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Index

Research

Research

The Historic Evolution of Centres of Academic Writing

La evolución histórica de los Centros de Escritura Académica

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Abstract

The centres of academic writing which appeared in the English speaking world have become an example for universities all over the world. The main objective of these centres was to resolve deficiencies students found in their writing. Since the seventies academic writing achieved a new epistemic sense and started to be considered as the basis for the construction and transfer of knowledge. At that time, educational policies allowed academic writing a privileged place in the reforms, especially linked to a competencies model. The aim of this article is to describe the pedagogical evolution of academic writing centres and the programmes that were implemented. The focus will be on the two most successful programmes: Writing Across the Curriculum and Writing in the Disciplines. The methodology used for this research is historical-descriptive. The results show that writing centres and programmes implement systems that foster the learning of writing and also provide necessary feedback resources to the students for their own writing work on various curriculum disciplines. In the Spanish sphere, the initiatives carried out in order to mitigate the writing difficulties of university students are just one-off, designed only with a remedial nature. It would be opportune for Spanish universities to reconsider the epistemic value of writing and the possibility of establishing centres of academic writing or implementing some institutional programmes to improve writing in the academic context.

Keywords: writing academic centers; Writing across the curriculum; writing across the curriculum; writing strategies, university.

Resumen

Los centros de escritura académica que aparecieron en el ámbito anglosajón, han sido un ejemplo que se ha transferido a universidades de todo el mundo. Dichos centros se crearon con el objetivo de "reparar" las carencias en la escritura que manifestaban los estudiantes. A partir de los años setenta la escritura académica adquirió un sentido epistémico y pasó a considerarse como la base para la construcción y difusión de conocimiento. En ese momento, la política educativa le concedió un lugar prioritario en las reformas, especialmente vinculado a un modelo de competencias. El objetivo del presente artículo es describir la evolución pedagógica de los centros de escritura académica, así como los programas que se llevaron a cabo. En particular este texto incide en dos de los que más han destacado, como son la Escritura a través del Curriculum y Escritura en las Disciplinas. La metodología que guía esta investigación es la histórica-descriptiva. Los resultados muestran que los centros y programas de escritura implementan sistemas que tienen como objetivo promover el aprendizaje de la escritura y las habilidades necesarias para que el alumno sea capaz de retroalimentar el trabajo en las distintas disciplinas. En el contexto español, las iniciativas orientadas a atender las dificultades de escritura de los estudiantes universitarios son puntuales, con carácter remedial. Se considera pertinente, por tal motivo, que la universidad española, así como su profesorado, reconsidere el valor epistémico de la escritura, y la posibilidad de crear un centro de escritura académica o de implantar algunos programas institucionalizados para la mejora de la escritura en el contexto académico.

Palabras clave: centro de escritura académica, escritura a través del currículum, escritura en las disciplinas; estrategias de escritura; universidad.

Introduction

Although the importance of academic writing is well known for learning and creating new ways of thinking, neither universities nor lecturers have assumed responsibility for this (Álvarez and Yániz, 2015; Carlino, 2003; Castelló, 2014; Harper and Vered, 2017; Núñez, 2013a; Peña, 2008; Serrano, 2011; Vázquez, 2005). Academic writing has been considered as something that should have been learned at previous educational levels (Vázquez, 2005). Such poor institutional attention has had the consequence of writing not occupying a relevant place in the university curriculum (Harper and Vered; 2017; Serrano, 2011). We lack experience in centres for academic writing in our country (Núñez, 2013 a), and the

initiatives adopted have had a remedial approach (Castelló, 2014; Núñez, 2013 a). Most of the time, these initiatives have been nothing more than one-off proposals, (Montijano and Barrios, 2016; Vázquez, 2005) which have not been developed in a continuous or integrated manner in the disciplines. Nevertheless, the subject has received a different consideration in other parts of the world, existing great differences depending on the country. The United Kingdom and The United States have promoted several trends of study in writing at university (Álvarez and Yániz, 2015; Castelló, 2014; Castelló and Mateos, 2015; Molina-Natera, 2012; Serrano, 2011) and launched the first institutional programmes of academic writing (Núñez, 2013b). Later, others such as Canada, Australia and a few Latin-American countries followed this example (Carlino, 2003, 2004 and 2005).

The centres of academic writing from Great Britain and The United States have adopted a variety of forms. As they grew in both quantity and quality, the terminology to define them evolved from 'laboratory' to 'clinic' and finally to 'centre' (Waller, 2002). This evolution was also reflected in the teaching methods (Boquet, 1999; Carino, 1995; Harris, 1990; Waller, 2002). It has become clear that the first methods of work in those laboratorios somehow shaped today's centres of writing (Waller, 2002). The variety of terms and teaching styles has made it difficult to establish the origin of the centres of writing to an specific date (Carino, 1995). It has also made the task of compiling information relatively easy since the seventies. However, little has been written about these centres before that time, therefore making the recovery of data more complicated, (Boquet, 1999) with the information found to be inaccurate.

Despite difficulties, the development and progress of the centres has been significant. Over little more than a decade hundreds of centres of writing have been established (Harris, 1990). This new institutional framework allowed a definitive boost to the programmes of academic literacy in universities . Finally, the increase in the number of centres has ocurred at the same time as the acknowlegment of their key value in the development of programmes of writing. Nowadays, many of these institutions are responsable for launching projects such as "Writing Across the Curriculum" (WAC) and "Writing In the Disciplines" (WID) (Carlino, 2002). This article offers an historical revision on how academic literacy has been approached over history in the centres of academic writing.

The centre of academic writing

One of the most relevant definitions of the centres of writing is that provided by Stephen North (1984), who describes them as a space that writers use to talk about writing. This definition implies putting people, student writers first, offering a clue to where the attention and process of transformation lies. Moreover, we can sense a dialogic and interactional aspect. Writing, seen as a social process (Cassany, 2016; Molina-Natera, 2012; Peña, 2008), enables the exchange of ideas and bestows the possibility of 'talking' and communicating. It is also interesting the observation of North, (1984) when he dates the origin of academic writing centres far beyond the seventies, despite the fact that most of the investigation about these centres focus on that time.

The seed of current organisations, according to North (1984), dates back to Ancient Athens. Socrates, in the city market, used to offer free continuous dialectics to visitors, pursuing their learning. The philosopher tried to generate a change in the person through interaction and union of different points of view. This example illustrates how, in the same way as Socrates sought to achieve learning and intellectual change in the visitor, the centres of academic writing try to do the same for their students through a social and collaborative process of writing.

Waller (2002) provides another parallelism when she establishes a direct relationship between the literary societies of the XVIII century and the centres of writing of the XX century. The author suggests that various characteristics of those societies are reflected in the definitions of the centres of writing. Both of them criticise the emphasis that universities place on intellectual and learning by memory, relegating to a second place debate and discussion. Both in XVIII century literary societies and in XX century writing centres, students move to the foreground and work collaboratively with their colleagues and teachers.

Since the ideas of North (1984) and Waller (2002) on the centres of writing and their origin, it becomes evident an important antagonism between them and present day educational institutions. As opposed to the focus on words and to hierarchical order of the latter, the centres of writing promote democratic learning and teaching, focusing on the student. Whilst universities place the emphasis on merely learning by memory, with exams, essays and taking notes, (Guzmán and García, 2014) the centres place the value on experience, activity and reason in

order to form knowledge. To sum up, a new concept of learning takes places in centres of writing. Work revolves around the student (Cooper, 1994; Grimm, 1996; North, 1984) and the process, more than on the result or the product. (North, 1984).

When students enter the world of university they face the serious problem of academic writing Núñez, 2013b).

This is a subject for which they have not been prepared in previous educational stages (Vázquez, 2005), nor they will be at university (Peña, 2008). The centres of academic writing try to provide an answer offering a different assistance for alumni (post-graduates and under-graduates), lecturers and faculties through different programmes (Carlino, 2002; North, 1984; Núñez, 2013 b). Among the great variety of services offered we can find tutorials, workshops, libraries, assessment of writing, telephone help lines, writing competitions, internships for tutors, conferences, seminars, programmes of writing, etc. (Carlino, 2002).

With regard to the purpose of the centres of academic writing, it should be highlighted that the objective is not only to assist students with specific tasks, but help them to become efficient writers (Cooper, 1994; Waller, 2002). On this topic, North observes that "in a centre of writing the objective is to ensure that the writers, and not necessarily their texts, are the ones who change through instruction" (1984, p.438). In order to achieve this, they work towards two different but complementary goals. On one side, to enable students to discover how to write in a more productive and efficient way, on the other side, to fulfil the specific intellectual and rhetorical requirements for each discipline. The student may draw on the centres of writing and receive support at any time in the process (Carlino, 2002), obtaining help and assessment at the beginning of the essay, after presenting a draft, after receiving feedback from a teacher who has advised a revision of the work, in order to correct and edit completed essays, etc. Tutors co-operate with writing students, adapting to their needs and worries, helping them to discover and explore their own ideas. (Cooper, 1994; Waller, 2002).

The Evolution of the centres of academic writing

Carino states that "the centres, in their origin, were a much more varied and complex phenomenon that what has been depicted in the discourse

on them" (1995, p.104). Despite the fact that many centres have become consolidated, this has not been the general trend in their evolution (Waller, 2002). Even if one does not consider ancient history as suggested by North (1984), but more recently, centres of writing appear in the 1920's in the form of laboratories, with a restorative (Boquet, 1999) and assisting function. The term 'laboratory', undoubtedly, refers to the scientific and experimental aspects of writing. Therefore, work was orientated towards those students who should improve their basic writing skills through mechanical and repetitive exercises in order to correct those deficiencies. Tasks focused on perfecting the formal aspect of writing, revolving around method and instruction. In this way, the writing laboratories started to take on what professors did not want to do, the grammar (Boquet, 1999), turning then the laboratory into a negative concept (Waller, 2002). Only struggling students or those with difficulties were attended to (Grimm, 1996; Waller, 2002), which could be seen as a punishment by the students.

As time passed, a change took place, shifting the emphasis from an assisting function to a more palliative and remedial one (Waller, 2002). Several historical events promoted this transformation. Amongst them could be highlighted the economic recession of 1930, which caused as a consequence a great influx of new students to the educational institutions. Later, the influence of psychology and medicine on education shifted the term 'laboratory' to 'clinic' (Waller, 2002), accentuating the psychological aspects of writing. Afterwards, during World War II, the goal was to educate British Army agents in a short period of time (Carino, 1995; Waller, 2002). Once the war finished, a great number of veterans attended the centres (Bazerman et al., 2005; Boquet, 1999; Waller, 2002). Finally, the civil movement should be highlighted, which influenced educational policies between the last part of the 60's and the beginning of the 70's. The crisis in literacy added to this (Russell, 1994; Waller, 2002).

During the last decades of the twentieth century important processes of democratisation developed, which ended dictatorships in different parts of the world. Education was not excluded from these changes. Demonstrations took place which demanded a more open, participative approach to higher education (Carrillo, 2015). Specifically in the United States, such democratising policies led to students from underprivileged backgrounds entering university for the first time (Bazerman *et al.*, 2005; Waller, 2002). A great number of alumni who had not received an

adequate basic preparation entered university along with students from disadvantaged areas, war veterans and athletes (Bazerman and Russell, 1994; Waller, 2002). Facing this new wave of students from minorities, universities struggled with difficulties which they hoped to overcome thanks to the work of the centres of writing. In this way, these students found the opportunity to correct their poor educational background (Grimm, 1996; Núñez, 2013b).

An important educational crisis broke out in the United States in 1970 due to the low levels of literacy of the population (Russell, 1994). The National Commission for Excellency on Education collected alarming data about illiteracy amongst adults in their report of 1983, '*A Nation at Risk'* (Berglund, 2002). An educational reform of great scope was urgently required. In this context, literacy became the key objective (Lankshea and Knobel, 2008). During the decade of 1970 to 1980 a high number of centres of academic writing were created (Núñez, 2013b). It is for this reason that many publications and pieces of research consider this the period during which centres of writing became more profesional (Waller, 2002). At this time a definitive leap in terminology occurred, the beginning of the use of the word "centre" (Waller, 2002). From this moment to the present day this is the denomination used.

Current development and situation of the Centres of Academic Writing

Since the 70's the growth of centres of academic writing has been remarkable (Núñez, 2013b). With the objective of remedying the general dissatisfaction regarding the teaching of Reading and writing, institutions with different methodologies and spaces were created (Waller, 2002). This quick boom meant that, very often, the organisation of the centres was slightly chaotic at the beginning. During the first decade of expansión, the centres had a massive amount of students but, at the same time, extremely low investment and defficient training of teachers (Waller, 2002). Writing laboratories focused on instruction and method. Later, they started to have their own space, now placing the emphasis on the development of competencies and encouraging students to write about their own interests, in a collaborative and social way. "Students moved away from listening to their tutors to talking about writing to créate their own pieces" (Boquet, 1999, p.467).

A decade later after the first centres appeared and given their quick expansion, the International Association of Centres of Writing was created. A great number of national and international associations who support and spread the work of the centres of writing belong to it (Núñez, 2013b). The association promotes the development of directors, lecturers and staff of the centres by organising meetings, publications and different professional activities. The publications with greatest international impact are 'The Writing Centre Journal', with articles on research and theoretical questions, and the bulletin 'Writing Lab Newsletter', which collects articles on practical experiences, information and revision of materials.

Nowadays, the centres of academic writing attempt to move away from the original remedial approach (Carlino, 2005; Grimm, 1996), therefore many of them put into practice comprehensive institutional programmes to develop writing in all areas and academic disciplines, not only in specific areas of language and humanitites (Waller, 2002). The most frequent models used for such programmes are, on the one hand, those developed through the curriculum (Writing Across the Curriculum –WAC) and, on the other, those which work in the disciplines (Writing In the Disciplines- WID). The priority of the centres of academic writing is to be considered as spaces in which all the members of the educational community, not just students, find a place to reflect (Waller, 2002).

However, in spite of the satisfactory progress that the centres of writing have enjoyed in the English speaking world and more recently in Latin-American countries, this has not been the norm in our country (Castelló, 2014; (Núñez, 2013 a). The few universities that have their own centres are The Autonomous University of Madrid, The University of Alcalá, The University of Cádiz, The University of Navarra and Pompeu-Fabra University.

The Centre of Writing of The Autonomous University of Madrid provides face to face tutorials, online linguistic services for queries, workshops and other resources. These services are offered to under-graduate and post-graduate students. The School of Writing of the University of Alcalá offers support, resources, workshops and courses in writing. The Centre of Writing of the University of Cádiz describes itself as a complementary and efficient learning space for the development of writing, offered to students who struggle with this subject (students who speak Spanish as a second language and those with hearing difficulties), which also co-operates and supports the activities organised by the university that contribute to the development of writing abilities. It is

particularly interesting the Centre of Writing of The University of Navarra. This centre, integrated within the university, offers tutoring and advice, seminars, specific training and writing resources and diagnostic tests. In the case of the tutoring, they offer two differentiated modules in order to give a specific service: Tutoring for the transition stage (first year of university) and tutoring for undergraduate students. Finally, we come to the Centre of Redaction of Pompeu Fabra University. It is worth highlighting that this centre, as opposed to the previous ones, does not have a face-to-face service for the students. It is set up as a virtual centre that offers various virtual programmes such as writing techniques, text modules, assessment tests and resources.

Apart from these exceptions and despite the existence of abundant investigation in the area, the incursion into this field has been rather timid. Núñez (2013a) carried out an extensive comparative analysis of academic literacy in the area of Latin America, noting that Spanish universities offer one-off programmes and workshops in the subject of academic writing, but not integrated in the disciplines, with the remedial approach dominating. Montijano and Barrios (2016) arrived at similar conclusions. They affirm that although these workshops offer useful knowledge on bibliographic searches and rules for quotes, students do not fully develop their written abilities because of the occasional nature of the activities. Evidently, the objectives of these programmes are necessary for the training of alumni, but it is true that the methods do not invite reflection. Likewise, the lack of systematization does not allow effective results (Montijano and Barrios, 2016).

Conversely, the centres of writing, with programmes focused on creating better writers and consequently better thinkers, concentrate on the person and the process, on the student who writes and knows through writing (Boquet, 1999). These programmes teach alumni new forms of writing, exploring new ideas, searching, selecting, analysing and critically appraising the information, as well as moving between different types of texts (Peña, 2008). Another aspect that should be highlighted of the centres of writing is their flexibility, as can be seen during their evolution. Therefore, they have become even more necessary in current society, between the Digital Era and the imminent Fourth Industrial Revolution. Due to fast technologic advances, the ways of reading and writing have changed drastically (Geisler *et al*., 2001; Peña, 2008), and along with that, or as a consequence, the ways of knowing,

understanding and appraising reality. Definitely, the way of thinking is changing. Digital culture demands radical changes with respect to the culture of the printed word (Peña, 2008). This does not mean that the former has surpassed the latter but that different educational strategies will be required as different mental processes and abilities are implied, in accordance with the new contexts. The centres of academic writing can face this new reality.

The programmes of academic writing: Writing Across the Curriculum and Writing In the Disciplines

The two movements linked to the Centres of Academic Writing are "Writing Across the Curriculum" and "Writing In the Disciplines" (WAC and WID) (Carlino, 2002). Both programmes can be integrated in different ways and asume diverse structures according to the specific needs, situations, objectives and characteristic context of each institution. Hence, we can find among others 'writing tutors', 'writing partners' and 'subjects on intensive writing' (Carlino, 2004, 2005). Independently of the adopted model and format, what is certain for all programmes is that alumni, professors and faculties must be involved (McLeod, 1987). Despite their diverse origins, nowadays the centres of writing have evolved into the neuralgic centre of these programmes (Bazerman *et al.*, 2005), 'senior partners' (Molina-Natera, 2012, p.100), bringing advice, training and support to the whole university community.

The beginning of the movement "Writing Across the Curriculum" (WAC) is usually cited to have been in the United Kingdom, in the mid-sixties, as an answer to the crisis of literacy (Marinkovich and Morán, 1998). Russell (1994) names James Britton as its predecessor, as he promoted in the United Kingdom the trend of debating in the classroom and learning focused on the student, through group dialogue, expressive writing and co-operation between teacher and student. These ideas did not take long to reach the United States, especially because of the need to work on writing in all subjects, not only in English (Molina-Natera, 2012). In this way, they travelled to the North American world a decade later, losing their original essence (Marinkovich and Morán, 1998; Russell, 1994) but expanding with such an ímpetus that they currently exist in most of the universities of the United States.

The programme Writing Across the Curriculum takes on the idea that writing is essential for the intellectual development of students (Harper and Vered, 2017), as well as to increase their knowledge (Carlino, 2004). Its main thesis is the concept of a process of teaching and learning that gives the student an active role (McLeod, 1992). Another premise is that students can develop their writing in all disciplines during their entire academic career (Carlino, 2004), not just through isolated programmes (Harper and Vered, 2017). However, diverse areas of study require diverse ways of writing, and what is more, it can be found that when a student writes about a subject they commit more to it (Carlino, 2005). For this reason, although the programme "Writing Across the Curriculum" (WAC) included since its origin "Writing In the Disciplines" (WID), their methods separated in the nineties (Russell, 2002). This division supposed two different paths, not exclusive but complementary (McLeod, 1987), "learning to write *in* the ways the disciplines do (what we call WID) and learning to write *about* the subjects which study the disciplines (what was called WAC)" (Russell, 2002, p.310).

The programme 'Writing In the Disciplines considers that every discipline has its own notions and practices (Bazerman *et al.*, 2005). Gottschalk states that "a programme of writing must work for, with and in the interest of all disciplines, the place in which language is integrated"(1997, p. 23). This model of programme focuses on the act of writing inside each area by the specialist professors of the subject. According to this view, it is not adequate that a specific course of writing prepares students to write appropriately on all subjects. Therefore, the movement "Writing In the Disciplines" co-operates in this task attempting to immerse the students in the specific academic discourse that each discipline demands (Bazerman *et al.*, 2005). This is what McLeod (1992) observed previously in the programmes of Writing Across the Curriculum (WAC), an epistemic and cognitive perspective which implies writing to learn, and another rhetoric view which implies learning to write in the particular disciplines.

However, the programmes "Writing Across the Curriculum" and "Writing In the Disciplines" are both transformative (McLeod, 1992) and Foster a renewal of the culture of university. They change the ways of teaching, learning and evaluating. Nevertheless, not only are processes transformed but also people, as these programmes require social writing (McLeod, 1992). Hence, the audience becomes a very appreciated

resource to take into account in the classroom, as it will provide the writer with the feedback they need through the process of writing (Leahy, 1994, cited in Carlino, 2004).

Thanks to the theoretical input of the centres of academic writing and the programmes WAC and WID, a new concept of writing has appeared, not as an individual and intrapersonal process but as a social (Molina-Natera, 2002) and interpersonal practice. The task in these contexts is founded on the concept of learning as a collaborative phenomenon (McLeod, 1992).

The relationship between writing and thought in the programmes of academic writing

Although the phenomenon of academic literacy is in the current times a central element of educational policies, it can be noted that it was not until the 70's that the concept occupied the forefront of people's attention. Nowadays, the competence in written communication has become fundamental in education and takes a role of special relevance due to its communicative, social and epistemic functions (Álvarez and Ramírez, 2006; Carlino, 2002 and 2004; Cassany, 2016; Molina-Natera, 2012; Peña, 2008; Serrano, 2011). The importance of written competence resides primarily in the fact that, along with reading ability, it is considered indispensable for the acquisition of other learning and capabilities. Such abilities are considered crucial to produce and transform knowledge and develop thinking (Carlino, 2004; Peña, 2008). It is here where the centres and programmes have the most potential for action.

Ong describes in detail the relationship between writing and thought. In his own words, "more than any other particular invention, writing has transformed human consciousness" (1982, p.81), becoming "the technology that has moulded and impelled the intellectual activity of modern man" (p.86). Simillarly, Lynch (2016) states that this technology constitutes one of the highest achievements in the history of humankind and has meant a new way of accessing knowledge. Finally, Álvarez and Ramírez declare that "written language expands memory and communication" (2006, p.29), and note that the reflective activity that is implied by the training of writing has the purpose of helping students to transform and renew knowledge and not just the mere production and redaction.

The independence of thought and language has had great repercussions in the process of the teaching of written competencies. Though history, the act of writing has revolved around linguistic and grammatical aspects, as can be seen in the first laboratory centres (Boquet, 1999; Waller, 2002), losing in the process the potential for writing as a generator of thought and ideas. However, the experience of the centres of academic writing nowadays, as well as that of the programmes of "Writing Across the Curriculum"(WAC) and "Writing In the Disciplines" (WID), provides a radical transformation in the ways of teaching written competences, even in its definition. The centres and programmes sustain that the act of writing does not only fulfil a communicative function (Carlino, 2004). This means that the written ability is not only seen as a means to transmit ideas, but that a great value is placed on its epistemic potential (Álvarez and Ramírez, 2006; Carlino, 2002 and 2004; Scardamalia and Bereiter, 1985; Serrano, 2011). Writing is a valuable tool to learn, transform and form knowledge, not only to express and demonstrate what the student knows (Peña, 2008). This approach of the centres and programmes on the act of writing tries to establish a method to develop thinking.

The role of tutors and students in the programmes of academic writing

The lecturers, professors and students are the architects of the implantation of the programmes "Writing Across the Curriculum" (WAC) and "Writing In the Disciplines" (WID). Cooper (1994) performs a comprehensive analysis of the functions and role that the tutors and students must assume in the centres of academic writing but, nevertheless, the examples are also applicable to universities that work with the programmes WAC and/or WID and do not have specific centres.

Firstly, the tutor becomes the guide in the long process of teaching that is implied in writing. One of their main goals consists in motivating students, who, at the same time, become active agents (McLeod, 1992) and conscious in their own process of learning. The students learn to assume responsibility for their own decisions, to detect errors and to express themselves coherently. In this process it is essential to take into account the informative needs of the different audiences (Álvare and Ramírez, 2006; Carlino, 2004), focusing on organisation and meaning in the pieces, not only on the grammar and spelling aspects.

It is necessary to highlight that the tutors, given their role of guidance, cannot modify or correct the essays of the students (Núñez, 2013b; Waller, 2002). Hence, the tutor puts to one side their role in correcting to become a reader who provides feedback to the student (Carlino, 2002 and 2004; McLeod, 1992) by means of dialogue, considering previous knowledge and interests. Through this communicative process, the tutor must be capable of diagnosing problems in writing, checking information, listening to students and offering them the necessary strategies and support, so they can correct and improve their pieces themselves (Carlino, 2002). In this way, students become responsible for their own process of writing.

Nevertheless, whilst theory and practice of writing usually diverge in traditional contexts of learning, theory and practice; they converge in an interdependent relationship in the centres of academic writing and in the programmes "Writing Across the Curriculum" (WAC) and "Writing In the Disciplines" (WID) (McLeod, 1992). The tutor not only teaches to write but also, simultaneously, how to form knowledge. In this approach, the process of writing has more value than the final result. As North states (!984, p.438), "the importance of the centres of writing consists in transforming alumni into better writers, not in producing better texts". On the other hand, learning to write, as any other learning process, implies the risk of making mistakes. Thereby, the centres of writing are suitable spaces for students to trial, rehearse, experiment and enjoy themselves in a context free from the examining gaze of the experts and to feel they are really supported during the whole process.

Conclusions/Discussion

The centres of academic writing were originally created for remedial purposes. However, their historical evolution has allowed them to distance themselves from that image, occupying nowadays a privileged place in the educational system from which the whole community can benefit. The designations these centres have received are varied and reveal their evolution: laboratory, clinic, and later on, centre (Waller, 2002). Each of these denominations shows the ideas that have prevailed within the concepts of teaching and learning, the roles of instructor and student, the relationship between them, the methods of teaching, and ultimately, the link between the centre of writing itself and the university.

Taking into account that educational institutions have traditionally emphasised the communicative function of writing, relegating to the background the importance of of this competence as an intellectual and learning tool (Peña, 2008), this study gives evidence to the fact that Spanish universities cannot continue ignoring this problem. In this respect, although it is true that there are universities in our country which have their own centres of writing, most of the institutions offer one-off courses and workshops to improve the written competency, as extra-curricular courses. In general, such courses have no connection with the disciplines and mean an extra expenditure for the students who wish to improve their writing, having particularly negative repercussions on those students with limited economic resources.

Also, the incorporation of Spanish universities to the EEES has meant a radical change regarding the rules which regulate official courses, as well as for aspects related to design, development and assessment of the results of students (Montijano and Barrios, 2016). In this sense, García and Guzmán (2016) performed an exhaustive analysis on the need to rethink academic literacy at university to face the new subjects, TFG and TFM. Both of them constitute an instrument to ascertain the results of learning achieved by the student when they complete their university training and which becomes evident through their academic writing.

Certainly, our institutions must invest on quality educational experiences. University must echo the potential that writing production has to develop thinking and better learning. Undoubtedly, returning to the subject of the conceptualisation of academic literacy, writing competences should be conceived as a continual process (Johnson, 2003) which never stops, which needs constant training and perfecting and does not imply an immutable condition which can exist or not (Carlino, 2005). People always have time to improve their own writing. The techniques to carry it out exist, so we should not dismay.

The purpose is not that university trains professional writers, but that it enables students to be capable of generating rigorously scientific knowledge in a particular discipline. In other words, educational institutions must reconceptualise the written competency as a tool to operate with the knowledge (Carlino, 2002). Another necessary change in Spanish institutions is to carry out a major transformation in the assisting and remedial approach of the current courses of writing. Alumni attend when they encounter the problem. However, the interesting thing

would be to have institutional programmes or centres which support the student throughout their university training and even when it is finished.

Likewise, the social component of writing cannot be forgotten (Cassany, 2016). In this sense, the centres of academic writing hold a special importance, as they can provide a long trajectory of critical research and inquiry. These centres have enough capacity to change the traditional view of academic literacy and to show to both alumni and professors how enjoyable writing to know can be, provoking a change in attitude in students and academics.

It is necessary to revise the ideas that university, professors and alumni have about written competency, through centres of writing or by the means of institutional programmes. Writing should be considered a valuable tool to learn and relearn the disciplines. The centres and programmes of writing that are mentioned throughout this article suppose a new way of viewing the role of writing in higher education. Nevertheless, "academic writing does not reside in the classroom of a professor or subject, it transcends them and belongs to a new institutional requirement" (García and Guzmán, 2016, p.36). It is for this reason that, in order to be able to launch and put into practice these programmes, a commitment both personal and of the whole university institution will be necessary.

Bibliographic References

Álvarez Angulo, T. y Ramírez Bravo, R. (2006). Teorías o modelos de producción de textos en la enseñanza y el aprendizaje de la cultura. *Didáctica (Lengua y Literatura)*, (18), 29-60.

Álvarez, M., & Yániz, C. (2015). Writing practices in Spanish universities/Las prácticas escritas en la universidad española. *Cultura y Educación*, *27*(3), 594-628. doi: http://dx.doi.org/10.1080/11356405.2015.1072356

Bazerman, C. y Russell, D. (Eds.). (1994). Landmark Essays on Writing Across the Curriculum. Davis: Hermagoras Press.

Bazerman, C., Little, J., Bethel, L., Chavkin, T., Fouquette, D., y Garufs, J. (2005). Reference Guide to Writing Across the Curriculum. Disponible en: http://wac.colostate.edu/books/bazerman_wac/wac.pdf.

Berglund, S. (2002). El deterioro de la educación pública en Estados Unidos y el papel del gobierno federal. *Cuadernos del CENDES*, *19*(50), 129-151.

Boquet, E. H. (1999). « Our little secret»: A history of writing centers, pre- to post-open admissions. *College Composition and Communication*, *50*(3), 463-482.

Carino, P. (1995). Early Writing Centers: Toward a History. *The Writing Center Journal, 15*(2), 103-115. Retrieved from http://www.jstor.org/stable/43441973

Carlino, P. (2002). Enseñar a escribir en la universidad: cómo lo hacen en Estados Unidos y por qué. *Revista iberoamericana de Educación*, *2*(2), 57-67.

Carlino, P. (2003). Pensamiento y lenguaje escrito en universidades estadounidenses y australianas. *Propuesta Educativa*,12 (26) 22-33.

Carlino, P. (2004). Escribir a través del currículum: tres modelos para hacerlo en la universidad. *Lectura y vida*, (1), 16-27.

Carlino, P. (2005). Representaciones sobre la escritura y formas de enseñarla en universidades de América del Norte. *Revista de educación*, (336), 143-168.

Carrillo-Linares, A. (2015). Universidades y transiciones políticas: el caso español en los años 60-70. Espacio, Tiempo y Educación, 2(2), 49-75. doi: http://dx.doi.org/10.14516/ete.2015.002.002.004

Cassany, D. (2016). Capítulo VII. Redes Sociales para Leer y Escribir. En *Enseñar a leer y escribir en la educación superior. Propuestas educativas basadas en la investigación*. (pp. 185-208). Mexico: Fundación SM México.

Castelló, M. (2014). Los retos actuales de la alfabetización académica: estado de la cuestión y últimas investigaciones. Enunciación, 19(2), 346-365. doi: http://dx.doi.org/10.14483/udistral.jour.enunc.2014.2.a13

Cooper, M. M. (1994). Really useful knowledge: A cultural studies agenda for writing centers. *The Writing Center Journal*, *14*(2), 97-111.

García-Jiménez, E. y Guzmán-Simón, F. (2016). La acreditación de títulos universitarios oficiales
en el ámbito de Ciencias de la Educación: Una cuestión de alfabetización académica. Educación XX1, 19(2), 19-43, doi: 10.5944/educXX1. 15730

Geisler, C., Bazerman, C., Doheny-Farina, S., Gurak, L., Haas, C., Johnson-Eilola, J., Kaufer, D. S., Lunsford, A., Miller, C. R., Winsor, D. & Yates, J. (2001). IText: Future directions for research on the relationship

between information technology and writing. *Journal of Business and Technical Communication*, *15*(3), 269-308.

Gottschalk, K.: «Putting and Keeping the Cornell Writing Program in Its Place: Writing in the Disciplines». *Language and Learning Across the Disciplines* 2.1, Abril, (1997), pp. 22-45.

Grimm, N. M. (1996). Rearticulating the work of the writing center. *College Composition and Communication*, *47*(4), 523-548.

Guzmán-Simón, F., & García-Jiménez, E. (2014). Los hábitos lectoescritores en los alumnos universitarios. *Revista electrónica interuniversitaria de formación del profesorado*, *17*(3), 79-92. doi: http://dx.doi.org/ 10.6018/reifop.17.3.204071

Harper, R., & Vered, K. O. (2017). Developing communication as a graduate outcome: using 'Writing Across the Curriculum'as a whole-of-institution approach to curriculum and pedagogy. *Higher Education Research & Development*, *36*(4), 688-701. doi: 10.1080/07294360.2016. 1238882

Harris, M. (1990). What's up and what's in: Trends and traditions in writing centers. *The Writing Center Journal*, *11*(1), 15-25.

International Writing Centers Association. Disponible en línea en: http://writingcenters.org/about/

Johnson, A. P. (2003). *El desarrollo de las habilidades de pensamiento: aplicación y planificación para cada disciplina*. Editorial Pax México.

Lankshea, C., Knobel, M. (2008). *Nuevos alfabetismos. Su práctica cotidiana y el aprendizaje en el aula*. Madrid: Ediciones Morata.

Lynch, M. P. (2016). *The Internet of us: Knowing more and understanding less in the age of big data* (First ed.). New York: Liveright Publishing.

Marinkovich Ravena, Juana, & Morán Ramírez, Pilar. (1998). La escritura a traves del curriculum. *Revista signos*, *31*(43-44), 165-171. https://dx.doi.org/10.4067/S0718-09341998000100014

McLeod, S. (1987). Defining writing across the curriculum. *WPA: Writing program administration*, 11(1-2), 19-24.

McLeod, S. (1992). Writing Across the Curriculum. An Introduction. En Susan McLeod & Margot Soven. *Writing Across the Curriculum. A Guide to Developing Programs*, 1-8. Newbury Park, California: Sage Publications.

Molina-Natera, V. (2012). Escritura a través del currículo en Colombia: situación actual y desafíos. *Magis: Revista Internacional de Investigación en Educación*, *5*(10).

Montijano Cabrera, M. P., & Barrios Espinosa, M. E. (2016). Alfabetización académica en la universidad: percepciones de estudiantes sobre una tarea escrita. *Opción*, *32*(2).

North, S. (1984). The Idea of a Writing Center. *College English, 46*(5), 433-446. Retrieved from http://www.jstor.org/stable/377047 doi: 10.2307/377047

Núñez Cortés, J. A. (2013). La alfabetización académica: un estudio comparado en el ámbito iberoamericano. (Tesis doctoral inédita). Universidad Autónoma de Madrid, Madrid.

Núñez Cortés, J. A. (2013). Una aproximación a los centros de escritura en Iberoamérica. *Legenda*, *17*(17), 63-102.

Ong, W. J. (1982): *Oralidad y escritura. Tecnologías de la palabra*, traducción de Angélica Scherp, Fondo de Cultura Económica: México, 1987, 2da. imp. 1997

Peña, L. (2008). *La competencia oral y escrita en la educación superior*. Bogotá: Ministerio de Educación Nacional.

Russell, D. R. (1994). Americans Origins of the Writing-Across-the-Curriculum Movement. En Charles Bazerman & David R. Russell (eds.). Landmark Essays on Writing Across the Curriculum, 3-22. Davis, California: Hermagoras Press.

Russell, D. R. (2002). *Writing in the Academic Disciplines. A Curricular History*. Carbondale, Edwardsville: Southern Illinois University Press.

Scardamalia, M. y Bereiter, C. (1985) "Development of dialectical processes in composition". En Stierer, B., & Maybin, J. (Eds.). (1994). *Language, Literacy, and Learning in Educational Practice: A Reader*. Multilingual matters.

Serrano, S. (2011). Escritura académica en la Universidad de Los Andes: Reflexiones sobre las prácticas en desarrollo. *Legenda, 14*(11), 78-97. Recuperado de http://erevistas.saber.ula.ve/index.php/legenda/article/view/1137

Vázquez, A. (2005). ¿Alfabetización en la universidad? *Colección de Cuadernillos de actualización para pensar la Enseñanza Universitaria. Año1*, (1).

Waller, S. (2002). *A brief history of university writing centers: variety and diversity. New Foundations*.

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Longitudinal study on learning to read in early ages[1]

Estudio longitudinal sobre el aprendizaje lector en las primeras edades

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Abstract

Learning to read begins in the early ages and is an essential tool for school success. Oral language, phonological processing skills, naming speed and alphabetic knowledge are now considered important precursors of learning to read in early ages, since they have a high correlation with the decoding processes and the strategies of understanding in the initial learning of written language, however, it has not been established when its development commences. The purpose of this study was to analyse the moment in which different reading precursor abilities present greater incidence in learning to read in early ages in order to clarify the best period to start teaching. A longitudinal quasi-experimental study was carried out on 432 children from 5 to 7 years of age. Data analysis was performed using a mixed ANOVA of repeated measures, which included three factors: assessment (6 measures), group and sex. The results show an improvement in the participants in all variables analysed from the first year of intervention that is maintained during the following two years. The effects of the program support the development of teaching models that integrate these variables for the improvement of learning to read, reason why it is suggested it is included in the curricular objectives in early ages.

Keywords: spoken language, reading, written language, reading aloud, functional reading.

Resumen

El aprendizaje de la lectura se inicia en las primeras edades y constituye una herramienta imprescindible para el éxito escolar. El lenguaje oral, las habilidades de procesamiento fonológico, la velocidad de denominación y el conocimiento alfabético son considerados en la actualidad precursores importantes del aprendizaje de la lectura en las primeras edades ya que presentan una alta correlación con los procesos de decodificación y con las estrategias de comprensión en el aprendizaje inicial del lenguaje escrito, sin embargo, no se ha establecido cuando se ha iniciar su desarrollo. El propósito de este estudio fue analizar el momento en el que distintas habilidades precursoras de la lectura presentan mayor incidencia en el aprendizaje lector en las primeras edades con la finalidad de clarificar el periodo más idóneo para iniciar su enseñanza. Se llevó a cabo un estudio cuasiexperimental de corte longitudinal donde se observa la evolución de 432 niños desde los 5 hasta los 7 años de edad. El análisis de datos se efectuó mediante un ANOVA mixto de medidas repetidas en el que se incluyeron tres factores: evaluación (6 medidas), grupo y sexo. Los resultados muestran una mejora de los participantes en todas las variables analizadas desde el primer año de intervención que se mantiene durante los dos años siguientes. Los efectos del programa apoyan el desarrollo de modelos de enseñanza que integren estas variables para la mejora del aprendizaje de la lectura, por lo que se sugiere su inclusión en los objetivos curriculares de las primeras edades.

Palabras clave: lenguaje hablado, lectura, lenguaje escrito, lectura en voz alta, lectura funcional.

Introduction

Throughout the last years, many studies have been carried out in order to identify the skills that most favour the acquisition of reading, however, there is currently no agreement on when the best period for beginning to teach this linguistic ability starts, (Sellés, Martínez and Vidal-Abarca, 2012) when it constitutes one of the most frequent issues between educators and children's parents.

Traditionally two opposing ideological currents have been proposed regarding the most appropriate moment for beginning to read. On the one hand, we find the authors who consider it necessary for the students to acquire the necessary maturity to start their learning since it requires the joint work of the retina and the brain for the capture of the images and the subsequent processing of the meaning of the words (Mialaret,

1979; Inizan, 1981), while on the other hand, there are researchers who defend earlier teaching by stimulating the factors that favour learning to read (Gutiérrez and Díez, 2015, Bravo, 2016).

The studies carried out in recent years on the reading process has allowed the variables that are most involved in the acquisition of reading to be identified, finding that oral language, phonological knowledge, alphabetic knowledge and naming speed are among the most relevant in the process (González, López, Vilar and Rodríguez, 2013, Gutiérrez, 2016),) being of equal importance in the development of reading competence the fact that from the earliest ages students already use inferences and are able to construct a mental representation of verbal texts, regardless of the control of their decoding ability (Gutiérrez-Braojos, Rodríguez and Salmerón-Vílchez, 2014), so it is especially important to develop oral language from early ages.

The control of spoken language is determinant in the acquisition of written language since when children learn to speak they develop a semantic network that allows them to integrate ideas and thoughts into a social context of knowledge, as well as creating the basic structure for the establishment of the relationships with the written code (Dickinson, 2011, Bravo, 2016).

By means of the progressive development of the linguistic capacity one becomes aware of the units that configure the language through the control of the elements that compose it: phonological, morph syntactic, semantic and pragmatic, which are the ones that allow the individual to develop his / her communicative capacity and acquire the skills to gradually separate the sentence structure from its meaning. This shift in attention from the content to the form of oral language allows the individual to acquire the skills to understand the relationships between oral and written language (Defior and Serrano, 2011; Gutiérrez and Díez, 2015). These skills are known as phonological skills and are encompassed within a general term known as phonological awareness.

Studies that analyse the predictive relationship of phonological skills in reading acquisition in pre reading children have shown that students who have a good level of phonological awareness learn to read more easily than those who have lower levels (Defior, 2008; González, Cuetos, Vilar and Uceira, 2015). It has also been shown that a greater degree of phonological awareness benefits those students who present reading difficulties (Defior, 2008, Gutiérrez, 2016).

Together with phonological awareness another skill that is receiving increasing attention for its influence in acquiring reading is fast and automated denomination. It has been found that dyslexic children with reading difficulties are slower than their peers in this type of task (Wolf, 1991; Wolf and Bowers, 2000). It has also been acknowledged that children with low denomination speeds are more likely to develop reading difficulties (Kirby, Pfeiffer and Parrila, 2003).

Alphabetic knowledge has also been investigated as an important component of the early literacy process, showing that it is a highly relevant factor in learning to read (Diuk and Ferroni, 2012) and facilitates the development of phonological skills in establishing a causal relationship between the knowledge of the name of the letters and the learning of their sounds (De Jong and Van der Leij, 1999).

As can be seen, the studies carried out to date show that oral language, phonological awareness, naming speed and alphabetic knowledge are important variables in learning to read (González, López, Vilar and Rodríguez, 2013, González, Cuetos, Vilar and Uceira, 2015, Gutiérrez, 2016), so knowing the age at which their development is most beneficial is a contribution of great interest to professionals working in the educational field.

In this regard, the objective of the present study is to analyse whether stimulation from pre-school levels of those which have been considered the main precursors of learning to read: oral language, phonological awareness, naming speed and alphabetic knowledge improve acquisition of this linguistic ability and thus determine the most suitable period to commence teaching.

Method

Participants

The study involved 432 subjects who attended the third year of pre-school education. For the selection of the sample, eight state and semi private schools located in middle socio-cultural areas of the province of Alicante were randomly chosen, forming two groups: those who would voluntarily apply the intervention program (experimental group) and those who would not apply the program (control group). The assignment of the

different levels of treatment of the centres was performed randomly before evaluating the students, leaving two state schools and two semi private schools in the experimental group, as well as in the control group. In each study group, subjects who spoke Spanish were chosen who did not present physical, psychic or sensorial alterations and with a normal intellectual level. Regarding the distribution of participants, the experimental group consisted of 220 students (M = 5 years and 3 months, DT = 4.37), of whom 47.7% were boys and 52.3% were girls. On the other hand, the control group was formed by 212 students (M = 5 years and 4 months, DT = 3.64), 47.1% were boys and 52.9% were girls. All participants were enrolled in the school they attended from the beginning of the second cycle of pre school education. The contingency analysis (Pearson's chi-square) between condition and sex did not show statistically significant differences (X^2 = 0.63, p > .05).

Instruments

In order to evaluate the dependent variables under study, four evaluation instruments with psychometric guarantees of reliability and validity were used.

- *Navarre-revised oral test (PLON-R)* (Aguinaga, Armentia, Fraile, Olangua and Uriz, 2005). It is a standardized test that allows the evaluation the different components of the language: form (phonology, morphology and syntax), content (semantics) and use (pragmatic). The direct scores of each dimension are transformed into typical scores organized into three categories: 'retardation', 'needs improvement' and 'normal' for each age. The test also allows us to obtain a total score on language development. This test has a Cronbach coefficient of reliability of 0.80.
- *Test for the Evaluation of Phonological Knowledge (PECO)* (Ramos and Cuadrado, 2006). This test evaluates the levels of phonological knowledge (syllabic and phonemic), each of which is composed of three distinct tasks: identification, addition and omission. This test includes three subtests with syllables and phonemes (activities of identification, addition and omission), with a total of 30 items (15 syllables and 15 phonemes). The maximum score that can be

obtained is 30, one point for each correct answer and zero for each error. The reliability, measured through Cronbach's alpha coefficient, is .80.

- *Speed of naming. The Rapid Automatized Naming Test (RAN)* (Wolf and Denckla, 2003). The RAN test is an individual application test. The objective of the task is to name 200 stimuli as fast as possible, grouped into four subtests: digits, letters, colours and drawings. The RAN task records the time it takes to name the stimuli of each card and the number of errors made when naming them. With these two data an efficiency index is performed for each of the 4 types of subtests presented, according to the procedure used by Compton (2003), which converts the scores into digits per second, letters per second, colours per second and drawings per second. This test has a Cronbach coefficient of reliability of 0.80.

- *Assessment of the reading processes.* For the evaluation of reading, four subtest of the PROLEC-R test were used (Cuetos, Rodríguez, Ruano and Arribas, 2007). The tests of the name or sound of the letters, reading of words and reading of pseudo words were used that allow the evaluation of the lexical processes and the subtest of grammatical structures and understanding of sentences that evaluate the semantic processes. The total score in each of these five tests is obtained by assigning a point to each correct answer, in addition in the first two the time invested in each subtest is taken into account. This test has a Cronbach coefficient of reliability of 0.79.

Design and Procedure

According to the objectives of the study, the learning process of reading was compared in two groups of students from the beginning of the third level of pre school education (5 years of age) until the end of the second year of Primary Education, one receiving instruction on those considered to be the main precursors of reader learning and another that follows the curricular program established in the official regulations. Our hypothesis is that students participating in the intervention program will improve their level of reading to a greater extent than their peers. For this, a quasi-experimental and longitudinal design was established, with pre-test-post-tests (six measurements) and phases of intervention (three

periods) with an experimental group (to which the intervention program was applied) and a control group (which follows the official curriculum established in the curriculum of the second cycle of pre school education and Primary Education of the Valencian Community). For the analysis of the data the statistical program SPSS Statistics 20.0 was used. At first, descriptive statistics were obtained with the purpose of analysing the mean scores and standard deviations of the subjects in each of the measured variables. Subsequently, the main analyses of the study were carried out through a mixed ANOVA of repeated measurements 6 × (2 × 2). The factors that were included in the model were the period of each evaluation (pre-test-post-test: E1, E2, E3, E4, E5, E6), the group (experimental-control) and sex (boy-girl). The relevant F statistics were obtained according to the fulfilment of the sphericity assumption calculated through the Mauchly (1940) test. Likewise, Bonferroni post hoc tests were performed to determine the levels of variables that were significant. On the other hand, a unifactorial ANOVA of repeated measures was carried out to obtain intra-group data, both in the experimental group and in the control group, including, as a factor, the evaluations carried out (E1, E2, E3, E4, E5, E6). Finally, we estimated the size of the effect (index d) proposed by Cohen (1988) that allows quantifying the magnitude of the differences found between groups over time. Low effects ($.20 \leq d \leq .49$), moderate ($.50 \leq d \leq .79$) and high ($d \geq .80$) were established.

The procedure carried out was developed in different periods of evaluation and intervention. There were six evaluation phases, at the beginning and at the end of each school level (third year of pre school education, first and second years of Primary Education).

The evaluations were always carried out with the same tests and each subject was assessed individually blindly, during class time and in a classroom equipped for this purpose, these evaluations were carried out by education professionals (teachers specialized in hearing and language and psych pedagogues) previously trained by the person in charge of the study with several students who did not participate in the investigation, which facilitated the homogeneity in the data collection. The study respected the ethical values required in research with human beings (informed consent, right to information, protection of personal data, guarantees of confidentiality, non-discrimination, gratuity and having the possibility of abandoning the program in any of its phases).

Intervention program

In the intervention phase, the subjects of the control group were taught in the way which is established in the official curricular objectives elaborated by the Ministry of Education and Culture (Decree 38/2008 and 108/2014 of the second cycle of pre school education and Primary Education respectively) of the Valencian Community. The contents of pre school education focus on the approximation to written language along with the development of oral language and in Primary Education to the systematic development of reading through the control of the elemental linguistic units of our code through the development of lexical, semantic and morph syntactic. On the other hand, the subjects of the experimental group were assigned the intervention program designed, which consists of 60 sessions of 45 minutes for each of the courses, focused on the development of those that are currently considered the main precursors of learning to read: oral language, phonological knowledge, naming speed and alphabetic knowledge (González, López, Vilar and Rodríguez, 2013; González, Cuetos, Vilar and Uceira, 2015; Gutiérrez and Díez, which were carried out in a combined manner and together with the contents of the nine didactic units (with a duration of three weeks each) during which they were studied in each of the three levels of school, progressively in the degree of complexity and following the order established in Table 1. At the beginning of each new unit the previous contents were reviewed and new ones were added until the control of all those outlined in said table was acquired

For the development of oral language, activities aimed at the exercise of the different components of oral language were carried out: form, content and use. The phonological, morphological and syntactic component (form) was worked through onomatopoeic exercises, constructing sentences through a series of images, invention of story titles and joint creation of small narrative texts. Semantic development (content) aimed at enhancing the lexical scope was exercised through tasks of recognition of elements in pictures, photographs and drawings, elaboration of lists of objects by semantic fields, identification of intrusive words in sentences and searches of synonyms and antonyms. The communicative capacity (use) was developed through tasks of expression of opinions, ideas, feelings and personal experiences, explanation of daily events, communicative situations of role playing and group exhibitions around certain centres of interest.

Phonological awareness was worked on using different tasks of syllabic awareness and phonemic awareness through ludic proposals drawn from materials Avanza (Espejo, Gutiérrez, Llambés and Vallejo, 2008) and Avanzados (Espejo, Gutiérrez, Llambés and Vallejo, 2015) through activities of: identification, comparison, classification, substitution and omission of syllables and phonemes.

The speed of denomination was exercised through templates of different images: objects, numbers, colours and letters that were presented on the digital whiteboard to be evoked with agility by the students both individually, in a small group, and collectively.

Alphabetical knowledge focused on the teaching of the name of the letters through mixed methods of phonetic basis using different words of the students' environment, such as names of classmates, vocabulary of everyday environment, titles and characters of classic children's stories,... From the stories that were read together through the technique of dialogic reading (Gutiérrez, 2016) various activities were presented, which are detailed below.

All these contents were sequenced according to evolutionary criteria, from lowest to highest complexity (Table 1).

TABLE I. Contents of the intervention program

3° Educación Infantil	1° Educación Primaria	2° Educación Primaria
• Activities of attention and auditory discrimination through the repetition of corporal, musical and onomatopoeic sounds. • Orthopaedic motor exercises: breathing, lingual, labial and palatal praxis. • Discrimination and evocation of worked phonemes grouped by perceptual and auditory similarity. • Repetition of onomatopoeia and words with the phonemes worked. • Articulation of words with phonemes worked in different positions (initial, medial and final). • Playing" I spy". • Activities of evocation of opposites with simple words and sentences. • Formation of sentences with the words given. • Complete incomplete sentences. • Development of ocular agility through the quick search of non-linguistic elements. • Development of eye agility through the quick naming of everyday objects. • Development of eye agility through rapid colour naming. • Development of ocular agility through the rapid naming of numbers. • Identify rhymes. • Orally compose two-syllable words from direct and inverse syllables. • Orally recompile tri-syllable words from mixed syllables. • Isolate direct syllables in initial and final position in words. • Skip the final and initial syllable in different words. • Recompose monosyllable and bi-syllabic words from their phonemic components. • Isolate vowel sounds in initial and final position in words. • Omit vowel and consonant phonemes in final position in direct syllables. • Add consonant phonemes to form other words. • Replace one initial phoneme with another to create new words. • Sort images to build simple sentences. • Sort drawings to make a story. • Shared reading of children's stories. • Formulation of open questions from the joint reading of narrative stories. • Reading of words constructed from the manipulation of moving letters. • Reading sentences with iconic elements.	• Denomination of words through drawings and images. • Articulation of logotomas of increasing difficulty. • Emission of pairs of words of auditory similarity. • Word-chaining games by syllables and phonemes. • Elaboration of words from a given syllable or phoneme. • Search for opposites of words and sentences. • Arranging words to form sentences. • Expand the number of words of titles and statements. • Concordance of words and sentences. • Description of sheets in an orderly manner. • Memorization and evocation of riddles and poetry. • Association for semantic fields. • Development of ocular agility through the rapid search of letters. • Quick description of school objects. • Fast naming of primary colours. • Development of ocular agility through the search and rapid naming of monosyllabic words. • Count syllables of polysyllables and monosyllables. • Comprising bi-syllabic and tri-syllable words from locked syllables. • Recompose multi-syllable words from direct and inverse syllables. • Isolate mixed syllables in the final and initial position of the words. • Isolate locked-up syllables in words. • Skip the final, initial and medial syllable in different words. • Isolate consonant sounds that occupy initial and final position. • Change one final phoneme by another giving rise to different words. • Replace initial phonemes to form new words. • Phoneme count in monosyllable, semi-syllable and tri-syllable words. • Sort images to build sentences and short stories. • Shared reading of stories and children's stories. • Reading of words elaborated from the manipulation of moving letters. • Reading sentences individually and collectively	• Construct sentences from a series of given words. • Elaboration of answers to open questions. • Grammar association. • Invent titles to short narrative texts. • Summarize short stories and everyday events. • Reduce and expand the number of words from different given sentences. • Transform affirmative sentences into negative and interrogative sentences. • Rituals, riddles, poems and riddles. • Description of stories through ordered cartoons. • Inventing simple stories from illustrations. • Development of ocular agility through the rapid naming of numbers. • Development of ocular agility through the search and rapid naming of linguistic elements: direct syllables. • Development of ocular agility through the search and quick naming of linguistic elements: direct, inverse, and mixed syllables. • Development of eye agility through the search and rapid naming of words. • Add, omit and substitute phonemes in words to elaborate new ones. • Spell words in direct and inverse order. • Form numerous words from a series of given letters. • Search for synonyms and antonyms. • Identify absurdities in sentences. • Elaboration of new sentences from others built improperly. • Crossword puzzle resolution. • Transform affirmative sentences into interrogatives and negatives. • Reading of poetry, riddles and tongue twisters. • Expand short sentences. • Reduce paragraphs to simple sentences. • Invent titles in short narrative stories. • Create alternative endings for children's stories. • Shared reading of stories and children's stories. • Reading of small texts individually and collectively. • Response to literal and inferential questions about narrative stories

Results

Table 2 shows the descriptive statistics of the variables oral language, phonological awareness, naming speed and reading processes, including mean scores and standard deviations of the experimental group and the control group in the six evaluation periods. As can be seen, the same table includes the F statistics obtained from the mixed ANOVA of repeated measurements in the evaluation factor, group and the evaluation-group interaction. On the other hand, Table 3 shows the typical measures and deviations of each of the analysed variables, according to the sex of the participants. Likewise, the F-statistics of the factors sex, evaluation-sex, and group-sex are included in the table. The longitudinal study data obtained using the mixed ANOVA of repeated measures 6 X 2 X 2 and the intra-group ANOVA performed with each variable are set out below.

Oral language

The mixed ANOVA of repeated measures indicated a significant main effect of the evaluation factor (F (1.63) = 48.32, p <.001) as the participants improved the results over the three years of intervention. Within the experimental group, intra-group ANOVA indicates a main effect of the evaluation factor (F (1.34) = 53.62, p < .001). Post-hoc tests indicate significant differences from E1 to E2 (p < .001), from E3 to E4 (p < .001) and from E5 to E6 (p < .01). No significant differences were found from E2 to E3 (p <.068) and from E4 to E5 (p < .078). In the control group, there was also a main effect of the evaluation periods (F (1.34) = 14.37, p < .001), in this case post hoc tests indicated significant differences from E1 to E2 (p < .01), From E3 to E4 (p < .001) and from E5 to E6 (p < .01). The overall change in T1 to T6 scores was significant in the experimental group (p < .001) and in the control group (p < .001). We also found a main effect of the group factor (F (1.63) = 12.54, p < .01), which shows differences between the experimental and control groups over time, with the experimental group obtaining higher scores . In addition, significant interaction effects were found between the evaluation-group factors (F (1.63) = 9.83, p < .01), which, together with Bonferroni's post hoc test, indicate significant differences in favour of the experimental group in E2, E4 and E6. The magnitude of the differences between the groups from

E1 to E6 was moderate as indicated by the effect size estimator ($d = 0.64$). As for sex, there were no effects on this factor ($F (1.63) = 6.43$, $p = .062$). There was also no effect of group sex interaction ($F (1.63) = 5.58$, $p = .064$). The comparison * group * gender comparison was not significant ($F (1.63) = 4.23$, $p = .137$).

Phonological awareness

In this variable, the mixed ANOVA analysis showed the existence of main effects of the evaluation factor ($F (1.63) = 83.41$, $p < .001$). Intragroup analysis also indicates a major effect of this factor in the experimental group ($F (1.34) = 28.14$, $p < .001$), with significant differences from E1 to E2 ($p < .001$), from E3 to E4 ($p < .001$) and from E5 to E6 ($p < .001$). There were no differences from E2 to E3 ($p = .123$) nor from E4 to E5 ($p = 1.42$). In the control group there was also an evaluation effect ($F (1.34) = 6.37$, $p <.01$) with significant differences from E3 to E4 ($p < .01$) and from E5 to E6 ($p < .01$). The overall change from E1 to E6 was significant in both groups at a level $p < .001$. As for the group factor, the analysis indicates a main effect ($F (1.63) = 63.84$, $p < .001$). Participants in both groups improved their phonological awareness scores, although the subjects in the experimental group scored higher, as an interaction effect was obtained * group evaluation ($F (1,63) = 24.63$, $p < .001$). The post hoc tests evidenced the existence of significant differences in favour of the experimental group in E2, E4 and E6. The effect size when comparing the groups was moderate ($d = 0.68$). As for sex, there were no effects on this factor ($F (1.63) = 7.51$, $p = .052$). There was also no effect of group sex*interaction ($F (1.63) = 6.52$, $p = .061$). The comparison*group*sex ratio was not significant ($F (1.63) = 3.56$, $p = .241$).

Naming speed

The mixed ANOVA of repeated measures indicated a significant main effect of the evaluation factor ($F (1.63) = 35.24$, $p < .001$) indicating that the participants improved their results throughout the intervention. Within the experimental group, intra-group ANOVA indicates a main effect of the evaluation factor ($F (1.34) = 47.21$, $p < .001$). Post-hoc tests indicate

significant differences from E1 to E2 ($p < .001$), from E3 to E4 ($p < .001$) and from E5 to E6 ($p < .01$). No significant differences were found from E2 to E3 ($p < .052$) or from E4 to E5 ($p < .061$). In the control group, there was also a main effect of the evaluation periods ($F (1.34) = 15.41$, $p < .001$), in this case post hoc tests indicated significant differences from E1 to E2 ($p < .05$), From E3 to E4 ($p < .001$) and from E5 to E6 ($p < .01$). The overall change in T1 to T6 scores was significant in the experimental group ($p < .001$) and in the control group ($p < .001$). We also found a main effect of the group factor ($F (1.63) = 16.43$, $p < .01$), which shows differences between the experimental and control groups over time, with the experimental group obtaining higher scores. In addition, significant interaction effects were found between the evaluation-group factors ($F (1.63) = 12.84$, $p < .01$), which, together with Bonferroni's post hoc test, indicate significant differences in favour of the experimental group in E2, E4 and E6. The magnitude of the differences between the groups E1 to E6 was moderate as indicated by the effect size estimator ($d = 0.57$). As for sex, there were no effects on this factor ($F (1.63) = 14.21$, $p = .053$). There was also no effect of group sex * interaction ($F (1.63) = 11.14$, $p = .061$). The comparison * group * sex comparison was not significant ($F (1.63) = 3.53$, $p = .326$).

Reading processes

In this variable, the mixed ANOVA showed the existence of main effects in the evaluation factor ($F (1.63) = 63.78$, $p < .001$), which indicates that the participants improved their results during the three years of intervention. Within the experimental group, intra-group ANOVA indicates a main effect of the evaluation factor ($F (1.34) = 57.23$, $p < .001$). Post-hoc tests indicated significant differences from E1 to E2 ($p < .001$), from E3 to E4 ($p < .001$) and from E5 to E6 ($p < .001$). No significant differences were found from E2 to E3 ($p < .423$) and from E4 to E5 ($p < .146$). In the control group, there was also a main effect of the evaluation periods ($F (1.34) = 26.51$, $p < .001$), in this case post hoc tests indicated significant differences from E1 to E2 ($p < .05$), From E3 to E4 ($p < .01$) and from E5 to E6 ($p < .001$). The overall change in T1 to T6 scores was significant in the experimental group ($p < .001$) and in the control group ($p < .001$). We also found a main effect of the group factor ($F (1.63) = 68.42$, $p <$

.001), which showed differences between the experimental and control groups over time, with the experimental group obtaining higher scores. In addition, significant interaction effects were found between the evaluation factors * group (F (1.63) = 47.52, p < .001), which, together with Bonferroni's post hoc test, indicates significant differences in favour of the group Experimental in E2, E4 and E6. The magnitude of the differences between the groups from E1 to E6 was high according to the effect size estimator (d = 0.83). As for sex, there were no effects on this factor (F (1.63) = 5.04, p = .072). There was also no effect of group sex * interaction (F (1.63) = 4.32, p = .053). The comparison * group * gender comparison was not significant (F (1.63) = 4.12, p = .421).

TABLE 2. Descriptive statistics and mixed ANOVA of repeated measurements of comparisons evaluations and group

		Experimental		Control		Phase comparison F (1,63)		
		M	*DT*	*M*	*DT*	Evaluation	Group	Group* evaluation
Oral Language	E_1	2.18	0.21	2.21	0.41	48.32***	12.54**	9.83**
	E_2	2.65	0.34	2.37	0.26			
	E_3	2.57	0.14	2.35	0.28			
	E_4	2.84	0.26	2.61	0.52			
	E_5	2.81	0.52	2.57	0.27			
	E_6	2.94	0.34	2.72	0.36			
Phonological Awareness	E_1	1.12	0.51	1.14	0.24	83.41***	63.84***	74.63***
	E_2	1.56	0.35	1.20	0.41			
	E_3	1.51	0.23	1.19	0.25			
	E_4	1.86	0.42	1.35	0.46			
	E_5	1.84	0.32	1.33	0.62			
	E_6	1.97	0.16	1.49	0.58			
Denomination speed	E_1	2.02	0.42	2.06	0.23	35.24***	16.43**	12.84**
	E_2	2.31	0.67	2.14	0.57			
	E_3	2.25	0.31	2.12	0.49			
	E_4	2.56	0.49	2.43	0.32			
	E_5	2.52	0.32	2.41	0.45			
	E_6	2.78	0.45	2.57	0.37			
Reading processes	E_1	1.10	0.52	1.14	0.32	63.78***	68.42***	47.52***
	E_2	1.32	0.14	1.20	0.25			
	E_3	1.28	0.35	1.16	0.57			
	E_4	1.56	0.14	1.32	0.43			
	E_5	1.55	0.21	1.30	0.35			
	E_6	2.10	0.16	1.67	0.58			

Note. *p < .05. **p < .01. ***p < .001.

TABLE 3. Descriptive statistics based on sex and mixed ANOVA of repeated measures of comparisons assessments, group and sex.

		Experimental		Control			Phase comparison	
		Boy	Girl	Boy	Girl	Sex	Evaluation*sex	Group*sex
		M (DT)	M (DT)	M (DT)	M (DT)	F (1,63)	F (1,63)	F (1,63)
	E_1	2.15 (0.23)	2.20 (0.32)	2.19 (0.31)	2.23 (0.42)			
	E_2	2.60 (0.37)	2.70 (0.52)	2.31 (0.62)	2.45 (0.31)			
Language Oral	E_3	2.51 (0.21)	2.63 (0.35)	2.48 (0.46)	2.57 (0.52)			
	E_4	2.78 (0.41)	2.80 (0.39)	2.50 (0.52)	2.68 (0.23)	6.43	7.53	5.58
	E_5	2.83 (0.31)	2.82 (0.43)	2.58 (0.63)	2.57 (0.51)			
	E_6	2.95 (0.25)	2.93 (065)	2.71 (0.14)	2.73 (0.16)			
	E_1	1.10 (0.43)	1.14 (0.25)	1.13 (0.24)	1.15 (0.32)			
	E_2	1.52 (0.21)	1.64 (0.46)	1.19 (0.36)	1.26 (0.51)			
Phonological Awareness	E_3	1.48 (0.12)	1.54 (0.21)	1.17 (0.24)	1.21 (0.45)			
	E_4	1.78 (0.42)	1.92 (0.27)	1.31 (0.31)	1.37 (0.41)	7.51	5.32	6.52
	E_5	1.82 (0.38)	1.88 (0.45)	1.40 (0.62)	1.30 (0.36)			
	E_6	2.03 (0.14)	1.94 (0.23)	1.55 (0.52)	1.62 (0.47)			
	E_1	2.04 (0.34)	2.06 (0.25)	2.05 (0.47)	2.07 (0.31)			
	E_2	2.33 (0.31)	2.29 (0.25)	2.16 (0.31)	2.12 (0.56)			
Denomination speed	E_3	2.28 (0.27)	2.24 (0.42)	2.10 (0.54)	2.14 (0.26)			
	E_4	2.51 (0.26)	2.59 (0.19)	2.45 (0.33)	2.41 (0.47)	14.21	9.84	11.14
	E_5	2.56 (0.48)	2.49 (0.57)	2.39 (0.64)	2.43 (0.21)			
	E_6	2.77 (0.36)	2.79 (0.26)	2.56 (0.39)	2.58 (0.52)			
	E_1	1.08 (0.32)	1.12 (0.64)	2.03 (0.31)	2.09 (0.54)			
	E_2	1.29 (0.27)	1.38 (0.25)	1.19 (0.64)	1.21 (0.51)			
Reading processes	E_3	1.25 (0.23)	1.33 (0.62)	1.12 (0.71)	1.19 (062)			
	E_4	1.50 (0.41)	1.52 (0.39)	1.29 (0.62)	1.34 (0.42)	5.04	8.52	4.32
	E_5	1.63 (0.31)	1.59 (0.47)	1.31 (0.14)	1.29 (0.34)			
	E_6	2.08 (0.23)	2.12 (0.45)	1.73 (0.67)	1.72 (0.43)			

Note. *p < .05. **p < .01. ***p < .001.

Discussion

The aim of this study was to analyse whether stimulation from pre-school levels, of what have been considered the main precursors of learning to read: oral language, phonological awareness, naming speed and alphabetic knowledge, can improve the acquisition of this linguistic ability and in this way can establish an optimal period for its development. The results obtained indicate significant differences in the group-evaluation interaction in favour of the group that received the intervention, with a considered effect in each one of the analysed variables, which shows the positive impact of the program.

Throughout the different evaluations carried out, it is verified that both the students in the control group and the experimental group have improved their reading level, although, in all the measurements made, the group that received the intervention program has reached higher scores, in addition, these have been maintained throughout the different periods of evaluation, which means that through the current curriculum students learn to read. However, this improvement can be even greater if systematic programs are implemented focused on the development of pre-reading skills. This finding is consistent with the results found in other studies (González, López, Vilar and Rodríguez, 2013, Gutiérrez and Díez, 2015).

Analysing the different variables that are part of the intervention program, we verified that the experimental group has improved significantly with respect to control in the development of oral language, which indicates that the implementation of oral interaction dynamics that attend the different linguistic components (phonological, morphological, syntactic, semantic and pragmatic) contribute significantly to improving communicative ability and access to learning to read, which would confirm the influence of oral language development on initial literacy, as has been indicated in previous works (Sepúlveda and Teberosky, 2011, Núñez and Santamaría, 2014). With regard to gender, it is observed that up to the end of the first year the development of oral language is higher in girls, although the differences are not significant, from then on it becomes equal.

In relation to phonological knowledge, the data collected indicate that the experimental group improved to a greater extent than their counterparts who followed the curricular program in the ability to handle

and become aware of units of spoken language. The contributions made by phonological awareness to reading access are that it provides tools for the segmentation of oral language into linguistic subunits, favours early spelling, as well as word recognition, which makes it possible to perform grapheme-phoneme. These data coincide with previous studies (Defior and Serrano, 2011; Bravo, 2016) in which the benefits of phonological awareness skills in learning to read are revealed. As for gender, as was the case in oral language, girls show higher levels (without these differences being significant) to that reached by boys until the end of the first course, at which point they become equal, a situation that coincides with the data of other previous studies (Gutiérrez and Díez, 2016).

Regarding the speed of naming, the students who participated in the intervention program also achieved superior results in the ability to identify and evoke effectively different elements both linguistic and non-linguistic. These data are in line with the conclusions recently presented by López-Escribano, Sánchez-Hípola, Suro and Leal (2014), based on a review of studies on the relationship between denomination velocity and reading acquisition, in which it reveals that the rapid designation of stimuli is a powerful indicator both to predict the subsequent acquisition of reading from the earliest ages and to discriminate between typical readers and others with difficulties.

As far as the contributions that phonological awareness and speed of denomination effect the process of acquisition of reading, apparently they are different, so whereas phonological processing would have more relation to reading accuracy, speed of denomination would present more influence on reading fluency (Suárez-Coalla, García de Castro and Cuetos, 2013, González, Cuetos, Vilar and Uceira, 2015). Hence the importance of including both components together in the educational programs in early ages.

With regards to alphabetical knowledge and the learning of the different processes involved in reading, the data obtained indicate that the intervention program contributed to the improvement in reading of both words and pseudo words, which shows that the students participating in the program increase phonological and spelling processing. This achievement in acquiring grapheme-phoneme correspondence rules can be determined by the development of phonological awareness skills, as well as by a greater capacity to quickly and accurately visualize and retrieve phonological representation of words.

As far as comprehension skills are concerned, the experimental group also performs better than its counterparts by increasing comprehension in both sentences and grammatical structures. This fact may be due to the lexical richness acquired through the intervention program, since vocabulary is one of the elements that most influence reading comprehension in early ages, as has been confirmed in a large number of longitudinal studies (National Reading Panel, 2000).

It should be noted that the improvements between the group that has participated in the intervention program compared to the one that has followed the official curriculum have been especially greater during the last level of pre-school education, in practically all the studied variables, indicating that this period is the most relevant for the development of pre-reading skills. These contributions highlight the desirability of being in these pre-school ages when the development of reading precursors is explicitly initiated, which coincides with the findings of other authors (Gutiérrez, 2016, Gutiérrez and Díez, 2016).

In summary, this study contributes to the facilitation of the processes involved in the acquisition of reading, allowing the orientation of the design and implementation of educational activities that affect the skills that have been identified as relevant in such learning. One of the contributions of this study is that the reading acquisition process established in current curricula can be improved by incorporating pre-reading skills into school norms to be developed in a systematic and structured way from the stages of pre-school education.

A limitation of this study and that which would be interesting to deal with in future studies is the consideration of certain variables that may also influence learning to read, such as the reading ambience in the family environment, shared reading practices at home, executive skills, lexical enrichment, attention, or working memory, which can also offer interesting contributions to the process of reading acquisition. It would also be advisable to follow the evolution of the reading process of the students participating in the program in higher courses in order to check if the effects of the program are maintained over time.

Bibliographic references

Aguinaga, G., Armentia, M., Fraile, A., Olangua, P., & Úriz, N. (2005). *Proof of oral language of Navarra Revised (PLON-R)*. Madrid: TEA

Bravo, L. (2016). The learning of written language and the sciences of reading. A limit between cognitive psychology, neuroscience and education. *Limit. Interdisciplinary Journal of Philosophy and Psychology, 11*(36), 50-59.

Bravo, L., Villalón, M., & Orellana, E. (2004). Cognitive processes and learning from early reading: cognitive differences between good readers and poor readers. *Electronic journal Pedagogical Studies, 30*, 7-19.

Cuetos, F., Rodríguez, B., Ruano, E.. & Arribas, D. (2007). *Prolec-R, Battery process evaluation readers, Revised*. Madrid: TEA.

De Jong, P., & Van Der Leij, A. (1999). Specific contributions of phonological Abilities to Early reading acquisition. *Journal of Educational Psychology 91*, 450-476.

Defior, S. (2008). How to facilitate the initial learning of the literacy? Role of phonological skills. *Childhood and Learning, 31* (3), 333-345.

Defior, S., & Serrano, F. (2011). Phonemic awareness, allied to acquisition written language. *Journal of Speech Therapy, Phoniatrics and Audiology, 31*(1), 2-13.

Dickinson, D. (2011). Teachers' Language Practices and Academic Outcomes of Preschool Children. *Science, 333*(6045), 964-967. http://doi.org/10.1126/ science.1204526

Diuk, B., & Ferroni, M. (2012). Reading difficulties in a context context: a case study of the Matthew Effect? *School and Educational Psychology, 16*(2), 209-217.

González, R.M., Cuetos, F., Vilar, J., & Uceira, E. (2015). Effects of intervention on phonological awareness and naming speed on the learning of writing. Open Classroom, *43*, 1-8.

González, R.M., López, S., Vilar J., & Rodríguez, A. (2013). Study of reading predictors. *Journal of research in education, 11*(2), 98-110.

Gutiérrez, R. (2016). Skills that favor reading learning in the early ages. *In proceedings of the VIII International Congress of Psychology and Education* (pp. 1385-1386). Scientific Association of Psychology and Education. Toledo.

Gutiérrez, R., & Díez, A. (2015). Learning of writing and phonological awareness skills in early ages. *Bordon, 67* (4), 43-59. http://doi.org/10.13042/ bordon.2015.67405

Gutiérrez, R., & Díez, A. (2016). Skills that favor the learning of the writing according to the age and the gender of the students. In R. Serrano, M. Gómez and C. Huertas (Ed.), *Education does matter in the XXI century* (pp. 55-64). Madrid: Synthesis.

Gutiérrez-Braojos, C., Rodríguez, S., & Salmerón-Vilchez, P. (2014). How Can Reading Comprehension Strategies and Recall Be Improved in Elementary School Students? *Studies on Education, 26*, 9-31.

IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.

Inizan, A. (1981). *When to teach to read*. Madrid: Pablo del Río.

Kirby, J. R., Pfeiffer, S.L., & Parrilla, R.K. (2003). Naming speed and phonological awareness as predictors of reading development. *Journal of Educational Psychology, 95*, 453-464.

López-Escribano, C., Sánchez-Hípola, P., Suro Sánchez, J., & Leal Carretero, F. (2014). Comparative analysis of studies on the speed of naming in Spanish and its relation with the acquisition of reading and its difficulties. *Universitas Psychologica, 13* (2), 757-769.

Mialaret, G. (1979). *Learning to read*. Madrid: Alianza.

National Reading Panel (2000). *Teaching children to read: An evidencebased assessment of the scientific research literature on reading and its implications for reading instruction*. Washington DC: National Institute of Child Health and Human Development.

Núñez, M.P., & Santamaría, M. (2014). Prerequisites for the learning process of reading and writing: phonological awareness and oral language skills. *Language and speech, 18*, 72-92.

Ramos, J.L., & Cuadrado, I. (2006). *Test for the Assessment of Phonological Awareness (CEEC)*. Cambridge: Cambridge University Press.

Sellés, P., Martínez, T., Vidal-Abarca. E., & Gilabert, R. (2012). Controversy between reading maturity and early teaching of reading. Historical review and current proposals. *Open Classroom, 40* (3), 3-14.

Sepúlveda, A., & Teberosky, A. (2011) The language in the foreground in children's literature for teaching and initial learning of written language. *Culture and Education, 26*(1), 23-42.

Suárez-Coalla, P., García de Castro, M., & Cuetos, F. (2013). Predictors of reading and writing in Spanish. *Childhood and learning, 36*(1),77-89. http://doi.org/10.1174/ 021037013804826537

Wolf, M. (1991). Naming speed and reading: The contribution of the cognitive neurosciences. *Reading Research Quarterly, 26*, 123-141.

Wolf, M., & Bowers, P.G. (2000). The question of naming-speed deficits in developmental reading disability: An introduction to the Double-Deficit hypothesis. *Journal of Learning Disabilities, 33*, 322-324.

Wolf, M., & Denckla, M. (2003). *Rapid Automatized Naming Tests*. Greenville, SC: Super Duper.

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The importance of teaching practices in relation to regional educational policies in explaining **PISA** achievement

Importancia de la actuación docente frente a la política educativa regional en la explicación del rendimiento en **PISA**

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Abstract

Among the variables that explain schools and students' performances as measured in PISA stand out those that provide information about the social, economic and cultural context. These factors are non-malleable and are not within the educational agents' reach. So that, once the effect of the socio-economic context on assessment was controlled, we focused the study on the role that variables related to regional educational policy, to schools' institutional culture and to the teaching practices play in schools performance in PISA. For this purpose we carried out a secondary analysis with data from 976 secondary schools distributed throughout the 17 regions of Spain participating in the PISA-2015 assessment cycle, and also with data about public/private enrolment, educational spending and available resources of the regional systems. We have built successive multilevel regression models -through a hierarchical linear analysis- in order to know the role of schools and educational policy of all the Spanish regions in the explanation of schools' scientific competence. The findings focused on educational policy variables show that the student-teacher ratio and the quantity of computers per classroom do matter regarding achievement. About the influence on the performance of schools' variables, we found that the school climate and the teaching practices have significant effects on outcomes. Students' disruptive behaviour and teachers' disrespectful interaction with pupils are both variables related to a lower level of competence. Nevertheless, efficacy in the

classroom management, a direct teaching approach and the adaptation of the teaching activities to students' needs are variables related to a higher level of competence. Students' support and feedback exists when a low-level of scientific competence is found. Finally, some proposals have emerged from these findings in order to do better in schools and to redirect educational policy.

Keywords: secondary education, achievement, educational policy, schools, teaching practices.

Resumen

Entre los factores que explican el rendimiento en PISA, destaca el papel de las variables que informan sobre el contexto social, económico y cultural. Este tipo de variables no son directamente moldeables, y escapan a las posibilidades de intervención de los agentes educativos. Controlado el efecto del contexto socioeconómico, en este trabajo consideramos variables relativas a las políticas educativas regionales, la cultura institucional de los centros y el desempeño docente, con el fin de analizar su relación con los resultados obtenidos en PISA. Para ello, llevamos a cabo un análisis secundario a partir de datos correspondientes a 976 centros educativos de las 17 regiones españolas participantes en PISA-2015, junto con datos relativos a escolarización, financiación y recursos disponibles a nivel autonómico. Mediante análisis lineal jerárquico, construimos sucesivos modelos de regresión multinivel para valorar el papel de los centros y las políticas regionales en la explicación de la competencia científica alcanzada en los centros. Los resultados obtenidos, en lo que respecta a las políticas educativas, destacan el efecto positivo de la ratio alumnos-profesor y el negativo del número de ordenadores por aula, medidos a nivel regional. En cuanto al papel de los centros, se han encontrado efectos significativos para el clima escolar y la actuación del profesorado. En particular, las conductas negativas del alumnado y el trato irrespetuoso al alumno se vinculan a menores niveles de competencia. En cambio, un buen control de la clase, el ejercicio de una enseñanza dirigida por el profesor o la adaptación de la enseñanza a las necesidades del alumnado se asocian a una mayor competencia. Se registran niveles bajos de competencia científica cuando están presentes la retroalimentación y el apoyo al alumno. A partir de estos hallazgos se formulan propuestas orientadas a la intervención en los centros y a la revisión de las políticas educativas.

Palabras clave: educación secundaria, rendimiento, política educativa, centros educativos, actuaciones docentes.

Introducción

During the last decades international performance evaluations have been carried out on a large scale with the participation of a growing number of countries. In particular, the publishing of three-year reports corresponding to the PISA report, which has now had six editions, has generated numerous scientific articles at a national and international level (Luzón and Torres, 2013). The relation between the results of these evaluations and specific characteristics of educational systems has been analysed in both the pedagogical and the economic fields (Cordero, Crespo and Pedraja, 2013; González, Caso, Díaz and López, 2012; Nieto and Recamán, 2012), and there have been reflections on its implications in the area of educational policies (Ferrer, 2012; Pedró, 2012). The data of the successive editions of PISA have enabled comparative studies to be done which have contributed an evolutionary view of students' achievements and of the educational systems themselves (Carabaña, 2008; De-Jorge, 2016; Lenkeit and Caro, 2014). Moreover, in some countries studies have been carried out which investigate the inter-regional differences, trying to explain those differences observed from the regions' own features. In the case of Italy, Bratti, Checchi and Filippin (2007) found that the main inter-regional differences lie in their resources and in the characteristics of the labour markets. On the other hand, when analysing the differences between Portuguese regions, Coutinho and Reis (2012) found a limited role for the purely regional factors, conceding a greater relevance to the individual, family and school characteristics.

Spain has had disaggregated data at a regional level in various editions. Works have been done from them to explain the differences in the performance of Spanish students, analysing aspects of each region's own educational policies (Foces, 2015; García and Robles, 2013; Gil, 2014). In PISA 2015 we had results for the first time for all the Spanish autonomous regions. In general terms, the studies carried out have a positive correlation between the students' achievements and the variables which reflect the social and economic development of the different countries or regions, such as, for example, the socio-economic and cultural level, the GDP per capita, the unemployment rate and the poverty risk rate (Ferrer, Valiente and Castel, 2010; Mancebón and Pérez, 2010). Measured by each student or aggregated at the level of centres or regions, the socio-economic and cultural status (ESCS) constructed in PISA is the variable

which best explains the differences of performance (Calero and Escardíbul, 2007; Elosua, 2013). Given the nature of this kind of variables, the educational agents lack a margin of action concerning them. For this reason, our interest is centred on analysing the role of regional educational policies and of school institutions in explaining the differences of achievement, areas where intervention is possible, with the aim of achieving improvements in students' learning.

In relation with educational policies, the scientific literature reflects the role of specific variables in explaining achievement, such as for example: educational expenditure (Calero and Escardíbul, 2014), scholarisation in state or private centres (Duncan and Sandy, 2007), resources available in the centres (De-Jorge, 2016), or the quantity and use of computer resources (Spiezia, 2010). In general, it is assumed that greater financing is translated into more possibilities of access to scholarisation and more personal and/or material resources. There is thus a link between academic achievement and the investments which are carried out in the educational system. Calero and Escardíbul (2014) analysed the effects of educational expenditure and found that this relation is weakened from certain levels of expenditure. As to the public financing of privately-owned centres, those countries which economically support private centres tend to achieve better learning results (OECD, 2012). Nevertheless, the differences of achievement in PISA in favour of private centres have been attributed to the effect of unequal socio-economic levels (Calero and Escardíbul, 2007; Ferrer et al., 2010). Closely related with financing, the connection between the availability of material resources and educational performance has been explored, finding a positive relation (Haegeland, Raaum and Salvanes, 2012; Murillo and Román, 2011). Regarding ICT resources, the positive effect of the use of computers on educational performance has not been clearly demonstrated (Claro, 2010; Mediavilla and Escardíbul, 2015). The effects on learning for variables such as the size of the classes and the student-teacher ratio have also been explored. Blatchford, Bassett and Brown (2011) conclude that smaller groups facilitate learning for all the students. However, at the educational systems level, Van Damme, Liu, Vanhee and Pustjens (2010) noted that the modification of the size of the classes hardly explains the changes observed in the average marks obtained within a country in successive editions of large scale evaluations.

Regarding the role of the centres in explaining the students' achievement, research has centred on different aspects of institutional culture. This can facilitate or hinder innovation and improvement processes, impacting on the efficiency of the teaching-learning processes in classrooms. A key element of school culture and organisation are the management teams, whose pedagogical leadership must influence the actions of the teachers for motivation, implication and the students' academic achievements (Day, Gu and Sammons, 2016; Hallinger and Heck, 2010; Murillo and Hernández-Castilla, 2015). This leadership is also reflected in the concern for quality. In this vein, evaluating practices at the heart of educational institutions are evidence of the interest in improving academic results and involve both the management and the teaching teams (Bolívar, 2006). Another variable with a clear and recognised influence on achievement is the involvement of the families. In general, it is sustained that their participation has positive effects on academic achievements (Collet-Sabé, Besalú, Feu and Tort, 2014).

Along with institutional culture, teaching action in the classrooms must be considered. The performance of the teachers plays a relevant role in explaining the students' learning (Clavel, Crespo and Méndez, 2016; Freiberg, 2013; Stronge, Ward and Grant, 2011). The by now classic works of authors such as Doyle (1980) placed an emphasis on the teachers and their management of the teaching-learning processes in classrooms, highlighting the importance of establishing an appropriate order, climate and atmosphere in classrooms. Gaskins, Herres and Kobak (2012) and Krüger, Formichella and Lecuona (2015) uphold that the sole variable at the school level with a significant influence on achievement is the classroom climate. There has also been an exploration of the effects on learning of inclusive educational practices or innovative methodologies. According to Bietenbeck (2014), the approaches of more active teaching have more positive effects than traditional ones, highlighting the value of following up the students' tasks. Both the follow-up and the feedback have positive consequences for achievement (Harks, Rakoczy, Hattie, Besser and Klieme, 2014). Especially relevant are the personal relation and the emotional aspects (López-González and Oriol, 2016; Reyes, Brackett, Rivers, White and Salovey, 2012), the role of the social and emotional competence of the teachers being crucial to regulate the relations with the students and favour their achievement (Jennings and Greenberg, 2009; Kunter, Klusmann, Baumert, Richter, Voss and Hachfeld, 2013).

In the light of the aforementioned, the conceptual framework worked out for this study considers that achievement can be explained by the socio-economic and cultural context and also by the characteristics of educational policies, by the institutional culture of the centres and the teaching performance (see Graph I). Given the difficulties to intervene concerning the variables related to the socio-economic and cultural context, the explanatory models of achievement which value the efficacy of the educational systems or of the schools tend to control them (Chudgar and Luschei, 2009). The broken lines in Graph 1 denote the control of the socio-economic variables, specifically the socio-economic and cultural index measured in PISA, and the regional gross domestic product (GDP) per capita. The solid lines represent the relations which are the aim of this study, linked to the performance variables in each of the sections considered. These variables come from the PISA database and from other statistical sources consulted.

GRAPH I. Conceptual framework of the research.
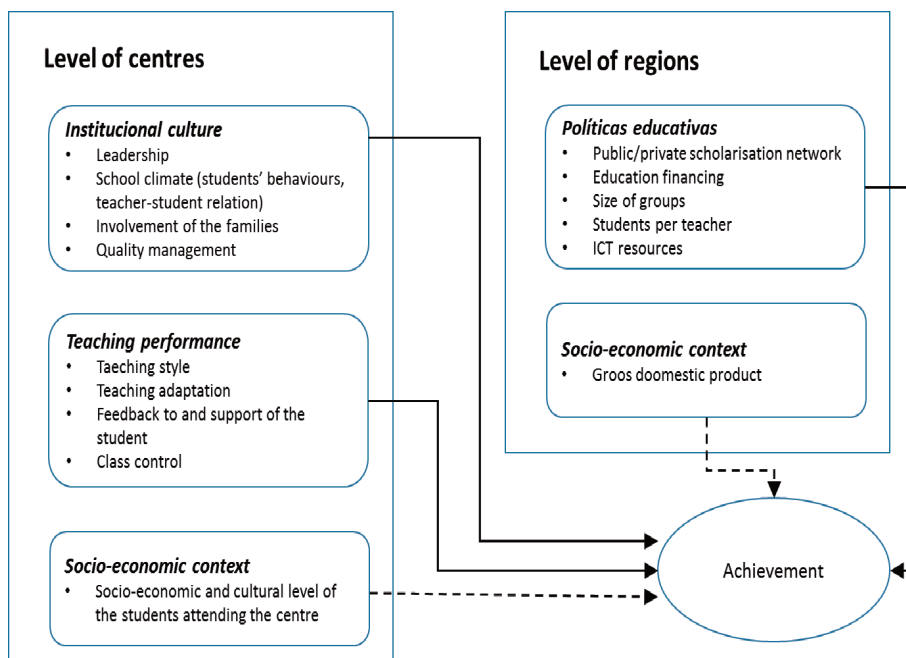
Setting out from this conceptual framework, the aim is to know the role which educational policies and school centres play in explaining achievement. The identification of factors which explicate the achievement differences observed is the basis upon which to found recommendations for teaching action, the management of the centres and/or regional policies. Specifically, we mean to reply to the following questions:

- Controlling the effect of the socio-economic context, is there a relation between achievement in PISA and regional educational policies in matters of scholarisation, financing and resources?
- Controlling the effect of the socio-economic context and regional educational policies, is achievement related with the institutional culture of the centres and the teaching action carried out in the classrooms?

Method

We have developed a secondary analysis of the data related to 976 Spanish educational centres participating in PISA-2015. The data for the centres analysed come from context questionnaires answered by their managers and by 32,330 15-year-old students (50.6% boys, 49.4% girls) who studied there. We also consider the data referring to the economic context and the regional educational systems, extracted from different statistics reports (Instituto Nacional de Estadística, 2016; MECD, 2016, 2017).

Variables

a) Dependent variable

We consider as a dependent variable the score in scientific competence, an area the last PISA evaluation goes deeply into. This competence is measured in PISA via standardised tests, generating individual scores through models of Item Response Theory (IRT). These scores are expressed in a scale of standard deviation 100 and mean 500, this value

coinciding with the average achievement for all the students of OECD countries in the first edition of PISA. As is usual in large-scale evaluations, the method of plausible values is used (Wu, 2005) to determine the level of competence attributed to a student. We have taken the 10 plausible values extracted in PISA for each individual as a starting-out point in the estimation of the average achievement in sciences attained by each educational centre. To obtain the value attributed to the centre, we use the *IDB Analyzer* programme provided by the *Data Processing and Research Center* of the IEA (*International Association for the Evaluation of Educational Achievement*). This software is specifically aimed at the statistical analysis of data from large-scale international studies. It enables work with plausible values, taking into account the sample weights corresponding to each individual and applying the method of balanced repeated replications.

b) Centre-level explanatory variables

Among the centre-level explanatory variables we include some indices available in the PISA-2015 database, derived from the context questionnaires answered by the students or the management. These indices summarise the answers to sets of items using diverse procedures. The details on the building of these indices, as well as the items used, can be consulted in the technical report worked out for PISA-2015 (OECD, 2017). Other variables have been constructed specifically for this analysis, as we will point out when presenting them.

The first variable is the *socio-economic and cultural index* (ESCS). This is an index built for each student from the parents' studies, their professional jobs and the possessions in the home (number of books, computer, Internet connection, etc.). The value attributed to the centre has been obtained averaging those corresponding to each of its students. Along with this index, we have used others which are the variables related with the centres' institutional culture:

- *Educational leadership.* This is the LEAD index contained in the PISA database. It informs about the strength of leadership carried out by the centre's management. It is constructed from the answers to 13 items. The managers indicated the frequency with which

certain actions linked with leadership had taken place in the last year, using a 6-level scale, from "it didn't happen" to "more than once a week".

■ *Negative student behaviours*. STUBEHA in PISA. Based on 5 items which gather the perceptions of the managers about the extent to which specific behaviours of the students of the centre hinder the learning processes. The answer scale includes 4 modalities, from "not at all" to "a lot".

■ *Respecting the students*. Built for this study via principal component analysis for categorical data (CATPCA) from the items ST039Q04NA, ST039Q05NA and ST039Q06NA, answered by the students in relation with the way in which their teachers treat them. The answers are supported on a 4-level scale from "never or almost never" to "once or more a week". The value for each centre is obtained averaging the attributes of the students.

■ *Involvement of the families*. The SCHEFFPAR index in PISA, which indicates if efforts are being made to involve parents in the centre's activities, in accordance with the responses of the managers to 4 items. The index expresses the percentage of statements which are applicable to the centre.

■ *Inprovement of quality*. An index built for this study, which informs about the number of measures adopted to ensure and increase the centre's quality from the managers' perspective (items SC037Q01TA, SC037Q02TA, SC037Q04TA, SC037Q05TA and SC037Q07TA).

Another group of explanatory variables measured at the level of the centres refers to the teaching-learning processes, centring on the teaching performance in science classes. They correspond to indices available in the PISA database, generated from the students' questionnaires. In them they are asked how frequently specific situations occur, providing an answer scale with 4 modalities which go from "never or almost never" to "in all or in almost all the classes". The values of the centre were obtained averaging the scores corresponding to their students. These variables are the following:

■ *Headteacher style* (TDTEACH). Constructed from the answers of the students to 4 items, which reflect to what extent the teachers establish the dynamic of the classes.

- *Research methodology* (IBTEACH). Supported by 9 items which refer to a research-based teaching style.
- *Adaptation of the teaching* (ADINST). Generated from 3 items which reflect how the teacher adapts the teaching processes to the students' characteristics.
- *Feedback to the students* (PERFEED). Based on 5 items referring to the information which they receive about their learning.
- *Support of the students* (TEACHSUP). Worked out from 5 items relative to the support which the teacher gives to facilitate learning.

We have considered an additional variable on the teaching developed in the centre which we have built via CATPCA analysis from the answers to the students' questionnaire:

- *Class control*. Report on the way in which the teachers manage the class, creating appropriate conditions for learning. To construct it we use 5 items (ST097Q01TA to ST097Q05TA) which reflect negative situations in the classrooms. The students express the frequency with which these situations occur, in accordance with a scale of 4 levels which go from "in all the classes" to "never or almost never".

All these indices are expressed as standardised scores, with the exception of the index *involvement of the families*, which is expressed as a percentage, and the index *improvement of quality*, which has values between 0 and 5. The descriptive statistics for the set of variables in the centres of the sample are presented in Table I.

TABLE I. Descriptive statistics for the variables measured at the level of centres.

Variables	Mean	Standard deviation
ESCS	-.50	.62
Educational leadership	-.22	.83
Negative behaviours of the students	-.19	1.08
Respect of the students	.00	.26
Involvement of the families	91.77	15.01
Improvement of quality	4.19	1.02
Headteacher style	.02	.30
Rsearch methodology	-.31	.37
Adaptation to the teaching	.14	.33
Feedback to the studensts	.11	.34
Support of the students	.04	.37
Class control	.00	.37

c) Explanatory variables at the regional level

The independent variables measured at the regional level correspond to information external to the PISA evaluation. They are the following:

- *GDP per capita*. Regional gross domestic product per inhabitant, expressed in euros.
- *Students in public centres.* Percentage of Compulsory Secondary Education (CSE) students enrolled in school in publicly-owned centres.
- *Spending on education per student.* Indicator of financing of education in the regional educational systems, defined as the public spending per student in non-university teaching.
- *Size of groups*. Average number of students per educational group in CSE.
- *Student-teacher ratio*. Average number of students per teacher in non-university teaching.

- *Computers per group.* Number of computers per unit or group in primary and secondary education centres, allocated to teaching with students.

The GDP per capita data correspond to 2015 and have been obtained from the *Spanish Regional Accounting* (Instituto Nacional de Estadística, 2016). The data of the students in public centres, spending on education per student, student-teacher ratio and computers per group come from *Figures in education in Spain* (MECD, 2017) and correspond to the academic year 2014-2015. The size of the groups is extracted from the *State System of Education Indicators* (MECD, 2016). The values for these variables in the 17 autonomous regions are shown in Table II.

TABLE II. Values for variables measured at the regional level

Autonomous Region	GDP per capita (€)	Students in public centres (%)	Expenditure on education per student (€)	Size of the groups (n° students)	Student-teacher ratio	Computers per group
Andalusía	17263	75.2	4042	26.1	13.1	9.3
Aragón	25552	65.8	4707	23.6	12.1	6.7
Asturias	20675	66.3	5530	22.5	10.9	7.7
Balearic Islands	24394	60.8	4808	25.8	11.7	10.9
Canary Islands	19900	75.8	4539	24.3	13.7	5.1
Cantabria	20847	66.3	5623	23.7	11.2	6.4
Castile-La Mancha	18354	80.1	4295	24.5	12.4	6.1
Castile & León	21922	64.0	5109	23.4	11.3	4.8
Catalonia	27663	62.0	4198	27.8	13.2	5.8
Extremadura	16166	76.7	5276	21.4	11.3	9.5
Galicia	20431	70.3	5404	20.4	10.5	7.2
La Rioja	25507	61.4	4827	23.5	12.3	6.0
Madrid	31812	52.0	3857	26.4	14.1	3.7
Murcia	18929	69.8	4352	24.9	12.5	3.3
Navarre	28682	60.2	5692	24.1	11.3	3.9
Basque Country	30459	46.4	6448	21.6	12.1	11.5
Valencian Com.	20586	63.8	4449	25.7	12.9	3.9

Data analysis

We have variables measured by the centres and variables which characterise the regional educational systems. Given that the centres are within regions, certain characteristics of the centres belonging to the same region are not independent of each other, as they are conditioned by the same educational policy developed in the regional context. Consequently, we turn to multilevel models, considering in the same analysis variables measured at the level of centres (first level) and regions (second level). In response to the questions proposed in this work, we have developed a modelling process verifying successive models of multilevel regression. Firstly, we verify the null or unconditional model (Model 0) to check the existence of significant differences between regions and value belonging to the multilevel approach. The following models successively add variables related to the socio-economic context (Model 1), to the regional educational policies (Model 2), as well as to the institutional culture of the centres and to the performance of the teachers in the classrooms (Model 3).

The null multilevel model includes a sole factor of random effects. It is formulated according to the formula (1):

$$Y_{ij} = \gamma_{00} + u_{0j} + e_{ij} \qquad (1)$$

where Y_{ij} is the average score in scientific competence for centre i in region j. This score is the result of adding the global mean of competence in the set of centres (γ_{00}), the random variation of the regional averages with respect to the global average (u_{0j}), and the random variation of the centres with respect to the average of their region (e_{ij}).

From this null model we have constructed the remaining models. We have incorporated new variables in them, maintaining those which have negative effects on the immediately preceding model. The final model, therefore, includes explanatory variables at the level of centres and regions. M and N being the number of variables in both levels, this model is expressed by equation (2):

$$Y_{ij} = \gamma_{00} + \sum_{p=1}^{N} \gamma_{p0}\, X_{pij} + \sum_{q=1}^{M} \gamma_{0q}\, Z_{qj} + (u_{0j} + e_{ij}) \qquad (2)$$

Where the fixed part of the model is made up of γ_{00} (effect of the global mean), γ_{p0} (main effects for each of the centre's variables) and γ_{0q} (main effects for the regional variables). In this model, X_{pij} represents the value of the pth variable in the centre i of region j, while Z_{qj} is the value of the qth variable in region j. In the models built, we assume an independence between the errors u_{0j} and e_{ij}, whose distributions tend to normal models $N(0, \sigma_{u0}^2)$ and $N(0, \sigma_e^2)$.

Results

In Table III we show the results of the multilevel regression. We set out from the null model of a factor of random effects, taking the region as the factor and without including any explanatory variable. The variation of the scores in scientific competence between regions (u_{0j}=187.32; p<0.001) and the variation between centres within each region (e_{ij}=1012.74; p<0.01) are significant. Taking as a reference the total of the variation observed in the performance of the Spanish centres in sciences (e_{ij}+u_{0j}=1200.06), the differences between centres within the same region (e_{ij}) are 84.39%, while 15.61% correspond to the differences registered between regional educational systems (u_{0j}). The existence of a significant variance within the regions and between regions recommends pursuing the multilevel model, including variables in the analysis which contribute to explaining the variability observed in both levels.

TABLE III. Parameters and typical errors for the multilevel regression models concerning scientific competences measured in the centres

	Model 0	Model 1	Model 2	Model 3
Fixed effects				
• Interception	495.31 (3.48)***	514.54 (13.36)***	778.36 (10.78)***	656.16 (42.09)***
Socio-economic context				
• GDP per capita		0.01 (0.00)	-	-
• ESCS		37.85 (1.21)***	37.94 (1.21)***	31.31 (1.38)***
Regional educational policies				
• Students in the public centres			-0.39 (0.24)	-
• Expenditure on education per student			-0.01 (0.01)*	-.01 (0.00)
• Size of the groups			-0.91 (1.41)	
• Student-teacher ratio			-10.85 (2.51)***	-8.29 (2.33)**
• Computers per group			-2.36 (0.66)**	-2.45 (0.71)**
Institutional culture of the centre				
• Educational leadership				-1.10 (0.87)
• Negative behaviours of the students				-3.31 (0.72)***
• Respect of the students				-9.14 (2.95)**
• Involvement of the families				0.09 (0.05)
• Improvement of quality				-1.00 (0.71)
Teaching performance				
• Headteacher style				15.87 (3.54)***
• Research methodology				-2.11 (2.48)
• Adaptation of the teaching				10.16 (3.80)**
• Feedback to the students				-19.32 (2.89)***
• Support of the students				-8.83 (3.48)*
• Class control				13.14 (2.06)***
Random effects				
e_{ij} (intra-region variance)	1012.74 (46.25)***	505.15 (23.08)***	505.27 (23.09)***	392.63 (18.91)***
u_{0j} (inter-region variance)	187.24 (72.66)**	105.02 (41.14)*	26.53 (15.36)	33.82 (16.53)*

* p< .05: ** p<.01; ***p<.00

We construct Model 1 with the aim of controlling the GDP variables and the socio-economic and cultural level, measured respectively for the regions and the centres. The results obtained show significant effects of the ESCS (p<.001). In the presence of this, the effect of the regional GDP per capita is not significant, so this variable has been removed in later models. In accordance with the estimated effect for the ESCS, when its

value increases in a unit the average scientific competence in the centre is raised by 37.85 points. The non-explained variance between regions (u_{0j}) is reduced from the value 187.32 registered in the null model to the value 105.02, while the intra-region variance (e_{ij}) goes from 1012.74 to 505.15. As a consequence, the percentage of variance explained in both levels by the variables of the socio-economic context is 45.94% and 50.12%, respectively. These figures show the important role of the ESCS in explaining the differences observed between centres and between regions. Given that our interest is centred on explaining achievement from malleable factors of educational policies, the institutional culture of the centres and the performance of the teachers, it is appropriate to control the effect of the socio-economic context in successive models.

Maintaining the ESCS as the fixed part, the variables related with the regional educational systems were added to Model 2. In this model, the spending on education (p<.05), the computers per group (p<.01) and the student-teacher ratio (p<.001) have significant effects. For this last variable, each increase of a unit in the ratio corresponds to a drop of 9.08 points in the scientific competence attained in the centres. The inter-region residual variance is u_{0j}=26.53. This represents a reduction of 85.83% of the initial variance noted in the mull model. That is to say, the including of the regional variables considerably increases the percentage of inter-region variance explained in Model 1.

Finally, Model 3 adds the variables measured at the centre-level. In the presence of these variables, the effect associated with spending on education ceases to be significant (p>.05). The variables which measure aspects of the centres' institutional culture have generally turned out to be less relevant than those which refer to the teaching performance. Among the former, only the effects of the negative behaviours of the students (p<.001) and the disrespectful relation of the teacher with the students (p<.01), both linked to the school climate, have been significant. The unitary increase in these variables means a reduction of scientific competence of 3.31 and 9.14 points, respectively. Teaching practices have a greater importance. A good control of the class (p<.001), teaching directed by the teacher (p<.001) and the adaptation of the teaching to the students' needs (p<.01) significantly raise the average scientific competence in the centre. Specifically, the scientific competence is raised 15.87 points with the unitary increase of the index of headteacher style, 13.14 points with the same increase in the control of the class, and 10.16

points in the case of the index of adaptive teaching. On the other hand, specific actions such as the feedback to (p<.001) and support of the student (p<.05), are negatively related with the level of competence. Each unit more in these variables corresponds with decreases in the scientific competence of 19.32 and 8.83 points, respectively. Introducing variables of the centre in the model makes the intra-region residual variance drop to e_{ij}=392.63. This value represents a reduction of 61.23% with respect to the null model, improving the percentage attained with the control variables (50.12% in Model 1).

The fit of the final model constructed can be valued from the decrease in the deviance (the fit statistic used for comparing hierarchical linear models). The deviance of the final model (-2LL=7838.31) is less than that registered for the remaining models (between -2LL=9560.11 in the null model and -2LL=8861.93 in Model 2). The difference of deviances between the two models is distributed according to the chi-squared in so many degrees of freedom as the number of parameters of fixed effects which one model adds in relation to another. As a consequence, the final model's fit has significantly improved (p<.001) with respect to all the previous models.

Discussion and conclusions

Our study confirms the link between performance and the socio-economic and cultural context. The ESCS index is a variable of maximum relevance in the explaining of the results obtained in PISA-2015, as was concluded in previous works which considered the ESCS at the regional level (Elosua, 2013; Ferrer et al., 2010; Gil, 2014), or at the level of centres (Calero and Escardíbul, 2007). This corroborates the suitability of the control of this variable in the explanatory models constructed to answer the aims of this work.

In answer to the first aim, we note the relation of performance in PISA with variables connected with regional educational policies. The previous literature has insisted on the financing of education as one of the aspects which explain the differences between countries or regions (Duru-Bellat and Suchaut, 2005). Although in our analysis public spending per student has been a relevant factor, the effect of variables linked with the provision of both personal and material resources has been more important. That

is to say, compared to the budget amount allocated to education, a greater influence is the way in which this financing is distributed, generating greater resources in the educational system. The relation between achievement and the availability of ICT resources, operationalised in this work as the number of computers per classroom has a negative sign. This would reflect the scant efficacy of the efforts of the educational Authorities to tackle the problems of low achievement via policies aimed at increasing this type of resources in educational centres. When reviewing the autonomous policies for introducing ICT, Meneses, Fàbregues, Jacovkis and Rodríguez-Gómez (2014) highlight that the increase of ICT resources has not always been accompanied by a sufficient training of the teachers for their use, and this should be especially considered when providing the centres with ICT resources.

In our analysis, the student-teacher ratio has been the variable of greatest weight in explaining the differences of achievement between regions, which is why it seems reasonable to reduce the size of the groups and prioritise the provision of teachers (Grau, Pina and Sáncho, 2011). The scholaraisation in centres of public or private ownership, once the socio-economic context has been controlled, does not explain the differences between regions. This result is consistent with those obtained in studies which also analyse this factor, comparing the achievement of the Spanish regions (Ferrer et al., 2010) or that of different countries (De-Jorge and Santín, 2010).

Answering the second aim of the study, we have analysed the relation between the variables of the centre and achievement. We note a greater effect of the performance of the teachers than of the institutional culture. Previous works had pointed out the need to centre efforts on intervening with the students, given the slight relevance of other centre variables in explaining achievement (Cordero et al., 2009). In this same line, Heargraves and Fullan (2014) highlight the role of the centre and the processes which take place in the classroom to achieve satisfactory learning results. According to our results, the class climate, the headteacher style, the order and control of the class, teacher-student respect and the adapting of the teaching to the needs of the students are significantly related with the centre's average scientific competence. These results coincide with those of previous works where similar variables were considered (Clavel et al., 2016; Krüger et al., 2015; López, Ascorra, Bilbao, Oyanedel, Moya and Morales, 2012). The negative effects

of feedback to and support of the students could be explained by an intensification of this kind of actions in the centres with lower achievement levels.

With respect to institutional culture, aspects such as educational leadership, the involvement of the families and measures in favour of educational quality are not relevant to explain the differences of achievement. On the other hand, negative behaviours of the students are significant, in accordance with the studies which underline the negative repercussions of disruptive behaviours in terms of learning (Torregrosa, Inglés, García-Fernández, Gázquez, Díaz-Herrero and Bermejo, 2012). In this sense, it would be desirable to foster measures oriented towards the students who have a greater school disaffection: to boost personal and academic orientation, to drive group tutorials, to employ participative teaching methodologies and to diversify leisure activities.

As we indicated when establishing the conceptual framework of this study, the variables of the socio-economic context are not malleable by the educational agents. However, there is a clear margin for intervention if we pay attention to the remaining variables. Our findings point to the educational centres and the performance of the teachers as the main areas for the implementation of measures aimed at boosting learning. Beyond claiming an increase in educational spending, the provision of more technological resources, the defence of the public network compared to the private network or vice versa, we believe that it is necessary to specifically spotlight the centres. These require having suitable conditions to develop the teaching-learning processes which, among other measures, means having a stable provision of teachers adjusted to the volume of students. The fundamental role of the teaching performance in explaining achievement recommends the adopting of measures aimed at facilitating the work of the teachers in the classroom, providing the necessary support and the recognition of their work. The stability of the teaching workforce would be another challenge in this same line.

Finally, we highlight some strengths and weaknesses of our study. As it is a question of a secondary analysis of PISA data, we have had a broad, rigorously measured sample of centres and variables. Unlike other works which have been limited to exploiting the data available in PISA, we have integrated into the analysis information from external sources. The main limitation is inherent to the methodology used. The models constructed identify relevant variables in the explanation of the achievement but do

not enable the establishing of cause-effect relations which would generate greater confidence in the efficacy of a possible intervention on the independent variables whose effects have been relevant. Taking into account that the differences of achievement between centres continues being significant in the final model constructed, future works would have to analyse the incorporation of new variables which would reduce the residual variance and carry on advancing in the explanation of the achievement registered in the Spanish educational centres. Continuing this study, an interesting line of research could be to centre on the role of the teaching performance. In particular, it would have to go more deeply into the role of variables not dealt with in international evaluations, such as is the case of the teachers' emotional competence, in tune with the works of Kunter et al. (2013). From the methodological point of view, future research could tackle mixed approaches, facilitating via qualitative perspectives a greater comprehension of the differences of inter-regional and inter-centre achievement noted in the quantitative analyses carried out from evaluations such as that of PISA.

References

Bietenbeck, J. (2014). Teaching practices and cognitive skills. *Labour Economics*, vol. 30, C, 143-153.

Blatchford, P., Bassett, P., & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher-pupil interaction: Differences in relation to pupil prior attainment and primary vs. secondary schools. *Learning and Instruction*, nº 21, 715-730.

Bolívar, A. (2006). Evaluación institucional: entre el rendimiento de cuentas y la mejora interna. *Gestão em Ação*, vol. 9, nº 1, 7-36.

Bratti, M., Checci, D., & Filippin, I. (2007). Territorial Differences in Italian Students' Mathematical Competencies: Evidence from PISA 2003. *Discussion Paper No. 2603. Institute for the Study of Labor.* ftp://repec.iza.org/SSRN/pdf/dp2603.pdf

Calero, J. & Escardíbul, J.O. (2007). Evaluación de servicios educativos: el rendimiento de centros públicos y privados en PISA 2003. *Hacienda Pública Española*, vol. 183, nº 4, 33-66.

Calero, J. & Escardíbul, J.O. (2014). *Recursos escolares y resultados de la educación*. Madrid: Fundación Europea Sociedad y Educación.

Calero, J., Choi, A., & Waisgrais, S. (2010). Determinantes del riesgo de fracaso escolar en España: una aproximación a través de un análisis logístico multinivel aplicado a PISA-2006. *Revista de Educación*, nº extraordinario, 225-256.

Carabaña, J. (2008). *Las diferencias entre países y regiones en las pruebas PISA*. Colegio Libre de Eméritos: Madrid.

Chudgar, A. & Luschei, T.F. (2009). National income, income inequality, and the importance of schools: A hierarchical cross-national comparison. *American Educational Research Journal*, nº 46, 626–658. doi: 10.3102/0002831209340043

Claro, M. (2010). *Impacto de las TIC en los aprendizajes de los estudiantes. Estado del arte.* Documento de trabajo. Santiago de Chile: Comisión Económica para América Latina y el Caribe (CEPAL).

Clavel, J., Crespo, F.J.G. & Méndez, I. (2016). *Are teacher characteristics and teaching practices associated with student performance?* Policy Brief, 11. Amsterdam (The Netherlands): IEA.

Collet-Sabé, J., Besalú, X., Feu, J., &Tort, A. (2014). Escuelas, familias y resultados académicos. Un nuevo modelo de análisis de las relaciones entre docentes y progenitores para el éxito del todo el alumnado. *Profesorado. Revista de Currículum y Formación del Profesorado*, vol. 18, nº 2, 7-33.

Cordero, J.M., Crespo, E. & Pedraja, F. (2013). Rendimiento educativo y determinantes según PISA: una revisión de la literatura en España. *Revista de Educación*, nº 362, 273-297.

Coutinho, M. & Reis, H.J. (2012). *What accounts for Portuguese regional differences in students' performance? Evidence from OECD PISA*. Economic Bulletin. Banco de Portugal. Accessed at http://ideas.repec.org/a/ptu/bdpart/b201216.html

Day, C., Gu, Q. & Sammons, P. (2016) The impact of leadership on student outcomes: how successful school leaders use transformational and instructional strategies to make a difference. *Educational Administration Quarterly*, vol. 52, nº 2, 221-258.

De-Jorge, J. (2016). Factores explicativos del rendimiento escolar en Latinoamérica con datos PISA 2009. *Revista de Métodos Cuantitativos para la Economía y la Empresa*, nº 22, 216-229.

De-Jorge, J. & Santín, D. (2010). Los Determinantes de la eficiencia educativa en la Unión Europea. *Hacienda Pública Española/Revista de Economía Pública,* 193, 131-156.

Doyle, W. (1980). *Classroom Management*. Indianapolis: Kappa Delta Pi.

Duncan, K.C. & Sandy, J. (2007). Explaining the performance gap between public and private school students. *Eastern Economic Journal,* vol. 33, nº2, 177-191.

Duru-Bellat, M. & Suchaut, B. (2005). Organisation and context, efficiency and equity of educational systems: What PISA tells us. *European Educational Research Journal*, nº 4, 181-194. doi: 10.2304/eerj.2005.4.3.3

Elosua, P. (2013). Diferencias individuales y autonómicas en el estatus socioeconómico y cultural como predictores en PISA 2009. *Revista de Educación,* nº 361, 646-664.

Ferrer, F. (2012). PISA: Aportaciones e incidencia sobre las políticas educativas nacionales. *Revista Española de Educación Comparada*, nº 19, 11-16.

Ferrer, F., Valiente, O., & Castel, J.L. (2010). Los resultados PISA-2006 desde la perspectiva de las desigualdades educativas: la comparación entre Comunidades Autónomas en España. *Revista Española de Pedagogía*, nº 245, 23-48.

Foces, J.A. (2015). PISA, IDE e IPE: Evidencia empírica de las desigualdades educativas entre las regiones españolas. *Revista de Psicología y Educación*, vol. 10, nº 1, 173-192.

Freiberg, H.J. (2013). Classroom management and student achievement. In J. Hattie and E.M. Anderman (Eds.), *International guide to student achievement* (pp. 228-230). New York: Routledge.

García, J.I. & Robles, J.A. (2013). Diferencias regionales en el rendimiento educativo: ¿qué ha cambiado entre 2009 y 2012? In *PISA 2012. Informe español* (pp. 98-125). Versión preliminar. Madrid: Ministerio de Educación, Cultura y Deporte.

Gaskins, C.S., Herres, J., & Kobak, R. (2012). Classroom order and student learning in late elementary school: A multilevel transactional model of achievement trajectories. *Journal of Applied Developmental Psychology*, nº 33, 227-235. doi: 10.1016/j.appdev.2012.06.002

Gil, J. (2014). Factores asociados a la brecha regional del rendimiento español en la evaluación PISA. *Revista de Investigación Educativa*, vol. 52, nº 2, 393-410.

González, C., Caso, J., Díaz, K., & López, M. (2012). Rendimiento académico y factores asociados. Aportaciones de algunas evaluaciones a gran escala. *Bordón*, vol. 64, nº 2, 51-68.

Grau, R., Pina, T., & Sáncho, C. (2011). Posibles causas del fracaso escolar y el retorno al sistema educativo. *Hekademos. Revista Educativa Digital*, nº 9, 1-22.

Gumus, S. & Atalmis, E.H. (2012). Achievement Gaps Between Different School Types and Regions in Turkey: Have They Changed Over Time? *Mevlana International Journal of Education*, 2 (2), 50-66.

Haegeland, T., Raaum, O., & Salvanes, K.G. (2012). Pennies from heaven? Using exogenous tax variation to identify effects of school resources on pupil achievement. *Economics of Education Review*, 31(5), 601-614.

Hallinger, P. & Heck, R.H. (2010) Collaborative leadership and school improvement: understanding the impact on school capacity and student learning. *School Leadership and Management*, vol. 30, nº 20, 95-110. doi: 10.1080/13632431003663214

Hargreaves, A. & Fullan, M. (2014). *Capital profesional. Transformar la enseñanza en cada escuela*. Madrid: Ediciones Morata.

Harks, B., Rakoczy, K., Hattie, J., Besser, M., & Klieme, E. (2014). The effects of feedback on achievement, interest and self-evaluation: the role of feedback's perceived usefulness, *Educational Psychology*, vol. 34, nº 3, 269-290. doi: 10.1080/01443410.2013.785384

Instituto Nacional de Estadística (2016). *Contabilidad regional de España. Serie 2000-2015*. Consultada en http://www.ine.es/jaxi/menu.do; jsessionid=038E2EF952AA657A136739FCA517F649.jaxi03?type=pcaxis &path=%2Ft35%2Fp010&file=inebase&L=0

Jennings, P.A. & Greenberg, M.T. (2009). The Prosocial Classroom: Teacher Social and Emotional Competence in Relation to Student and Classroom Outcomes. *Review of Educational Research*, vol. 79, nº 1, 491–525. doi: 10.3102/0034654308325693

Krüger, N., Formichella, M.M., & Lekuona, A. (2015). Más allá de los logros cognitivos: la actitud hacia la escuela y sus determinantes en España según PISA. *Revista de Educación*, nº 367, 10-35. doi: 10.4438/1988-592X-RE-2015-367-281

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T. & Hachfeld, A. (2013). Professional Competence of Teachers: Effects on Instructional Quality and Student Development. *Journal of Educational Psychology*, vol. 105, nº 3, 805–820. doi: 10.1037/a0032583

Lenkeit, J. & Caro, D.H. (2014). Performance status and change – measuring education system effectiveness with data from PISA 2000–2009. *Educational Research and Evaluation*, vol. 20, nº 2, 146-

174.

López, V., Ascorra, P., Bilbao, M.A., Oyanedel, J.C., Moya, I., & Morales, M. (2012*). El Ambiente Escolar incide en los Resultados PISA 2009: Resultados de un estudio de diseño mixto*. Valparaíso (Chile): Fondo de Investigación y Desarrollo En Educación. Ministerio de Educación.

López-González, L. & Oriol, X. (2016). La relación entre competencia emocional, clima de aula y rendimiento académico en estudiantes de secundaria. *Cultura y Educación*, vol. 28, nº 1, 142-156.

Luzón, A. & Torres, M. (2013). La presencia de PISA en la literatura científica y su tratamiento en la prensa diaria internacional. *Profesorado. Revista de Currículum y Formación del Profesorado*, vol. 17, nº 2, 193-224.

Mancebón, M.J. & Pérez, D. (2010). Una valoración del grado de segregación socioeconómica existente en el sistema educativo español. Un análisis por comunidades autónomas a partir de PISA 2006. *Regional and Sectoral Economic Studies*, vol. 10, nº 3, 129-148.

MECD (2016). *Sistema Estatal de Indicadores de la Educación 2016*. Accessed at http://www.mecd.gob.es/inee/sistema-indicadores.html

MECD (2017). *Las cifras de la educación en España. Curso 2014-2015 (Edición 2017)*. Accessed at http://www.mecd.gob.es/servicios-al-ciudadano-mecd/estadisticas/educacion/indicadores-publicaciones-sint esis/cifras-educacion-espana/2014-15.html

Mediavilla, M. & Escardíbul, J.O. (2015). ¿Son las TIC un factor clave en la adquisición de competencias? Un análisis con evaluaciones por ordenador. *Hacienda Pública Española*, nº 212, 67-96.

Meneses, J., Fàbregues, S., Jacovkis, J., & Rodríguez-Gómez, D. (2014). La introducción de las TIC en el sistema educativo español (2000-2010): un análisis comparado de las políticas autonómicas desde una perspectiva multinivel. *Estudios Sobre Educación*, vol. 27, 63-90.

Murillo, F.J. & Román, M. (2011). School Infrastructure and Resources Do Matter: Analysis of the Incidence of School Resources on the Performance of Latin American Students. *School Effectiveness and School Improvement*, vol. 22, nº 1, 29-50.

Murillo, F.J. & Hernández-Castilla, R. (2015). Liderazgo para el aprendizaje: ¿Qué tareas de los directores y directoras escolares son las que más inciden en el aprendizaje de los estudiantes? *RELIEVE*, vol. 21, nº 1, art. 1. doi: 10.7203/relieve.21.1.5015

Nieto, S. & Recamán, A. (2012). Hacia una mayor comprensión global del

rendimiento académico a través de las pruebas PISA: contraste de tres hipótesis a partir de unos datos empíricos. *Educación XX1*, vol. 15, nº 1, 157-178.

OECD (2012). *Public and Private Schools: How Management and Funding Relate to their Socio-economic Profile*. OECD Publishing. doi: 10.1787/9789264175006-en

OECD (2017). *PISA 2015 Technical report*. Accessed at http://www.oecd.org/pisa/data/2015-technical-report/

Pedró, F. (2012). Deconstruyendo los puentes de PISA: del análisis de resultados a la prescripción política. *Revista Española de Educación Comparada*, nº 19, 139-172.

Reyes, M.R., Brackett, M.A., Rivers, S.E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*, nº 104, 700–712. doi:10.1037/a0027268

Spiezia, V. (2010). Does computer use increase educational achievements? Student-level evidence from PISA. *OECD Journal: Economic Studies*, v. 2010.

Torregrosa, M.S., Inglés, C.J., García-Fernández, J.M., Gázquez, J.J., Díaz-Herrero, A., & Bermejo, R.M. (2012). Conducta agresiva entre iguales y rendimiento académico en adolescentes españoles. *Behavioral Psychology / Psicología Conductual*, vol. 20, nº 2, 2012, 263-280.

Van Damme, J., Liu, H., Vanhee, L., & Pustjens, H. (2010). Longitudinal studies at the country level as a new approach to educational effectiveness: Explaining change in reading achievement (PIRLS) by change in age, socio-economic status and class size. *Effective Education*, vol.2, 53–84. doi: 10.1080/19415531003616888

Van Ewijk, R. & Sleegers, P. (2010). The effect of peer socioeconomic status on student achievement: a meta-analysis. *Educational Research Review*, vol. 5, nº 2, 134-150.

Wu, M. (2005). The role of plausible values in large-scale surveys. *Studies in Educational Evaluation*, vol. 31, nº 2-3, 114-128.

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Basic Vocational Training: an alternative to school failure?

La Formación Profesional Básica: ¿alternativa al fracaso escolar?

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Abstract

Introduction: In the European context, one of the challenges of the next few years focuses on reducing academic failure and school dropout as measures to promote equity, social cohesion and active citizenship. In the case of Spain, the latest statistics provided by Eurostat have revealed that this aim is still far from being achieved, since we experience high rates of academic failure and school dropout. The Spanish Organic Law 8/2013, for the Improvement of the Quality of Education, promotes Basic Vocational Training (BVT) with the aim of providing students with a professional qualification, while helping them to continue their studies. The implementation of this training started in the 2014-2015 academic year, over a period of two years. Given this framework, our work is aimed at providing a diagnosis of BVT in terms of the opportunity that it entails for students to stay in the educational system. Methodology: A technique which involves analyzing scientific and legal documents, and statistical sources was used, with the purpose of delving into the topic under study, broadening the existing knowledge on the topic, clarifying the state-of-the-art, and organizing official statistical data, currently disaggregated and dispersed. Results: there is evidence of important differences among the Autonomous Communities regarding the suitability rate, as well as the evolution of enrollment in BVT between the 2014-2015 and 2015-2016 academic years. Besides, in the transition from the first to the second year 47,82 % of the student body is lost. Conclusion:

Basic Vocational Training courses fail to achieve their most basic objective, which is to keep students in the educational system.

Keywords: vocational training, school failure, dropout, educational research, statistical data.

Resumen

Introducción: En el contexto europeo, uno de los desafíos para los próximos años se centra en reducir el fracaso escolar y el abandono educativo como medida para promover la equidad, la cohesión social y la ciudadanía activa. En el caso de España, las últimas estadísticas de Eurostat ponen de manifiesto que este objetivo está todavía lejos de conseguirse, debido a las elevadas cifras de fracaso escolar y abandono. La Ley Orgánica 8/2013, para la Mejora de la Calidad Educativa, impulsa las enseñanzas de Formación Profesional Básica (FPB) y uno de sus objetivos es ofrecer a este alumnado una cualificación profesional, al tiempo que contribuir a su continuidad en el sistema educativo. Con una duración de 2 años, se implantan en el curso 2014-15. En este marco, lo que nos proponemos es realizar un diagnóstico de la FPB con relación con la oportunidad que pueda suponer para potenciar la permanencia del alumnado en el sistema educativo. Metodología: Se ha procedido a utilizar la técnica de análisis de documentos científicos y legislativos, y de fuentes estadísticas, con la finalidad de profundizar en nuestro objeto de estudio, ampliar el conocimiento existente sobre el mismo, clarificar el estado de la cuestión sobre el tema, y organizar datos estadísticos oficiales disgregados y dispersos. Resultados: Se constatan diferencias importantes entre las distintas comunidades autónomas en lo que respecta a la tasa de idoneidad, así como en la evolución de la matrícula en FPB entre los cursos 2014-15 y 2015-16. Por otra parte, en la transición de 1º a 2º se pierde el 47,82% del alumnado. Conclusión: Las enseñanzas de Formación Profesional Básica no logran su objetivo básico, esto es, mantener al alumnado en el sistema educativo.

Palabras clave: formación profesional, fracaso escolar, abandono de estudios, investigación educativa, datos estadísticos.

Problem Statement

The strategic framework for European cooperation in education and training (ET 2020) adopted by the Council of Ministers of the European Union at its meeting on May 12th, 2009 (Council of Europe, 2009) establishes as main purpose the development of education and training

systems in the Member States. This objective is justified by their capacity to provide all citizens with the means to exploit their potential and to ensure sustainable economic prosperity and employability. Accordingly, four strategic objectives are established, including promoting equity, social cohesion and active citizenship.

Within this objective, a key indicator is the rate of early leaving from education and training, which is also part of the *Eurostat Sustainable Development Indicators* and *Gender Equality Indicators*, as well as the *Employment and Social Policy Indicators of the European Union*. By 2020, this dropout rate is expected to be reduced to less than 10% among young people aged between 18 and 24 years, which in Spain would be 15%. In order to respond to this challenge, different initiatives, such as the *Entrepreneurship and Youth Employment Strategy* 2013-2016, have been launched, which propose measures aimed at reducing school failure and early school leaving.

However, the reality is that this does not take us in the right direction. The latest Eurostat data from April 2016 have shown that Spain leads the European Union in early school leaving, with a rate of 20%, compared to the EU average of 11%, and it is still a long way off the set goal.In a working document from February 2016, the European Commission have warned about the low level of basic skills of the working population who left school early, with direct effects on long-term unemployment (Commission, 2016 *a*). This is an obstacle to competitiveness, innovation capacity and social cohesion of the country, and is therefore a major political and social issue (García, Casal, Merino & Sánchez, 2013).

Undoubtedly, the data are alarming and the problem is particularly complex, due to the great disparity in dropout rates (European Commission, 2015). However, most worrying is how difficult it is to modify these figures in our system. Since the 1990s, different initiatives have been carried out in the political sphere to reduce school failure and dropout (Escudero & Martínez, 2012), and to minimize their effects through actions focused on the employability of all individuals (Suárez, 2016). This is translating into the design and development of different programs which, linked to the labor market, provide a level-one professional qualification, according to the guidelines of the European Commission.

In recent years, the Education Reform, which is specified in the Spanish Organic Law 8/2013, for the Improvement of the Quality of

Education (hereinafter LOMCE), has introduced Basic Vocational Training (hereinafter BVT) as a vocational training grade. In addition to the aims and objectives generally established for vocational education, this grade will help students to stay in the educational system, promoting continuity, pursuing their post-compulsory secondary studies, in line with the European guidelines (European Commission, 2015). Designed as a two-year program, it was implemented for the first time in the 2014-15 academic year.

Notwithstanding its importance, the extensive literature search implied that there are hardly any studies on this topic, with scarce and limited scientific production, as shown in previous studies (García, 2014). One might think that this is due to the recent implementation of BVT, but it rather responds to a widespread trend in the field of Vocational Training, where studies are clearly fewer compared to other levels of the education system (Merino, García & Casal, 2006). This adds up to the fact that studies are not always sufficiently systematized or available to researchers in the field (Tarabini & Curran, 2013).

For this reason, the reflection on these programs, their implementation, development and application is an unavoidable issue in the field of educational research, so that one can identify strengths and weaknesses for their optimization. In order to understand the role played by vocational training in reducing early dropout, an analysis is required on both the phenomenon of failure and the potential of vocational training to attract, keep and reintegrate young people into the education system. These aspects are challenging areas of research (EURYDICE & CEDEFOP, 2014).

This article begins with a theoretical approach to the problem of school failure and its relation with dropout, followed by an analysis of BVT and its preceding programs. These two aspects are described in the following section from a statistical approach, which provides an overview of the situation in terms of school failure, both in relation to BVT and Compulsory Secondary Education (hereinafter CSE), since this is the educational stage from which BVT students come. Finally, some reflections and recommendations are provided by way of discussion and conclusion, which hopefully will serve to stimulate a more effective debate on BVT and what, in our opinion, should be its main objective: to reduce school failure and avoid early dropout of those who have not completed Secondary Education.

Preceding programs and theoretical grounding

The classrooms of the Spanish educational centers show a reality characterized by heterogeneity, and in which academically successful students coexist with others, who present learning difficulties derived from low performance, curricular lag and lack of motivation, situations of social and educational risk, etc.

With the entry into force of the Spanish Organic Law 1/1990, of October 3, of the Education System General Order (hereinafter LOGSE) and the corresponding extension of the compulsory education to the age of 16, a so far non-existent problem arises: "to keep in the classrooms, by force of law, many students who would otherwise have left" (Fernández-Enguita, Mena & Riviere, 2010, p.176). This situation leads to behaviors and attitudes considered inappropriate "according to the hegemonic criteria of the educational institution" (Merino et al., 2006, p.84), while fueling the paradox of an institution which, despite the fact it is designed to help, it ends up enhancing, punishing and certifying failure and exclusion (Escudero & Martínez, 2012).

Therefore, once the universalization is achieved, the next step is to promote better results both in compulsory and post-compulsory education (Pérez-Esparrells & Morales, 2012), which will necessarily require "reducing the high rate of school failure and early dropout in Spain" (p. 42).

A conceptual approach to school failure

School failure and dropout are terms which are sometimes used as synonyms, although the emphasis on one term or the other has much to do with how each society views its educational system. Thus, while the former is commonly used in Europe, it is hardly used in the United States, for example (Fernández-Enguita et ál., 2010). Both concepts are widely used in educational research, as they are viewed in close connection. As a result, there is a fundamental difference in whether, within the Secondary Education stage, they are linked to either compulsory (school failure) or post-compulsory (dropout) education (Pascual & Amer, 2013, Roca, 2010).

The term *school failure* is far from uncontroversial, sometimes being ambiguous, as there are multiple meanings of this concept (Pérez-Esparrells & Morales, 2012). This paper focuses on school failure, while being aware of the problem involved when approaching this concept, given the complexity of the topic and its multiple facets (Escudero & Martínez, 2012). Thus, it becomes subject of discussion for two reasons: its denotative value, since it has no clear definition, and its connotative value, because it would entail disqualification and even stigmatization of the student. A conceptualization of school failure is a problem in itself, which in practice leads to a dichotomous definition, "students' multiple differences being reduced to a binary division: success or failure" (Fernández-Enguita et al., 2010, p.11).

Since researchers are aware of this, a broad view of failure is assumed, including "any form of non-achievement of the educational goals proclaimed by society" (Fernández-Enguita et al., 2010, p.23). This is why, school failure is understood as a situation in which students who complete Compulsory Secondary Education fail to achieve the goals generally set for the age group, in line with what is called *objective failure*. Given the context, there would be risk of failure situations, which will set the scene for school failure (retention, lack of motivation, chronic absenteeism, learning difficulties etc.) and *de facto* failure (for example, retained students who do not reach the required learning outcomes). This creates a "vicious cycle of low performance and lack of motivation, leading to more bad grades and loss of commitment to their school" (OECD, 2016 *b*, p.5).

Consequences of failure and dropout

School failure and dropping out of the education system before completing upper secondary education have serious consequences and negative repercussions, giving rise to a higher level of vulnerability among the affected population (OECD, 2016 *a*, 2016 *b*). From an individual perspective, there are greater difficulties related to employment and reintegration (EACEA, 2016), less job stability, less secure jobs, lower wage levels, or a less healthy lifestyle (European Commission, 2016).

One should not leave aside that today, working environments and employment present special characteristics which imply numerous

challenges that intensify in the case of young people, leading to a spiral in which many young people are neither in employment nor in education or training (the so-called "NEETs"). A recent World Bank study has warned about the growth of this group and the possible consequences with respect to the future increase of existing social inequalities (De Hoyos, Rogers & Székely, 2016). In Spain, as pointed out by the OECD (2016 b), the percentage of young people aged between 15 and 29 years in this situation is around 20% and, although it improves compared to 2014, when it reached 24,3%, there is still a lot to be done.

Therefore, the consequences of school failure and dropout are not reflected only at an individual level, but also in the economy through tax revenue accruing to the State (Pascual & Amer, 2013) and, obviously, in the social context, by decreasing the equality and cohesion indexes (OECD, 2016 *b*, Tarabini & Currán, 2015). These are closely linked dimensions, since "the working force which left education early contributes to long-term unemployment and constitutes a barrier to the country's competitiveness, innovation capacity and social cohesion" (European Commission, 2016, p.56). Society as a whole would be affected, given the high social and economic costs of school failure (EURYDICE & CEDEFOP, 2014, OECD, 2016 *b*).

Basic Vocational Training

The development of measures aimed at reducing both school failure and dropout, and at increasing the qualification level of young people is a need justified by several reasons. The first reason refers to the importance of a solid basic training, which allows building for the future learning throughout life; the second reason is linked to the rapid evolution of work environments, implying constant adaptations to the new qualification requirements; and finally, the third one makes reference to the necessary competitiveness of the economy, beyond neo-fordism economic models (García et al., 2013). Since 1990, different programs and initiatives, aimed at addressing this situation, have been structured and developed in accordance with the political institutions' guidelines. Each of these programs include "its corresponding organizational and curricular designs, along with teaching and learning processes, and in-service training" (Amores & Ritacco, 2015, p.106).

The first precedent of BVT refers to the Social Guarantee Programs (SGPs), set up by LOGSE. They are aimed at young people over 16 and under 21, who dropped out of formal education, without obtaining a minimum qualification, and with obvious difficulties to join the workforce with certain guarantees (Marín, García & Sola, 2014). Their purpose is to provide students with a basic and professional training that allows them to join the workforce or to continue their studies in Intermediate Training cycles through an entrance test. In line with Alegre and Benito (2010), it could be stated that the implementation of SGPs revealed the capacity of this training to favor "the permanence in the education system of students who, in other systems, could be inclined to drop out at an early age" (p.66).

However, these programs were also a cause for strong criticism, linked to certain essential characteristics. The stigmatization attached to these studies stand out in this sense (Fernández-Enguita et al., 2010), along with the important disparities in the implementation of SGPs in each Autonomous Community, and the refusal to allow the reintegration into the general education system (Merino et al., 2006). This occurred because students who had finished the program did not obtain any type of academic certification, and subsequently they were obliged to enroll in Adult Education Schools for people over 18 years old, if they wanted to obtain the degree of Compulsory Secondary Education Graduate (Marín et al., 2014); or, because the excessive orientation towards the school model (Merino et al., 2006) caused a discrepancy between expectations and reality, as students considered that this was a "false start" for not providing the expected knowledge (Fernández-Enguita et al., 2010).

The Spanish Organic Law 10/2002, of December 23, on Quality in Education (LOCE) replaces SGPs by the In-Service Training Programs (ISTP). However, the *de facto* cessation of this Law stopped their development, SGPs continuing to be conducted until the entry in force of the Organic Law 2/2006, of May 3, on Education (LOE), when they are replaced by the so-called Basic Vocational Qualification Programs (BVQPs). In the new perspective of these programs, "the years spent on SGPs and the new regulations on qualifications and vocational training" had a notable impact (Marín et al., 2014, p. 34).

Such programs were directed at students over the age of 16 years, who had not obtained the degree of Compulsory Secondary Education Graduate. Exceptionally, and in agreement with students and parents or

guardians, this age could be reduced to 15 years in the cases in which students, once enrolled in the second year of CSE, and having been retained once during secondary education, do not meet the requirements for promotion to the third year.

Some of the positive aspects that stand out have to do with teachers' work (Aramendi & Vega, 2013), the increase in age range at which students can access these programs (15 years), or an extension to two years of these programs (Marín et al., 2014), as well as the opportunity of obtaining the degree of CSE Graduate. However, the latter aspect has been a cause for criticism, alleging an academicism superior to SGPs (Marhuenda, 2012).

BVQPs are maintained until the entry in force of the Spanish Organic Law 8/2013, of December 9, for the Improvement of the Quality of Education (LOMCE), which sets up BVT. The Preamble of this Law refers to the *equity* and *quality* of the education system as two sides of the same coin, stating that it is virtually inconceivable that a quality education system might not consider a priority to eliminate any kind of inequality.

In the third paragraph of the single article, it is stated that the BVT cycles shall be mandatory and gratuitous. This paragraph was developed by RD 127/2014 which, in its general provisions, set out the creation of these cycles as a measure to facilitate the permanence of students in the education system and provide them with better chances of achieving their personal and professional development. These cycles also include modules related to common blocks of applied sciences, and communication and social sciences, which enable students to achieve and develop lifelong learning skills to pursue post-compulsory secondary education.

Taking as reference the terms established for Spain in the Royal Decree 127/2014 (articles 3 and 4), BVT is part of the vocational training of the education system and is organized in cycles, which in turn are grouped into modules. It has to respond to a profile that includes, at least, a level-one full professional qualification from the National Catalog of Professional Qualifications (NCPQ).

Articles 8 to 10 elaborate on the characterization of the professional modules in which BVT cycles are organized, expressed in terms of learning outcomes, evaluation criteria and contents.

Regarding access to this type of training (article 15), it is established that students must meet all of the following requirements: to be aged

between 15 and 17 years; to have completed the 3rd year of CSE or, exceptionally the 2nd year; and to be proposed by the teaching team to the legal guardian, who must give their consent.

The duration of the Basic Vocational Training cycle is 2000 hours, equivalent to two academic years, with the possibility of taking these courses over a period of maximum four years through the common system. However, obtaining this degree does not initially entail the degree of CSE Graduate. This situation was modified by the Royal Decree 1058/2015, of November 20, where it is envisaged (Single Transitional Provision) that, during the 2015/2016 and 2016/2017 academic years, the BVT graduates will be able to obtain the CSE degree, provided that, in the final cycle assessment, the teaching team considers that they reached their objectives and acquired the corresponding competences. Recently, the Royal Decree 562/2017 of June 2, in Article 2.5, has consolidated this *sine die* situation until "the entry into force of the regulations resulting from the Agreement on the Social and Political State for Education" (Article 1). The Basic Vocational Training was implemented in the 2014-15 academic year, therefore, the first graduating class completed their studies in 2016.

Over a decade ago, Marhuenda (2006) criticized the lack of attention paid to the research studies on vocational training programs, in spite of their role in "basic education, educational compensation, initial vocational training and integrating social and career guidance" (p.17). However, over the past few years, a higher number of studies focusing on this topic have been conducted, along with case studies published in educational journals that address this issue from complementary dimensions related to the topic. For literature reviews, the turning point occurred at the end of the past decade with the works published in *Revista de Educación* on "Basic Vocational Qualification" (2006) and "Early dropout of education and training" (2010), and in *Revista de Curriculum y Formación del Profesorado* (2009) on "School failure and educational exclusion". From that moment on, it is becoming increasingly common to find works that delve into the opportunity of this type of training as a measure of social, personal and occupational integration (Escudero, 2016, González, 2015). Some of them are mentioned in our study.

Taking these precedents as reference, the study was performed, with the characteristics presented in the following section.

Design and methodology

Objectives

This work is aimed at *making a diagnosis of the Basic Vocational Training in relation to its opportunity as a measure to promote students' staying in the educational system.* In order to approach it, BVT serves as an analysis unit, making use of the statistical data.

Method

The research study was conducted in three stages, which included the use of different methodological approaches. This option is justified by the conviction that school failure is not an exclusive consequence of students' personal characteristics, which would imply a particular type of responsibility (Domingo & Martos, 2016), but a number of circumstances that require a complementary analysis.-

Initially, a technique which involves *analyzing scientific and legal documents, and statistical sources* was used, with the purpose of delving into the topic under study, broadening the existing knowledge on the topic, and clarifying the state-of-the-art, in line with previous studies (Cordero, Manchón & Simancas, 2014, Marín et al., 2014, Palomares & López, 2012). This is precisely the dimension on which the article is based.

Results

While exploring about school failure in statistical terms, something frequently reported was found, that is, scarce and scattered official data and figures (Merino et al., 2006). A second obstacle was provided by the generic term itself, since it would be strange to find official statistical data on education about 'school failure' as such. The common practice is to avoid a direct reference to this situation, using descriptors such as "academic results" "suitability rate", "promotion", "students who complete their studies" or "retained students", among others.

Another problem is caused by the timing of the publication of the data referring to some of the above-mentioned descriptors. For example, the

latest available data on "academic results" date back to the 2013-2014 academic year, three academic years of delay.

In an attempt to overcome these difficulties, a statistical overview is presented, elaborated from the official data provided by the Spanish Ministry of Education, Culture and Sport on its website. In order to adjust ourselves to the current situation, it was decided to address only the available data corresponding to the last three academic years.

The existing situation of Compulsory Secondary Education

Although BVT is part of the vocational training of the education system, it significantly affects CSE students who leave the latter to pass to a new study stage. To this end, the 'suitability rate' is an appropriate indicator if we are to glimpse the future BVT students. This indicator is often taken as a reference in studies which address school failure and dropout (Fernández-Enguita et al., 2010, González, 2016). It can be understood as the "percentage of students enrolled in the theoretical course corresponding to their age" (MECD, 2016, p.55). Considering the theoretical ages of 14 and 15 years linked to the third and fourth year of CSE, the available data point to relatively stable rates during the years under study (Table I), both in the entire Spanish education system and the different Autonomous Communities. The suitability rate in the 3rd year is between 70% and 71%, and that of the 4th between 62% and 63%, allowing us to determine that the degree of connection between age and year of study decreases, as the latter increases. The differences between the Autonomous Communities are undeniable: While in Catalonia the rates (2014-15 academic year) are 82% for the 3rd year and 76,6% for the 4th, in other communities such as Melilla (57.3% and 47.3%) or Ceuta (55, 4% and 47.9%), these values are significantly lower.

TABLE I. Suitability rate in the 3rd and 4th year of CSE

Autonomous Communities	2012-13 academic year		2013-14 academic year		2014-15 academic year	
	3rd year	4th year	3rd year	4th year	3rd year	4th year
ANDALUSIA	66.4	58	67.5	59.6	68.2	60.7
ARAGON	66.9	60.3	66.5	60.2	57.5	51.2
ASTURIAS	75	66.7	75.7	69.2	74.5	68.5
BALEARIC ISLANDS	64.8	56.3	65.9	57	66.9	58.5
CANARY ISLANDS	65.4	57.4	66.2	57.4	67.2	58.1
CANTABRIA	71.8	63.3	73.9	64	77.1	65.2
CASTILE AND LEÓN	70.9	61.7	70.3	63.1	71.4	62.8
CASTILLA-LA MANCHA	65.8	56.8	65.3	58	67.1	56.9
CATALONIA	79.5	73.7	81.1	75.1	82	76.6
VALENCIAN COMMUNITY	68.9	59.1	67.3	60.1	67.7	57.9
EXTREMADURA	68	57.8	68.7	60.2	69.7	61
GALICIA	71.4	63	71.9	63.1	72.6	64.8
MADRID	72.2	63.1	72.5	64.8	73.4	65.3
MURCIA	63.9	55.6	63.5	54.6	65.6	57.4
NAVARRE	74.8	68.9	76.6	69.3	76.6	71.2
BASQUE COUNTRY	77.6	72.8	77.2	72.6	78.6	72.7
LA RIOJA	70.1	59.1	69.3	61.5	69.8	61.2
CEUTA	52.4	39.4	56.7	43.5	55.4	47.9
MELILLA	58	46.9	55.4	47.9	57.3	47.3
TOTAL	**70.6**	**62.5**	**71**	**63.6**	**71.7**	**63.9**

Source: elaborated by the authors

The existing situation of Basic Vocational Training

The 2014-15 academic year is the first in which students have access to BVT, accounting for a total of 39,867 students (Table II). In terms of gender, it was observed that the proportion of male students (71.38%) is much higher than that of female students (28.46%). This trend is generally maintained if we consider the different professional families, except for *Self-Image* and *Sociocultural and Community Services*, with greater female participation:

TABLE II. Students enrolled in BVT by professional family. 2014-2015 academic year

CYCLES OF BVT	Male students		Female students		TOTAL
	N	%	N	%	N
	28456	71.38	11411	28.46	39867
Agricultural	1848	79.66	464	20.34	2320
Merchant Marine and Fishing Fleet	8	100	0	0	8
Food Industries	106	63.85	60	36.15	166
Self-Image	485	14.81	2788	85.19	3273
Mechanical Manufacturing	2812	96.63	98	3.37	2910
Installation and Maintenance	146	98.65	2	1.35	148
Electricity-Electronics	5481	95.14	280	4.86	5761
Transportation and Vehicle Maintenance	3983	90.00	81	10.00	4064
Construction and Civil Works	321	83.59	63	16.41	384
Glass and Ceramics	30	68.18	14	31.82	44
Wood, Furniture and Cork	953	92.52	77	7.48	1030
Textile, Clothing and Leather	114	49.78	115	50.22	229
Graphic arts	142	55.90	112	44.10	254
Computer Science and Communications	4845	80.15	1200	19.85	6045
Administration and Management	3948	51.55	3710	48.45	7658
Commerce and Marketing	993	49.35	1019	50.65	2012
Sociocultural and Community Services	33	27.27	88	72.73	121
Hotels and Tourism	2208	64.04	1240	35.96	3448

Source: elaborated by the authors

Comparing the data for 2014-15 and 2015-16 academic years, and focusing on the first year of study (Table III), it is observed that throughout the country there is an increase of 1373 students enrolled in the second year compared to the previous one, the different Autonomous Community displaying a very different behavior. For example, while the number of students recorded in Valencia was increased to 964, Andalusia lost 813, and other Communities, such as Cantabria or Murcia, remained stable.

TABLE III. Students enrolled in the 1st year of BVT by Autonomous Communities.

Autonomous Communities	2014-15 academic year		2015-16 academic year		Difference	
	N	%	N	%	N	%
	39867	100	41240	100	+1373	+3.44
ANDALUSIA	8633	21.66	7820	18.96	-813	-9.42
ARAGON	1438	3.61	1590	3.85	+152	+10.57
ASTURIAS	430	1.08	421	1.02	-9	-2.09
BALEARIC ISLANDS	982	2.47	1149	2.79	+167	+17.00
CANARY ISLANDS	2279	5.72	2199	5.33	-80	-3.51
CANTABRIA	451	1.13	449	1.09	-2	-0.44
CASTILE AND LEÓN	2502	6.27	2563	6.21	+61	+2.44
CASTILLA-LA MANCHA	2860	7.17	2903	7.04	+43	+1.50
CATALONIA	0	0.00	0	0.00	0	0
VALENCIAN COMMUNITY	5435	13.63	6399	15.52	+964	+17.73
EXTREMADURA	1433	3.59	1471	3.57	+38	+2.65
GALICIA	2086	5.23	2424	5.88	+338	+16.20
MADRID	5229	13.11	5628	13.65	+399	+7.63
MURCIA	2196	5.51	2208	5.35	+12	+0.54
NAVARRE	497	1.25	524	1.27	+27	+5.43
BASQUE COUNTRY	2242	5.62	2374	5.76	+132	+5.88
LA RIOJA	581	1.46	534	1.29	-47	-8.09
CEUTA	262	0.66	238	0.58	-24	-9.16
MELILLA	331	0.83	346	0.84	+15	+4.53

Source: elaborated by the authors

If we compare the number of students enrolled in the 1st year, 2014-15, to those enrolled in the second one, 2015-16, (Table IV), the following is observed:

TABLE IV. Students enrolled in the 1st (2014-15) and 2nd year of BVT (2015-16)

Autonomous Communities	1st year 2014-15		2nd year 2015-16		Differential	
	N	%	N	%	N	%
	39867	100	20785	100	-19082	-47.86
ANDALUSIA	8633	21.66	4165	20.04	-4468	-51.75
ARAGON	1438	3.61	771	3.71	-667	-46.38
ASTURIAS	430	1.08	217	1.04	-231	-53.72
BALEARIC ISLANDS	982	2.47	570	2.74	-412	-41.95
CANARY ISLANDS	2279	5.72	941	4.53	-1338	-58.70
CANTABRIA	451	1.13	242	1.16	-209	-46.34
CASTILE AND LEÓN	2502	6.27	1241	5.97	-1261	-50.39
CASTILLA-LA MANCHA	2860	7.17	1191	5.73	-1669	-58.35
CATALONIA	0	0.00	0	0	0	0
VALENCIAN COMMUNITY	5435	13.63	3043	14.64	-2392	-44.01
EXTREMADURA	1433	3.59	677	3.26	-756	-52.75
GALICIA	2086	5.23	1072	5.16	-1014	-48.60
MADRID	5229	13.11	2986	14.36	-2243	-42.89
MURCIA	2196	5.51	1080	5.20	-1116	-50.82
NAVARRE	497	1.25	295	1.42	-202	-40.64
BASQUE COUNTRY	2242	5.62	1690	8.13	-552	-24.62
LA RIOJA	581	1.46	351	1.69	-230	-39.58
CEUTA	262	0.66	112	0.54	-150	-57.25
MELILLA	331	0.83	141	0.68	-190	-57.40

Source: elaborated by the authors

The high number of students who "disappear" from the 1st to the 2nd year reaches 47.82% in the entire educational system. Particularly significant, given the high percentages, is the case of three Autonomous Communities: the Canary Islands (58.70%), Melilla (57.40%) and Ceuta (57.25%). The Basque Country (24.62%) is the Autonomous Community with the lowest number of students who do not return for a second year.

Discussion

The literature review allows us to establish a number of both coincident and discordant elements between BVT and its preceding programs. First, the suitability rate of CSE students shows the same trend as that observed by González (2016) compared to the past decade in three aspects: percentage throughout Spain as a whole (around 60%), its decrease as the years of study increase and, finally, the marked differences between Autonomous Communities. In González's study (2016), Ceuta and Melilla had the lowest rates, whereas the Basque Country obtained the highest, and five years later, the same data are observed in this work.

In terms of minimum age of access to these stages, for SGPs was 16 years, for BVQPs was 15 years in exceptional situations, whereas for BVT is usually 15 years. This increase in age range is considered positive compared to BVQPs (Aramendi & Vega, 2013, Marín et al., 2014). However, other voices, in the context of BVT, speak of "a game of statistical engineering of which there is no precedent in our country" (Bolívar, 2013, quoting Tarabini & Montes, 2015, p.6), which would allow progress toward the goals set in Europe 2020, since these students would no longer be part of CSE.

On the other hand, the inclusion of BVT within the education system solves one of the problems that were attributed to the preceding programs (Marín et al., 2014). One of the most frequent criticisms of the BVT design refers to its inability to motivate students to stay in the education system, by not allowing them to obtain the degree of CSE Graduate (Marín et al., 2014; Merino et al., 2006). This aspect was temporarily solved by the Royal Decree 1058/2015, which made it possible to obtain a CSE degree which led to students' permanence in the education system. At the end of the 2016-17 academic year, RD 562/2017, of June 2, has consolidated this situation until the entry into force of the regulations resulting from the Agreement on the Social and Political State for Education, responding to a social need which goes beyond the education system. It is to be hoped that we will not have too long to wait.

What these programs offer is another important aspect. The literature on the topic pointed out the small range to cover the needs of the potential population (Abiétar-López, Navas-Saurín, Marhuenda-Fluixá & Salvá-Mut, 2017), as well as their lack of attractiveness (Fernández-Enguita et al., 2010). It seems that the same thing is happening to BVT, which

may be described as "repetitive". Analyzing certain data from the study carried out in Galicia by the *GEFIL* research group and the *RIES* Network, it was noted that in the 2015-2016 academic year, 190 cycles, grouped into 15 professional families (57.5%) out of a total of 26, were distributed throughout the Community. In addition, 119 cycles (62.3%) were distributed among four professional families, with the possibility of choosing from five degree programs. In other words, six degree programs condense 62.3% of BVT specializations, which cannot be classified as varied.

This is directly linked to the contents of training. The main idea of this research study, especially from an inclusive perspective, is that the curricular elements should create interest and increase capacities (Escudero, 2012), which requires not only significant content for students who should not be mere receivers of information, but also methodologies that favor more and better understanding (Núñez et al., 2014). At this point, it seems naive to think that a curriculum such as that of BVT can contribute to this goal, especially in view of the strong presence of secondary education contents, which are not very significant for students (García et al., 2013) and an academicism that had already been reported with respect to SGPs (Marhuenda, 2012).

The little adjustment between students' interests and curricular elements has a direct impact on motivation toward learning and, consequently, academic success. Marín et al. (2014) placed the dropout rate in BVQPs around 50% in the transition from first year (compulsory) to second year (optional), reporting also a more positive perception of the former (González & Porto, 2013). The information revealed in this work, derived from the statistical analysis (Table IV), shows that the figures are steady, 47.86% of the students not promoting from first to second year. As if the situation was not bad enough with BVQPs, it becomes alarming in BVT, as these students leave the education system without any professional qualification or academic certification, which will make them more vulnerable and reduce their chances of job stability and satisfaction, as already noted in recent international studies (European Commission, 2016, OECD, 2016 *a*, 2016 *b*). In addition, big differences were observed between the Autonomous Communities in terms of academic success, according to González's (2016) perceptions on BVQPs.

The contrast between these objective data, and the expectations expressed by the BVT students are particularly interesting. In a recent

study, Abiétar-López et al. (2017) have shown that "87% of adolescents believe that they will successfully complete the year and, subsequently, the program" (p. 43). This demonstrates the gap between perception and reality, and requires a combination of complementary methodologies to delve into the understanding of the problem and avoid a decontextualized reading, as Domingo and Martos (2016) pointed out. Moreover, in agreement with the study performed by Merino et al. (2006) it is necessary, in our opinion, to establish monitoring mechanisms that address both the "quantitative and qualitative evolution of the programs, students' profile and the subsequent itineraries. Without these data, ten years on, we could be facing the same problems of evaluation and analysis" (p.95). It is also interesting to mention the observations of Fernández-Enguita et al. (2010) with respect to SGPs that students considered a "false start" due to the discrepancy between their expectations and reality. It seems that the same thing is happening to BVT.

Conclusions

The aim of this work was to make a diagnosis of BVT and its opportunity with regard to the necessary momentum for students' permanence in the educational system.

It was determined that in the transition from 1st to 2nd year (Table IV), 19,082 students do not return, accounting for 47.86% of those enrolled in the previous year. The obvious question is: Where do these students go? There are two possibilities: the students are either retained, or have decided to drop out without completing the cycle.

The first option is hardly credible, since it would mean a considerable increase in the 1st-year enrollment in the 2015-16 academic year, which does not correspond to what is shown in Table III. As soon as the data are available according to whether it is first or second enrollment, this hypothesis can be verified, but the logic and the review of the studies on previous programs spur us to maintain that probably most of the "disappeared" students have dropped out of the BVT cycles. We must not forget that first-year students who have been enrolled for a year have already turned 16, and legally they cannot be forced to stay in the education system.

In any case, regardless of the more persuasive argument, the situation analysis and the results presented herein led to the most substantive conclusion. Nowadays, BVT has not reached its fundamental objective: to make students who are enrolled in this education stage stay in the educational system. That is why, the present study should be understood as a starting point for a critical reflection on the opportunity of BVT as a measure aimed at addressing school failure. Further studies are obviously needed within this framework, along with other lines of research, a matter already considered by the authors of the current work.

References

Abiétar-López, M., Navas-Saurin, A.A., Marhuenda-Fluixá, F. & Salvà-Mut, F. (2017). La construcción de subjetividades en itinerarios de fracaso escolar. Itinerarios de inserción sociolaboral para adolescentes en riesgo. *Psychosocial Intervention*, *26*(1), 39-45. doi: doi.org/10.1016/j.psi.2016.07.002

Alegre, M.A. & Benito, R. (2010). Los factores del abandono educativo temprano. España en el marco europeo. *Revista de Educación*, nº extraordinario, 65-92.

Amores, J. & Ritacco, M. (2015). De los Programas de Cualificación Profesional Inicial (PCPI) como medida de prevención del fracaso escolar a la Formación Profesional Básica. Un estudio sobre el éxito y fracaso de alumnos en riesgo de exclusión educativa en Educación Secundaria. *Revista de Investigación en Educación*, *13*(1), 105-120. Recuperado de http://reined.webs.uvigo.es/ojs/index.php/reined/article/viewFile/1003/348.

Aramendi, P. & Vega, A. (2013). Los Programas de Cualificación Profesional Inicial. La perspectiva del alumnado del País Vasco. *Revista de Educación,* nº360*, 436-461. doi: 10.4438/1988-592X-RE-2011-360-122.

Comisión Europea (2016 *a*). *Documento de trabajo de los servicios de la comisión. Informe sobre España 2016.* Recuperado de http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_spain_es.pdf.

Consejo de Europa (2009). *Conclusiones del Consejo de 12 de mayo de 2009 sobre un marco estratégico para la cooperación europea en el ámbito de la educación y la formación («ET 2020»)*. Diario oficial de la Unión Europea, 29 de mayo de 2009: 2009/C 119/02

Cordero, J.M., Manchón, C. & Simancas, R. (2014). Retention and its conditioning factors in Spain. *Revista de Educación*, nº365, 12-37. doi: 10.4438/1988-592X-RE-2014-365-263.

De Hoyos, R., Rogers, H. & Székely, M. (2016). *Out of School and Out of Work: Risk and Opportunities for Latin America's Ninis*. Washington DC: World Bank. Recuperado de http://hdl.handle.net/10986/22349.

Domingo, J. & Martos, J.M. (2016). Análisis del discurso político en España sobre el fracaso escolar en Twitter. *Archivos Analíticos de Políticas Educativas*, *24*(70), 1-31. doi: http://dx.doi.org/ 10.14507/epaa.24.2357.

EACEA — Education, Audiovisual and Culture Executive Agency (2016). *Entrepreneurship education at school in Europe*. Luxembourg: Publications Office of the European Union. doi: http://dx.doi.org/10.2797/301610

Escudero, J.M. (2012). La educación inclusiva una cuestión de derecho. *Educación Siglo XXI*, *30*(2), 109-128. Recuperado de http://revistas.um.es/educatio/article/view/153711/140751.

Escudero, J.M. (2016) (Coord.). *Inclusión y exclusión educativa: realidades, miradas y propuestas.* Valencia: Nau Llibres.

Escudero, J.M. & Martínez, B (2012). Las políticas de lucha contra el fracaso escolar: ¿programas especiales o cambios profundos del sistema y la educación? *Revista de Educación*, nº extraordinario, 174-193. Doi: 10.4438/1988-592X-RE-2012-EXT-211.

European Commission (2015). *Education and Training Monitor 2015 Spain*. Luxembourg: Publications Office of the European Union. Recuperado de http://ec.europa.eu/education/tools/docs/2015/ monitor2015-spain_en.pdf.

— (2016). *Commission Staff Working Document Country Report Spain 2016, including an In-Depth Review on the prevention and correction of macroeconomic imbalances*. Brussels, 26.2.2016 SWD(2016) 78 final, Recuperado de http://ec.europa.eu/europe2020/pdf/csr2016/ cr2016_spain_en.pdf.

EURYDICE & CEDEFOP (2014). *El Abandono Temprano de la educación y la formación en Europa:* Estrategias, Políticas y Medidas.

Luxemburgo: Oficina de publicaciones de la Unión Europea. Recuperado de https://sede.educacion.gob.es/publiventa/descarga. action?f_codigo_agc=17136.

Fernández-Enguita, M., Mena, L. & Riviere, J. (2010). *Fracaso y abandono escolar en España*. Barcelona: Fundación La Caixa.

García, M., Casal, J., Merino, R. & Sánchez, A. (2013). Itinerarios de abandono escolar y transiciones tras la Educación Secundaria Obligatoria. *Revista de Educación*, nº361, 65-94. doi: 10.4438/1988-592X-RE-2011-361-135.

García, S. (2014). La investigación sobre el alumnado de los Programas de Cualificación Profesional Inicial ¿Punto de partida de la Formación Profesional Básica? *Revista de Investigación en Educación*, *12*(2), 176-190. Recuperado de http://reined.webs.uvigo.es/ojs/index.php/reined/article/view/878/333.

González, M.T. (2016). Una mirada al pasado más reciente: el fracaso escolar y los intentos de acometerlo a base de programas extraordinarios de atención a la diversidad. En Escudero, J.M. (Coord.), *Inclusión y exclusión educativa: realidades, miradas y propuestas* (115-134). Valencia: Nau Llibres.

González, M.T. (2015). La vulnerabilidad escolar y los programas de Cualificación Profesional Inicial. Barcelona: Wolters Kluwer España.

González, M.T. & Porto, M. (2013). Programas de Cualificación Profesional Inicial: valoraciones e implicación de los alumnos en la Comunidad Autónoma de Murcia. *Revista de Educación*, nº extraordinario, 210-235. doi: 10.4438/1988-592X-RE-2013-EXT-247.

Ley Orgánica 1/1990, de 3 de octubre, de Ordenación General del Sistema Educativo (BOE nº 238, de 4 de octubre).

Ley Orgánica 10/2002, de 23 de diciembre, de Calidad de la Educación (BOE nº307, de 24 de diciembre).

Ley Orgánica 2/2006, de 3 de mayo, de Educación (BOE nº106, de 4 de mayo).

Ley Orgánica 8/2013, de 9 de diciembre, para la Mejora de la Calidad Educativa (BOE nº295, de 10 de diciembre).

Marhuenda, F. (2006). Presentación. La formación para el empleo de jóvenes sin graduado: educación, capacitación y socialización para la integración social. *Revista de Educación*, 341, 15-34.

Marhuenda, F. (2012). *La Formación Profesional.* Madrid: Síntesis.

Marín, J.A., García, M. & Sola, J.M. (2014). Reflexión y análisis sobre los Programas de Cualificación Profesional Inicial como medida de inclusión social y educativa en Andalucía (España). *REICE, 12*(1), 83-102. Recuperado de http://www.rinace.net/reice/numeros/arts/vol12num1/art6.pdf.

MECD (2016). *Sistema Estatal de Indicadores de la Educación 2016.* Madrid: MECD. Recuperado de http://www.mecd.gob.es/dms/mecd/servicios-al-ciudadano-mecd/estadisticas/educacion/indicadores-publicaciones-sintesis/sistema-estatal-indicadores/SEIE_2016.pdf

Merino, R., García, M. & Casal, J. (2006). De los Programas de Garantía Social a los Programas de Cualificación Profesional Inicial. Sobre perfiles y dispositivos locales. *Revista de Educación*, nº341, 81-98.

OECD (2016 *a*). *Education at a Glance 2016. OECD Indicators*. Paris: OECD Publishing. doi: http://dx.doi.org/10.1787/eag-2016-en.

— (2016 *b*). *Estudiantes de bajo rendimiento. Por qué se quedan atrás y cómo ayudarles a tener éxito*. Paris: OECD Publishing. Recuperado de http://www.oecd.org/pisa/keyfindings/PISA-2012-Estudiantes-de-bajo-rendimiento.pdf.

Palomares, A. & López, S. (2012). La respuesta a la diversidad: de los programas de garantía social hacia los programas de cualificación profesional inicial. *Revista Española de Educación Comparada,* nº20, 249-274. doi: http://dx.doi.org/10.5944/reec.20.2012.7600.

Pascual, B. & Amer, J. (2013). Los debates sobre el fracaso y el abandono escolar. Las propuestas educativas internacionales y españolas. *Praxis Sociológica*, nº17, 137-156. Recuperado de http://www.praxissociologica.es/images/PDF/2013-17/praxis17-09.pdf.

Pérez-Esparrells, C. & Morales, S. (2012). El fracaso escolar en España: Un análisis por Comunidades Autónomas. *Revista de Estudios Regionales*, nº94, 39-69. Recuperado de http://www.redalyc.org/articulo.oa?id=75524558002.

Real Decreto 1058/2015, de 20 de noviembre, por el que se regulan las características generales de las pruebas de la evaluación final de Educación Primaria establecida en la Ley Orgánica 2/2006, de 3 de mayo, de Educación (BOE nº285, de 28 de noviembre de 2015).

Real Decreto 127/2014, de 28 de febrero, por el que se regulan aspectos específicos de la Formación Profesional Básica (BOE nº55, de 5 de marzo de 2014).

Real Decreto 562/2017, de 2 de junio, por el que se regulan las condiciones para la obtención de los títulos de Graduado en Educación Secundaria Obligatoria y de Bachiller (BOE nº132, de 3 de junio de 2017).

Roca, E. (2010). El abandono temprano de la educación y la formación en España. *Revista de Educación*, nº extraordinario, 31-62.

Suárez, B. (2016). Empleabilidad: análisis del concepto. *Revista de Investigación en Educación*, *14*(1), 67-84. Recuperado de http://reined.webs.uvigo.es/ojs/index.php/reined/article/view/1140/376.

Tarabini, A. & Curran, M. (2013). Políticas de lucha contra el abandono escolar en España. *RASE*, *6*(1), 91-99. Recuperado de http://www.ase.es/rase/index.php/RASE/article/view/97/94.

— (2015). El efecto de la clase social en las decisiones educativas: un análisis de las oportunidades, creencias y deseos educativos de los jóvenes. *Revista de Investigación en Educación*, *13*(1), 7-26. Recuperado de http://reined.webs.uvigo.es/ojs/index.php/reined/article/viewFile/998/343.

Tarabini, A. & Montes, A. (2015). La agenda política contra el abandono escolar prematuro en españa: la LOMCE contra las evidencias internacionales. *Avances en supervisión educativa*, 23, 1-20. Recuperado de https://dialnet.unirioja.es/servlet/articulo?codigo=5626277.

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