42.75% and a sample adequacy index of .89. Regarding the reliability of the test, analyses of the items indicate homogeneity indices greater than .30 and internal consistency of .92 (González et al., 2011).

The RED test evaluates the number of dictated letters written down correctly out of a total of eight (two vowels and six consonants), along with eight dictated words (with one, two and multiple syllables, direct and blended, familiar and infrequent), eight pseudo-words (two and three syllables, direct and blended), three dictated sentences, with a total of 16 words (each with three, four and five words, with direct, inverse and blended syllables, containing frequent and infrequent words) and three dictated texts with a total of 94 words (graded from lower to higher difficulty, from familiar, simple, short sentences, to long, less familiar and more complex sentences). The maximum score for each of the subtests coincided with the total item score for each one, and the maximum score for the RED test was the sum total of the item scores. The mean score for the total test for each age group corresponded to the mean number of correct answers obtained in each evaluation and school year, indicated in Figure 1. As for the validity of the test, it presents a one-dimensional structure and a saturation index greater than .33, with explained variability of 43.75% and a sample adequacy index of .87. Regarding the reliability of the test, analyses of the items indicate homogeneity indices greater than .30 and internal consistency of .92 (González et al., 2011).

Procedure

A repeat-measures (four measurements) design was used, with three intervention

stages. Two study variables were considered – Copying (C) and Dictation (D) – in two groups of subjects (I and NI).

The subjects were evaluated individually by the authors during school hours, after obtaining details from the educational psychology reports written by the psychologists attached to their respective schools. The evaluation was conducted after the subjects' parents had signed a written consent form, which set out the criteria governing data confidentiality.

Each subject was evaluated individually, during school time, using a blind approach. The first measurement (pre-test) was carried out at the start of the school year (September), when the subjects were beginning Reception/Kindergarten. The other three evaluations (post-tests) were carried out after the application of different intervention periods (June). The three intervention stages were carried out between the months of October and May in the corresponding school years, when the children were in Reception/Kindergarten, Year/Grade 1 and Year/Grade 2 of Primary Education, respectively.

As in previous studies conducted by the authors (González & Martín, 2017; González et al., 2011, 2012), the intervention programme was not carried out with the NI Group. This group received regular teaching regarding spoken and written language, regulated by the official compulsory curricular objectives set out in Legislative Decrees 105 and 107 (CECJA, 1992) for Early Years and Primary Education. In Reception/Kindergarten (aged 5), the contents developed over the course of the school year related with spoken language encompassed listening to stories, songs, and oral narrations of stories. At this level, only an approximation of written language is made, through their knowledge of high frequency words (CECJA, 1992). In Years/Grades 1 and 2 (six and seven years of age), oral language was developed by means of the same tasks as in the previous year, and actual teaching of oral language began, such as visual and spatial discrimination, motor skills, laterality and body schema (CECJA, 1992). The contents were delivered by the teachers in the children's regular classroom and they were not prioritised or structured at any level of education. The time given over every day to the instruction of oral language varied between the different school years, and could not be controlled. In total, four teachers took part.

The children in the I Group received systematic structured instruction in oral language, reading and writing, through the intervention programme developed by the authors in previous studies (González & Martín, 2017; González et al., 2011, 2012). The general aim of this programme is to encourage reading (accuracy and comprehension) and writing (accuracy and composition), integrating this with oral language activities between the ages of five and seven. Reading and writing accuracy were approached by means of phonemic articulation activities and discrimination of all the graphemes in the alphabet (phonological development); identifying, counting, adding, omitting and replacing syllables and phonemes, identifying rhymes, recognising the vowel structure of words, linking words, among others (syllable and phoneme knowledge); reading letters, words and texts; letter, word, sentence and text copying and dictation activities. Reading comprehension and written composition were tackled by means of activities to define and associate images and words, find antonyms and

synonyms, categorise concepts, order images and/or words to build sentences of different lengths, identify and convert masculine/feminine words, plurals/singulars, and affirmative/interrogative, among others (semantic and morpho-syntactic development); identifying and organising the main ideas present in texts of different lengths and complexity; changing or guessing the end of a written text; producing messages or short texts involving images, words or sentences; asking themselves about what they have not understood and correcting themselves, among others (González & Martín, 2017; González et al., 2011, 2012). These contents were sequenced in each school year according to the level of cognitive complexity involved in the tasks (González et al., 2011, 2012). These activities were carried out on a daily basis, individually and collectively, at the start of the school day, through different subjects such as Spanish Language, and Natural and Social Sciences. The programme was developed over two and a half hours every day, for approximately twenty weeks over the course of the school year. The intervention programme was implemented by six teachers in their regular classrooms, having received previous training from the authors of this study in how to apply the programme. This prior training included seminars and workshops in order to update their knowledge about reading and writing instruction, and they also tested out these procedures by means of modelling in order to implement them in class. Subsequently, the teachers received feedback from the authors along with regular weekly monitoring through direct observation in the classrooms and individual and/or group interviews with the authors, in order to analyse their experiences, deal with any difficulties they encountered, and discuss and evaluate the achievements made. The measure of inter-observer agreement recorded with two observers who were monitoring the teachers for 30 class sessions chosen at random indicated a good level of agreement between evaluators (0.87). This process enabled us to control the validity and reliability of the teachers' interventions.

Data analysis

Having confirmed the parametric assumptions of sphericity and homoscedasticity of variances, using the Mauchly and Levene tests, respectively, a one-way repeat-measures analysis of variance was conducted in accordance with the objectives of this study.

The purpose of such tests is to analyse inter-subject and intra-subject differences in relation with the study variables. Adjusted post-hoc comparisons were also analysed between groups and in each group, using the Bonferroni method.

Data analysis was performed using the statistical software package SPSS 20.

Results

Results obtained in the Copying test

The descriptive statistics obtained in the Copying tests by the two groups of subjects in the four evaluations show an increase in the mean scores obtained in the second, third, and fourth evaluation compared to the initial evaluation (pre-test), in the I and NI groups. However, the scores for the I group were higher than the NI group as well as the average scores obtained after the first evaluation (Figure 1 and Table 1).

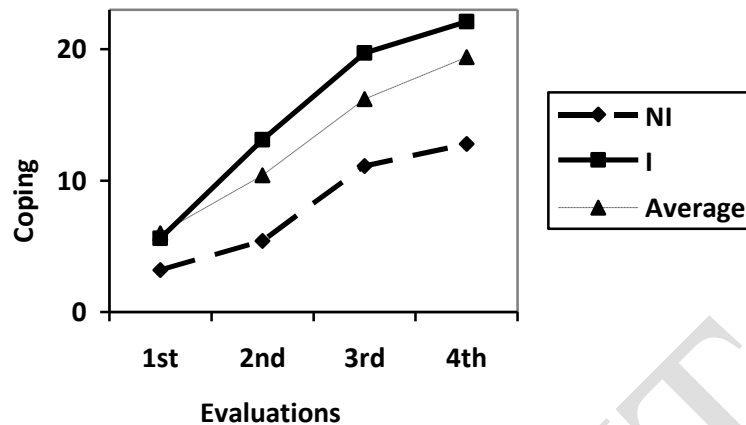


Figure 1. Average scores for Copying per evaluation according to group.

To analyse whether these differences are significant, a repeat-measures analysis of variance was conducted. The assumptions of sphericity ($\chi^2 = 6.73$ and $p > .05$) and homoscedasticity were confirmed in all measures [$(F(1,54) = 0.54$ and $p = .46$), $(F(1,54) = 0.059$ and $p = .80$), $(F(1,54) = 3.41$ and $p = .07$), $(F(1,54) = 3.59$ and $p = .06)$].

As for the inter-subject factor, the results indicate significant differences in Copying between the groups, with $F(1,54) = 269.18$ and $p < .001$, strong suitability of the hypothesis testing, excellent statistical power ($\beta=1$) and a large effect size, with $\eta^2=.88$. Table 1 shows how the differences found between the I and NI groups in the first evaluation were not statistically significant. However, the differences encountered between the groups were statistically significant in the second, third and fourth evaluation, in favour of the I group. In addition, the differences found between the groups as of the second evaluation become greater the longer the programme has been running, confirming the efficacy of the intervention programme.

Table 1

Comparisons between groups at each evaluation of Copying and Dictation writing skills

Evaluation	\bar{x}_{GI}	S_x	\bar{x}_{NI}	S_x	$\bar{x}_{(I-NI)}$	Significance
Copying						
1	5.68	3.24	3.29	2.21	2.39	
2	13.19	4.74	5.42	4.75	7.76	**

3	19.77	4.20	11.14	8.19	8.63	**
4	22.12	3.33	12.85	6.38	9.27	**
Dictation						
1	0.71	1.00	0.14	0.37	0.56	
2	5.23	3.78	0.29	0.75	4.94	*
3	73.03	41.30	4.14	4.81	68.88	**
4	107.29	30.44	23.14	22.09	84.14	**

Note. I: group that received Instruction; NI: group that received No Instruction

* $p < .05$, ** $p < .00$

With regard to the intra-subject factor, the results show significant differences between the four evaluations for Copying ($F(3,108) = 86.69$ and $p < .001$). Once again, the hypothesis testing is found to offer excellent statistical power ($\beta=1$) in both groups, with a considerable effect size ($\eta^2 = .70$). Table 2 indicates the tests for each group between the different evaluations, showing significant differences in the I group between all of them. In this group, scores progressively improved in each intervention period. However, in the NI group, significant differences are seen between all the evaluations, except between the first and the second (five-six years of age) and the third and fourth (six and seven years of age).

Finally, regarding the results obtained for the evaluation and group interaction factor for Copying, there were significant differences ($F(3,108) = 6.09$ and $p < .001$) between the group that received Instruction and the group that received No Instruction at the different evaluations. Excellent statistical power is noted ($\beta=.95$) along with a small effect size ($\eta^2=.14$).

Results obtained in Dictation

The descriptive statistics for the Dictation tests obtained by the two groups of subjects in the four evaluations show an increase in the average scores achieved for Dictation in the second, third and fourth evaluation compared to the initial evaluation (pre-test), in the I and NI groups. However, the scores obtained by the I group were higher than those of the NI group from the second evaluation onwards (Figure 2 and Table 1).

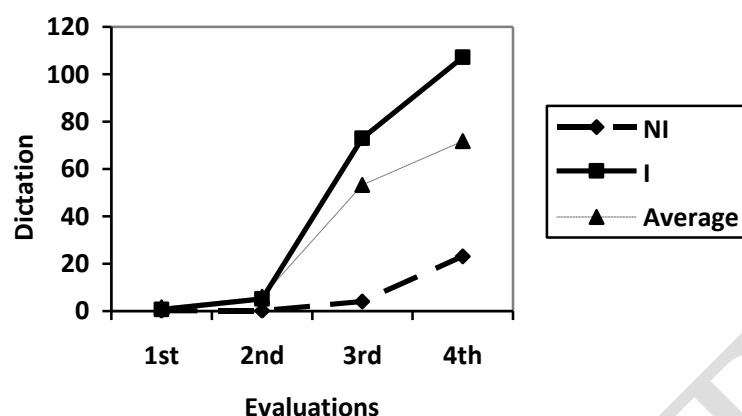


Figure 2. Average score obtained in evaluations of Dictation by group.

To analyse whether these differences in Dictation are significant, a repeat-measures analysis of variance was conducted. The assumption of sphericity was confirmed ($\chi^2 = 147.67$ y $p < .05$), corrected by means of the Huynh-Feldt epsilon correction ($\epsilon = .52$). The homogeneity of variances in the different evaluations was verified [$(F(1,54) = 5.67$ and $p = .07$), $(F(1,54) = 5.40$ and $p = .06$), $(F(1,54) = 4.81$ and $p = .06$), $(F(1,54) = 0.838$ and $p = .366)$].

Regarding the inter-subject factor, the results indicate the existence of significant differences between the groups for Dictation ($F(1,54) = 63.38$ and $p < .001$), with excellent statistical power ($\beta = 1$) and a considerable effect size ($\eta^2 = .63$). Table 1 shows the comparisons between the means scores achieved by the two groups, finding significant differences between the I and NI groups in the second, third, and fourth evaluation, in favour of the I group. The differences in scores increase the longer the programme has been running, confirming the efficacy of the intervention programme.

Table 2

Comparisons between evaluations in each group for Copying and Dictation writing skills

Group	Evaluation (I)	Evaluation (J)	\bar{x} (I-NI)	Significance
Copying				
I	1	2	7.51	**
		3	14.09	**
		4	16.45	**
	2	3	6.58	**
		4	8.93	**
	3	4	2.35	*
NI	1	2	2.14	
		3	7.85	**
		4	9.57	**

NI	2	3	5.71	*
		4	7.42	**
	3	4	1.71	
Dictation				
I	1	2	4.51	**
		3	72.32	**
		4	106.58	**
	2	3	67.80	**
		4	102.06	**
	3	4	34.25	**
NI	1	2	0.14	
		3	4.00	
		4	23.00	
	2	3	3.85	
		4	22.85	
	3	4	19.00	

Note. I: Instruction; NI: No Instruction

* $p < .05$, ** $p < .001$

With regard to the intra-subject factor, the results indicate the existence of significant differences in Copying writing skills between evaluations ($F(1.58,56.87) = 52.30$ and $p < .001$). The excellent statistical power of the hypothesis testing is once again confirmed ($\beta=1$) in both groups, along with a considerable size effect ($\eta^2=.59$). Table 2 indicates the differences in each group between the different evaluations. In the I group, significant differences were found between all of the evaluations, with scores progressively increasing over the periods of intervention. However, in the NI group, no significant differences were observed between the different evaluations. These data confirm the efficacy of the intervention.

Finally, regarding the results obtained for the evaluation and group interaction factor, there were significant differences found for Dictation ($F(1.58,56.87) = 25.20$ and $p < .001$). Furthermore, optimal statistical power was observed ($\beta=1$) along with an acceptable effect size ($\eta^2=.41$).

Discussion

The purpose of this study was to analyse the effects of an early intervention programme, based on the development of oral and written language, on the writing skills (copying and dictation) of a group of Spanish subjects deemed to be at risk of having learning disabilities. The initial expectation was that the scores obtained in copying and dictation tests would be better in the I group than the NI group, from ages five through to seven.

The results obtained highlight, firstly, that both groups made progress between the ages of five and seven with regard to their copying and dictation writing skills, but that in all evaluations, the I group obtained better scores than the NI group, and the average scores and differences found between the two groups increased over the course of the periods of intervention. In other words, subjects at risk of having learning disabilities who receive specific instruction between the ages of five and seven by means of the

intervention programme perform better in copying and dictation tests than those who do not receive instruction through the intervention programme.

Secondly, the results indicate that in the I group, significant differences are found for Copying and Dictation between all the evaluations, with scores progressively increasing between the ages of five and seven. The largest improvements are found in Copying from the start of Reception/Kindergarten, whereas for Dictation, the biggest improvements are found from the end of that school year onwards. In the NI group, on the other hand, differences between Copying and Dictation are only found between some of the evaluations. For Copying, no differences were found between the ages of six and seven, and for Dictation, there were no significant differences between the ages of five and seven. In other words, the group of subjects deemed to be at risk of having learning disabilities who received instruction through the intervention programme progressively improved in their copying and dictation writing skills between the ages of five and seven, whereas pupils at risk of having learning disabilities who did not receive instruction through the intervention programme only achieved significant improvements in Copying, and only from the age of six onwards.

These results suggest that Spanish children who present a risk of having learning disabilities can learn to write optimally and better if they receive prioritised systematic instruction in written and oral language from an early age.

On the one hand, the importance and efficacy of the prioritisation, systematisation and structuring of reading and writing instruction from an early age is demonstrated, in line with other studies conducted with regard to different languages (Brand & Dalton, 2012; Brown et al., 2012; Dunphy, 2012; Elliott & Olliff, 2008; González & Martín, 2017; González et al., 2011, 2012; Vadasy & Sanders, 2008; Wright et al., 2008). The majority of these studies indicate that the prioritisation, systematisation and structuring of reading and writing instruction from an early age through the school curriculum effectively improves in the short and medium term not only reading but also writing and academic performance. Some of these studies also find that the percentage of children with learning disabilities who would require special education also decreases (Burns & Gibbons, 2012; Fletcher et al., 2019). Therefore, the benefits of systematic early experience with written language would be reflected not only in terms of academic performance and reading skills, as some studies indicate, but also in the writing skills of children who present a risk of having learning disabilities (Mackenzie, & Hemmings, 2014; Zhang, Bingham, & Quinn, 2017). It is not possible to establish, based on the results found in this study, the percentages explained by the reading and writing instruction received with regard to the improvements achieved in writing, since instruction in these two skills was delivered together by means of an integrated approach. According to some studies, these percentages could be similar, given the possible two-way relationship between reading and writing. In the future, studies could be designed using groups of children who have only received instruction for writing or only for reading, in order to verify whether the percentages of explained variance attributable to both are similar or not. This could shed further light on the relationship between reading and writing.

The efficacy of providing early, direct and systematic instruction in phonological knowledge, and phonological, semantic and morpho-syntactic development in Spanish is also verified (Fresneda, & Mediavilla, 2017). However, the results do not demonstrate which components are the most relevant in improving writing skills, given that the instruction provided in these instructional components was carried out jointly using an integrated approach, which might be one limitation of this study. These results are along the same lines as the findings of certain studies conducted in languages with different linguistic consistency from early ages (Babayigit & Stainthorp, 2011; Brand & Dalton, 2012; Ford et al., 2013; González et al., 2011, 2012; Hipfner-Boucher, et al., 2014; McCutchen, Stull, Herrea, Lota & Evans, 2014; National Reading Panel, 2000; Scammacca et al., 2016; Slavin et al., 2009; Vadasy & Sanders, 2012; van Weerdenburg, Verhoeven, van Balkom, & Bosman, 2009). In future studies, it might be interesting to see whether the effects of this type of intervention on writing skills and performance are different in less consistent languages than Spanish, where the results could well be different, since children who speak more consistent languages, in which grapheme-phoneme correspondence is immediate, acquire literacy skills more quickly than children who speak less consistent and/or opaque languages, where grapheme-phoneme correspondence is not as evident to children at a young age. Furthermore, the predictive nature of the components considered is also different depending on the orthographical consistency of each language (Georgiou, Parrilla, Kirby, & Stephenson, 2008; Ziegler et al, 2010).

In short, the research findings presented here highlight that, in order to improve the writing skills of subjects who present risks of learning disabilities, the prioritisation and systematisation of reading/writing and oral language instruction delivered at an early age is effective. These two issues are considered important and complementary in terms of achieving better results in the prevention of learning disabilities and the improvement of writing ability.

Finally, these findings should be taken with a degree of caution, owing to the size of the sample and the fact that the gains achieved by subjects at risk of learning difficulties who have received specific instruction will not definitely be maintained as the subjects get older. Future research aims to corroborate the long-term efficacy of applying the intervention programme by comparing the benefits obtained by the pupils in both groups at the end of the next key stage in Spain's education system (age 9), in order to verify whether there are still differences between the two groups with regard to their copying and dictation writing ability. This follow-up research could give greater consistency to the results found in this study.

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