EFFECTIVE LITERACY TEACHING PRACTICES IN PORTUGAL: A STUDY IN FIRST GRADE

SERGIO GAITAS*, MARGARIDA ALVES MARTINS* &
JACQUES FIJALKOW**

**CIE-ISPA, ISPA-Instituto Universitário, Lisboa ** University of Toulouse II—Jean Jaurès*

Abstract
This article examines the effect of literacy teaching practices on the reading ability of first grade pupils in Portuguese, a semi-transparent orthography. First grade teachers (N=267) self-reported their literacy teaching practices through a questionnaire. Hierarchical cluster analysis revealed three groups with different practices – Language Experience, Phonic, and Balanced. Eight teachers from each group were randomly selected for classroom observation (N=24) to gain more in-depth information about their practices, namely by analysing classroom management procedures and materials used. Their pupils' reading abilities were assessed at the beginning and end of the first grade (N=465) through two tasks: word reading and comprehension. Multivariate analysis of covariance, controlling for mother's educational levels, showed that pupils of balanced teachers had better results than pupils in the other two groups. These results are in line with those described in the English literature, pointing out that the key term for describing successful literacy teaching practices is balance: balance in classroom management procedures, from more teacher-centred to more pupil-centred; balance in different types of reading materials, from more authentic materials to materials designed to work on specific skills; and balance between explicit instruction in grapheme-phoneme correspondences and reading and writing authentic texts.

Keywords: first grade, reading achievement, reading instruction, teaching practices

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Corresponding author: Sérgio Gaitas, CIE-ISPA, ISPA-Instituto Universitário, Rua Jardim do Tabaco nº 34, 1149-041, Lisboa, Portugal, email: sergiogaitas@gmail.com

1. INTRODUCTION

Several studies have shown that reading development occurs more slowly in some languages than in others, and that this may be due to differences between orthographies and the characteristics of spoken languages (e.g. Alegria, 2006; Castells, 2009; Defior, Martos & Cary, 2002; Serrano et al., 2010; Seymour, 2005; Seymour, Aro & Erskine, 2003; Ziegler & Goswami, 2005, 2006; Ziegler et al., 2010).

One of the most striking cross-language comparisons across European orthographies was conducted by Seymour et al. (2003). Reading performance was measured at the end of the first grade in thirteen orthographies. This comparative study showed that while children from a majority of European countries become accurate and fluent in elementary word recognition and decoding before the end of the first grade, there are some exceptions: French, Portuguese, Danish, and English. According to Seymour et al. (2003) and Seymour (2005), fundamental linguistic differences in orthographic depth and syllabic complexity are responsible for these differences. For Danish and English these results can be explained by the inconsistencies and complexities of grapheme-phoneme correspondences, and also by the complex syllabic structure of these languages. These are the opaquest of European orthographies. French also has comparatively greater orthographic depth than Portuguese (Borgwaldt, Hellwig & De Groot, 2005; Seymour, 2005), which may explain the difficulties experienced by French children in word recognition and decoding. In Portuguese, a semi-transparent orthography in which grapheme-phoneme correspondences are quite predictable where reading is concerned, and the syllabic structure is relatively simple, the results obtained by Seymour et al. (2003) seem more difficult to explain. Other comparative studies have also produced similar results (e.g. Defior et al., 2002; Serrano et al., 2010). It is important to take a language's characteristics into account, namely the degree of its orthographic transparency and syllabic structure, because these highly affect the learning process (Castells, 2009); other factors include socio-cultural differences—in school systems, curricula, teaching methods and so on.

In Portugal, national standardized measures show that more than 20% of Portuguese pupils have reading difficulties at the end of primary school (Ministério da Educação e Ciência, 2015). Also, in both 2009 and 2012 the OECD Programme for International Student Assessment (OECD, 2010, 2014), a triennial international survey which aims to evaluate education systems worldwide, showed that Portuguese pupils scored below the European mean for reading development.

Within this context, it is crucial to explore educational factors, in particular teachers' practices concerning reading instruction, which can facilitate or reduce reading development (Seymour, 2005; Ziegler & Goswami, 2006). In English—an

opaque orthography—there is a vast literature supporting literacy teaching in the first grade (e.g. Pressley, Rankin & Yokoi, 1996; Pressley et al., 2001; Taylor & Pearson, 2000; Taylor, Pearson, Clark & Walpole, 1999), whereas in Portuguese the literature is scarce. It is possible to formulate doubts as to the advisability of generalizing English-based research to other systems (Share, 2008).

The aim of the current study was thus to characterize literacy teaching practices of first grade teachers in Portugal, in order to establish literacy teaching profiles and explore the relationship between those profiles and students' reading abilities.

2. THEORETICAL BACKGROUND

2.1 Learning to read

Reading is a process of gaining access to meaning from printed symbols. As such, the ability to recognize written words is one of the indispensable skills in reading development (Coltheart, 2012). The dual route model of word reading—one of the most influential in this field—argues that there are two routes from print to speech: the lexical route used to read familiar words, which were previously read and whose orthography was memorized; and the non-lexical or phonological route used to read unknown words or pseudowords (Coltheart, 2005, 2012; Coltheart, Curtis, Atkins, & Haller, 1993; Coltheart, Rastle, Perry, Langdon, & Ziegler, 2001). The lexical route implies a direct access to the pronunciation of a word which is stored in the mental lexicon, a sort of internal dictionary that contains at least three types of information about the words: meaning, written form, and oral form. In this case, the recognition of a word is automatic. The non-lexical or phonological route implies an indirect access to the pronunciation of a word via the correspondences between graphemes and phonemes. The beginning reader's main task is to associate letter identities with sounds in order to make contact with whole-word phonological representations of known words (Alegria, 2006). Mastery of this process allows the child to access the words that are present in their spoken lexicon prior to reading, and also to decode words they have heard but never seen before. This mapping process is called phonological decoding and is the essential first step in reading acquisition (Archer & Bryant, 2001; Ehri, 1992; Share, 1995). Each successful decoding provides the beginning reader with an opportunity to build connections between the printed word and the decoded meaning. Throughout this learning process these associations are consolidated, allowing access to the meaning of words directly through their orthographic form—i.e. without the need for phonological mediation (Morais, 1994). Good readers automatically identify these words without hesitations or confusing them with others. In contrast, mapping visual symbols directly onto units of meaning, as would be required by some sort of visual or logographic learning, is difficult because the relationship between symbol and meaning is arbitrary (Ziegler & Goswami, 2005). It has become quite clear over

recent years that visual learning does not represent a viable alternative to phonological recoding (Ziegler & Goswami, 2006).

Although phonological recoding is a much more efficient strategy than logographic learning, the orthographic depth of the different orthographies can represent a major problem. In several orthographies, one letter or letter cluster can have multiple pronunciations, whereas in others it is always pronounced in the same way. Similarly, in some orthographies a phoneme can have multiple spellings, whereas in others it is almost always spelled the same way. This variation across languages is responsible for differences in reading development (e.g. Defior et al., 2002; Kessler & Treiman, 2015; Serrano et al., 2010; Seymour et al., 2003; Ziegler et al., 2010). According to these authors, it is relatively easy to learn about phonemes if one letter consistently maps onto one and the same phoneme, or if one phoneme consistently maps to one and the same letter. That is not the case when the relations between phonemes and graphemes are inconsistent. This is why phonological recoding may be more efficient in some languages than in others (Ziegler et al., 2010).

Psycholinguistic grain size theory (Ziegler & Goswami, 2005) also suggests that differences in reading development across orthographies reflect the phonological recoding and reading strategies developed in response to the specific orthography. Children who are learning to read shallow orthographies rely heavily on grapheme-phoneme recoding strategies—i.e. smaller grain size units, because of the high consistency between grapheme-phoneme correspondences. Children who are learning to read less orthographically consistent languages cannot use smaller grain sizes as easily, because inconsistency is much greater for smaller grapheme units than for larger units such as onset and rimes. As a consequence, in deeper orthographies children need to use a variety of recoding strategies, supplementing one-to-one grapheme-phoneme conversion strategies with the recognition of letter patterns for rimes and attempts at whole word recognition. Brown and Deavers (1999) showed that inconsistent orthographies impel readers to simultaneously develop 'small unit' and 'large unit' recoding strategies. Developing different recoding strategies simultaneously may take more time.

Kessler and Treiman (2015) consider that learning to read and write requires a degree of explicit instruction that should be based on a solid understanding of how the writing system works. In this context, it is important to analyse the characteristics of the different orthographies in order to understand the difficulties pupils may experience in their initial stage of reading acquisition and be able to give them adequate support.

2.2 The Portuguese orthography

Morais (1995) has suggested that phonological recoding might be easier for languages with either a small number of vowels, or relatively simple phonological structures, or both. Portuguese—a semi-transparent orthography—is a language

with a high degree of orthographic transparency when it comes to reading, where the mapping between graphemes and phonemes is largely consistent. This is not the case for writing, where many phonemes may correspond to different graphemes and in some cases there are exceptions to the rules that govern the relations between them. Nevertheless, when reading is concerned, despite some irregularities, the pronunciation of a string of letters can always be derived from print and there are stable positional and contextual rules establishing grapheme-phoneme conversions (Girolami-Boulinier & Pinto, 1994; Morais, 1994; Defior et al., 2002; Rebelo & Delgado-Martins, 1978).

The Portuguese spelling system has 25 consonants and digraphs (*b, c, ç, ch, d, f, g, gu, h, j, l, lh, m, n, nh, p, qu, r, rr, s, ss, t, v, x, z*). Nine consonants and five digraphs (*b, ç, ch, d, f, j, l, lh, nh, p, rr, ss, t, v),* have a consistent mapping with the correspondent phonemes where reading is concerned, and eight consonants and two digraphs map two or more phonemes according to their position in the word – positional rules – or to the letters that precede or follow them – contextual rules (*c, g, gu ,m, n, qu, r, s, x, z*). The consonant *h* is always either silent or a part of the phonologically stable digraphs *ch, lh,* and *nh*. Where vowels are concerned, there are nine oral vowels and five nasal vowels. There are instances where an identical vowel may map to different phonemes (*a, e, o*), and instances where different vowels may map to the same phoneme (e and i, o and u). Despite the inconsistency of some grapheme-phoneme correspondences, namely regarding vowels, reading acquisition in Portuguese ought not to be very difficult, since many positional and contextual rules can be taught and facilitate the development of the decoding processes – the first step toward reading (Ehri, 1992; Share, 1995).

As previously mentioned, the shallowness of Portuguese orthography and the simple syllabic structure of Portuguese language—CV, V and CVC are the most frequent syllabic patterns in the spontaneous talk of adults in Portuguese, respectively 46%, 16% and 11% (Vigario, Martins & Frota, 2006)—may foster phonological processing.

2.3 Teaching children to read—effective teachers

As previously stated, the characteristics of the different orthographies may not be the only factor responsible for the results in reading. Others, such as sociocultural variables, and namely teaching practices, seem essential if one is to understand and explain the differences found in comparative studies.

Several studies have been carried out, particularly in English, about the characteristics of effective teachers of literacy (Amendum et al., 2009; Morrow, Tracey, Woo & Pressley, 1999; Pressley, 2006; Pressley, Rankin & Yokoi, 1996; Pressley et al., 2001; Taylor et al., 1999, 2000; Vellutino & Scanlon, 2002; Wharton-Connor, Pressley, & Hampston 1998). In these studies teachers were selected based on the outstanding achievement of their pupils. The results highlighted that the key term for describing the practices of exceptional teachers is balance. I.e. balance in class-

room management procedures, from more teacher-centred to more pupil-centred; balance in different types of reading materials, from more authentic materials to materials designed to practice specific skills; and also reading instruction that balances instruction in grapheme-phoneme correspondences (code-focused) with reading and writing authentic texts (meaning-focused). Excellent teaching involves the articulation of these specific elements, including both the use of skills in context and decontextualized skills experiences (Bingham & Hall-Kenyon, 2013; Morris, 2015; Pressley & Allington, 2015; Pressley et al., 2006). This articulation would be an effective strategy for empowering different child-instruction interactions and improving pupils' literacy (Foorman et al., 2006).

The studies that have investigated the characteristics of effective teachers of literacy have also drawn attention to the importance of classroom management and reading materials used during literacy instruction. Where classroom management is concerned, evidence collected in studies on literacy instruction suggests that the predominant grouping arrangement currently used in reading instruction is whole-class (e.g. Connor et al., 2009b). However, a number of studies that have been conducted in order to document the instructional practices of effective teachers of literacy revealed that the best such teachers employed a variety of grouping formats, including whole-group, small-group and individual lessons (Moody & Vaughn, 1997; Pressley et al., 2001; Schumm, Moody & Vaughn, 2000; Taylor & Pearson, 2000; Wharton-Connor et al., 1998).

As to the reading materials used in a reading lesson, they should be adapted to the objectives of the lesson, the instructional reading level of the students in the group, and the interests of the group members (Allington, 2006; Connor et al., 2009a; Foorman et al., 2006). It is important to use materials that address specific skills and the complex mappings of phonology to orthography – for instance, phonics worksheets; but it is equally important to propose activities in which written language has different purposes—reading for pleasure, for instance. Authentic reading experiences and the use of written language in a broad range of communicative situations allow pupils to gain continued experience with alphabetic decoding skills. These experiences allow pupils to strengthen their word decoding abilities and also to accurately build word representations (McCandliss, Beck, Sandak & Perfetti, 2003). Furthermore, engagement in alphabetic decoding may prompt a self-teaching mechanism that serves as a boot-strapping mechanism (Share, 1995) which helps readers progress to the identification of words. The more children read, the better readers they become (Anderson, Wilson & Fielding, 1988; Stanovich, 1986).

In summary, according to these studies, combining explicit instruction of the code with scaffolding, differentiated instruction and a reasonable amount of text reading and writing is the best way to promote reading.

2.4 The present study

Notwithstanding the language characteristics that help understand the process of reading development, it is necessary to consider teacher practices that can foster reading development. However, studies about effective literacy teaching have mainly been conducted in English. Hence the importance of conducting studies on effective practices for teaching reading in languages other than English.

Recent studies conducted in Spanish—a transparent orthography compared to the Portuguese one (Gonzalez, Buisán & Sanchéz, 2009; Tolchinsky, Bigas & Barragan, 2012)—reported three different literacy teaching profiles: a) 'Instructionally oriented' teachers, who focus on a systematic and explicit instruction of the code. These teachers programme a special time for activities involving letter recognition and letter-to-sound correspondences; carry out special activities designed to analyse the sounds in an orally presented word; use knowledge of the letters and the sounds they represent to teach reading and writing; frequently use copies; and mainly use textbooks with controlled vocabulary; b) 'Situational oriented' teachers, who use the situations that arise in class in order to teach reading and writing. These teachers teach vocabulary taking into account life experiences children bring to the class; frequently propose that children write texts, even if they have not yet been taught all the necessary words; frequently organize reading and writing activities in small groups; and use a diversity of printed materials; c) 'Multidimensionally oriented' teachers, whose practices combine characteristics of both previously mentioned groups. However, the relations between these profiles and student outcomes were not considered.

The limitation of these studies conducted in Spain and the fact that current reading research relating teaching practices and reading outcomes has mainly been conducted in opaque orthographies like the English one, heightens the importance of conducting this type of research in more transparent languages such as Portuguese.

The aim of the current study was thus to characterize literacy teaching practices in Portugal, and to analyze which of them facilitate reading outcomes at the end of the first grade. Two research questions were addressed:

1) Are there specific literacy teaching profiles for first grade teachers?

2) What is the relationship between these profiles and students' reading abilities?

3. METHOD

3.1 Design

First, a convenience sample of 267 Portuguese teachers answered a questionnaire about their written language teaching practices. These teachers were teaching first grade in schools from the NUT (nomenclature of territorial units for statistics) "Lis-

bon and Tagus Valley". The self-reported practices of these teachers were analysed and revealed three groups with distinctive literacy teaching practices: Language Experience, Phonic, and Balanced.

Subsequently, eight teachers from each group were randomly selected for two classroom observations during the school year and their pupils' reading abilities were assessed.

3.2 Participants

In Portugal, reading instruction begins in the first grade. Teachers possess the autonomy to choose which method of instruction to adopt. The amount of time spent on literacy instruction is the object of general Ministry of Education guidelines (a minimum of 7 hours/week), but each school can decide how much time to devote to literacy instruction. In this study all schools devoted 8 weekly hours to literacy instruction.

Teachers—first stage. The participants were 267 Portuguese first grade teachers. Teachers came from urban zones and from diverse sociocultural backgrounds. 39 teachers were from private and 228 from public schools. Gender distribution was 251 female teachers to 16 male. They were assigned to three groups according to their reported written language teaching practices. This was a convenience sample.

Teachers—second stage. Twenty-four teachers (23 female and 1 male) were randomly selected from each of the three groups for classroom observations (8 per group). They were all from urban zones (Lisbon). The means and standard deviations concerning the number of years of teaching in the first grade were: Language Experience group 1 (M = 5.88, SD = 3.28); Phonic group 2 (M = 3.75, SD = 2.49); Balanced group 3 (M = 3.75, SD = 2.82). There were no statistically significant differences in teaching experience between the groups, $F(2, 23) = 1.47$, $p = .252$. The means and standard deviations concerning their age were: group 1 (M = 43.75, SD = 11.72); group 2 (M = 37.88, SD = 8.31); group 3 (M = 33.50, SD = 5.12). There were no statistically significant differences in mean age between the groups, $F(2, 23) = 2.73$, $p = .089$.

Pupils—third stage. Participants were 465 pupils of the selected teachers: 161 from group 1, 156 from group 2, and 148 from group 3. Their mean age in January was 76.63 months and the standard deviation 4.65 (G1: M = 76.76; SD = 3.58; G2: M = 76.63; SD = 4.90; G3: M = 76.60; SD = 5.12). All children spoke Portuguese as their primary language. Although the teaching of reading and writing in Portugal only begins in the first grade, the children's initial reading skills were assessed to control their score at the beginning of the year. Only 5 children were able to read one or more words, even in a simple screening test. We decided to exclude these pupils from the sample (2 children from group 1; 1 child from group 2; 2 children from group 3).

Means and standard deviations of mothers' educational level (number of years of schooling), were: Group 1 (M = 11.05; SD = 3.45); group 2 (M = 9.93; SD = 2.98); group 3 (M = 11.48; SD = 3.09). An ANOVA was carried out to compare pupils' mothers' educational level. The results were $F(2, 462) = 9.69$, $p < .001$. Bonferroni post-hoc tests revealed differences between group 2 and the other two groups, with pupils in group 2 having mothers with a lower educational level than pupils in group 1 ($p < .001$) and group 3 ($p < .005$). No differences were found between group 1 and group 3 ($p = .462$). Mothers' educational level was therefore introduced as covariate in the statistical data analysis to control for this variable.

3.3 Instruments

Teachers' self-reported practices questionnaire. The questionnaire on teachers' reported practices had three dimensions. The first considered the teaching of reading. This dimension was composed of ten items emphasizing a code-focused or a meaning-focused approach. The second dimension reflected the use of children's books. This dimension was composed of nine items. The last dimension considered the teaching of writing. This dimension was made up of fifteen items, considering text writing, copying and dictation, and pupil dictation to the teacher. Teachers answered using a 4-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, and 4 = often) to indicate how often they adopted each of the thirty-four instructional activities. Each dimension was validated through a factor analysis of its empirical structure. The Kaiser-Meyer-Olkin sampling adequacy measurement was .71, $p < .001$ for the first dimension, .85, $p < .001$ for the second, and .77, $p < .001$ for the third. Items that exhibited factor structure loadings of .40 or greater were used to define a factor. The analysis of the first dimension revealed two factors and accounted for 58% of total variance. Four items loaded on the first factor and the internal consistency reliability was .80. Four items loaded on the second factor and the consistency reliability was .72. We called the first factor 'Meaning-Focused' and the second, 'Code-Focused'. "Reconstruct sentences from jumbled words" is an example of a Meaning-focused item. "Connect a letter or group of letters to the corresponding sound(s)" is an example of a Code-focused item. Two items were eliminated.

Analysis of the second dimension revealed only one factor and accounted for 45% of the total variance. Eight items loaded on this factor and the internal consistency reliability was .82. This factor was labelled 'Children's Books'. One example is: "Ask pupils to present a book they have enjoyed and the reasons for it". One item was eliminated.

Finally, analysis of the third dimension revealed three factors and accounted for 65% of the total variance. Five items loaded on the first factor and the internal consistency reliability was .88. Five items also loaded on the second factor and the internal consistency reliability was .74. Two items loaded on the third factor and the internal consistency reliability was .86. We called the first factor 'Text Writing', the

second 'Copying and Dictation' and the third, 'Dictation to Teacher'. One example of Text Writing is "Write a story". An example of Copying and Dictation is: "Copy words". An example of Dictation to Teacher is: "Student dictates sentences to teacher". Three items were eliminated.

Six items were deleted because they did not load in any factor or loaded in more than one simultaneously.

Classroom observations. Two classroom observations were conducted in classes of each of the randomly selected teachers (N=24). These observations were designed to deepen our insight into teachers' practices, namely classroom management procedures and materials used, that were not addressed in the questionnaire.

Classroom observations followed a standard procedure used in previous research (Amendum et al., 2009; Taylor & Pearson, 2000; Taylor et al., 2000). Two trained observers (researchers in educational psychology) visited each classroom twice for 60 minutes each.

The first visit was at the beginning of the second trimester (January) and the second visit during the third trimester (May). The observers followed a two-minute cycle procedure, writing down the activity that was being undertaken every two minutes. At the end, the number of times each activity occurred was computed, so this codification took the duration of the activities into account. In order to contextualize the activities, the observers took detailed narrative accounts of what was happening in the classroom during the two minutes, including what the teacher and pupils were saying. The cycle then repeated itself until the time was over. Video recordings were made for each session. After the session, observers independently re-examined their records and modified them if they thought modifications would provide additional detail or context. Each activity was independently coded by the two observers, who were unaware of teachers' answers to the questionnaire. The interrater reliability was Kappa=.88. After independent codification, all disagreements were resolved through discussion.

Observations were coded using a modified version of the scheme described in Connor and associates (Connor et al., 2009a, 2009b, 2011).

Instruction activities were identified as either code-focused (5 activities) or meaning-focused (6 activities). Code-focused activities explicitly concentrate on helping pupils learn to decode. Meaning-focused activities encourage pupils to actively extract meaning from text. The coding system used and some examples are presented in Table 1.

For each group of teachers, means and standard deviations for each activity were computed based on the number of occurrences per lesson.

Table 1. Observation scheme – examples/definitions

Code-focused activities	Examples
Grapheme/phoneme correspondences	Analysing the phonemes of a given word; saying words with a specific grapheme
Word decoding	Reading word lists; recognizing specific words from a group of printed words
Word encoding	Spelling word lists; spelling a word
Repeated reading	Multiple pupils simultaneously read a text aloud several times; the same text is individually read aloud by several pupils
Copying and dictation	Pupils are copying a text from the blackboard; teacher is dictating to pupils
Meaning-focused activities	
Print and text concepts	Exploring a book title, author and illustrator; exploring how to hold a page of a text
Vocabulary	Teacher asks pupils about the meaning of a specific word; teacher gives the definition of a word
Comprehension	Answering questions after reading a text; pupils orally retell a story they have previously read
Text reading	Pupils are reading an unfamiliar text aloud; pupils are reading aloud a text on which they have previously worked
Text writing	Pupils are collectively producing a text with the teacher's help; pupils write their own stories
Organise words	Reconstructing sentences from jumbled words; ordering several sentences to build a text
Classroom management procedures	
Teacher-managed	Teacher lecturing to the whole class with a low level of pupil participation
Teacher-child-managed	Teacher working with the whole class with a medium or high level of pupil participation
Pairs/small groups-managed	Pupils working in pairs or small groups
Individual-managed	Pupils working independently, with each one individually completing a worksheet.
Materials	
Manual	Activities in which the students are using core workbooks
Worksheets	Worksheets designed to work on a specific grapheme-phoneme correspondence
Children's books	Real children's literature
Pupils' written texts	Texts that are written by the pupils
Other texts	All kinds of texts
No material	Oral activities with teacher/pupils writing on the blackboard

Measures of pupils' reading achievement. In order to assess reading ability, two standardized tests were used at the beginning (September) and end (June) of the first grade: a word reading test to assess decoding abilities (Alves Martins & Simões, 2008), and a comprehension test to assess comprehension abilities (Simões & Alves Martins, 2013). Additionally, at the beginning of the first grade, pupils were

asked to read aloud 9 high-frequency regular words, with between 2 and 4 letters and a CV syllabic structure, containing 9 consonants with regular correspondences with the phonemes they represent. This test was designed to assess children's reading ability, using a very simple set of words.

In the word-reading test pupils were asked to read aloud 32 words that are representative of a wide range of linguistic features, namely: word length, between 4 and 9 letters; frequency, 21 high frequency and 11 low frequency words; regularity, 16 regular and 16 irregular words; and different syllable structures. Scores were based on the number of words correctly read. This test had no time limit.

In the comprehension test pupils had to silently read several sentences and establish the correct associations between them and several pictures. There were 32 items. Scores were based on the number of associations correctly established. Pupils had 10 minutes to finish the task.

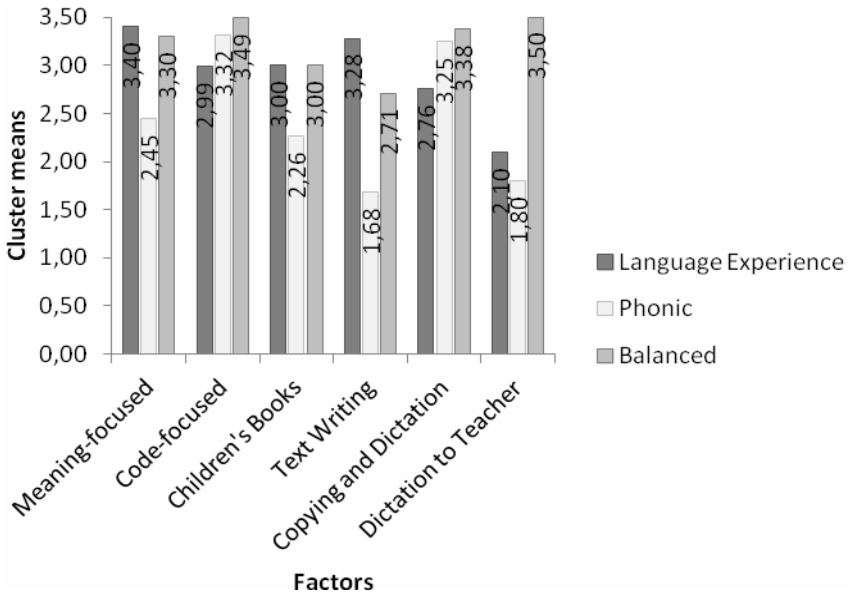
To measure pupils' reading ability, research staff individually administered the reading tests in a room near their classrooms. Subsequently to task explanation, pupils had no help during the reading test.

3.4 Data analysis

In order to obtain a profile of the reported teaching practices, a hierarchical cluster analysis using the *Ward* method was performed to identify homogeneous subgroups of cases based on the six factors that were extracted through factor analysis. Hierarchical cluster analysis was used as the number of clusters was not defined in advance. Scores for each factor were computed by calculating the mean scores for each of the items included in that factor. The higher the mean score, the greater the emphasis placed on the activities measured by that factor. A solution with three clusters was generated. The 267 teachers were assigned to three clusters as follows: 66 were classified in cluster 1 (24%), labelled 'Language Experience'; 58 were classified in cluster 2 (22%), labelled 'Phonic'; and the remaining 143 were classified in cluster 3 (54%), labelled 'Balanced'. Figure 1 illustrates the different profiles of the teachers' practices.

We analyzed which practices were favored by each group in order to assess differences between the factors concerning reading (Meaning-Focused/Code-Focused) and writing (Text Writing/Copying and Dictation/Dictation to Teacher) within each group of teachers. We used paired sample t-tests and ANOVAs with repeated measures.

Figure 1. Cluster means of Meaning-focused and Code-focused, Children's Books, Text Writing, Copying and Dictation and Dictation to Teacher activities



4. RESULTS

Reported Literacy Teaching Practices. For Language Experience teachers, results showed statistically significant differences between Meaning-Focused and Code-Focused reading activities with a medium effect size: $t(65) = 3.29$, $p < .001$, $d = .40$. These teachers placed more emphasis on Meaning-Focused than on Code-Focused reading activities, with a mean difference of .41. Reconstructing sentences from jumbled words or completing sentences with blanks (incomplete) are some examples of the activities more frequently undertaken by the teachers in this group.

Results also showed statistically significant differences between Text Writing, Copying and Dictation, and Dictation to Teacher, also with a medium effect size: *Pillai's trace* = .70, $F(2, 64) = 74.11$, $p < .001$, $\eta_p^2 = .70$. Bonferroni pairwise compari-

sons showed that all comparisons were statistically different ($p < .001$). These teachers emphasized Text Writing, for example asking pupils to write an invented story, or a short text using word lists.

Furthermore, Language Experience teachers frequently endorsed activities from Children's Books, for instance asking pupils to present a book they had enjoyed and the reasons for it.

For Phonic teachers, results also showed a statistically significant difference between Meaning-Focused and Code-Focused activities, with a strong effect size: $t(57) = -6.93$, $p < .001$, $d = -.92$. Phonic teachers emphasised Code-Focused reading activities, with a mean difference of .87 compared with Meaning-Focused activities. For example, they reported that they frequently asked pupils to read isolated syllables or blend letters to form groups of letters and syllables. Results also showed statistically significant differences between Text Writing, Copying and Dictation and Dictation to Teacher, again with a strong effect size: *Pillai's trace* = .80, $F(2, 56) = 114.37$, $p < .001$, $\eta_p^2 = .80$. Bonferroni pairwise comparisons showed differences between Copying and Dictation and the other two factors, Text Writing ($p < .001$) and Dictation to Teacher ($p < .001$). Copying and Dictation seems to be the only writing activity undertaken by these teachers.

Teachers from this group did not seem to engage in activities from Children's Books very often.

For Balanced teachers, despite a small effect size, results showed statistically significant differences between Meaning-Focused and Code-Focused reading activities: $t(142) = -3.09$, $p < .001$, $d = -.25$. Balanced teachers simultaneously emphasized Code-focused and Meaning-focused activities, with a little more emphasis on the former (mean difference of .19). Results also showed statistically significant differences between Text Writing, Copying and Dictation and Dictation to Teacher, with a medium effect size: *Pillai's trace* = .48, $F(2, 141) = 65.22$, $p < .001$, $\eta_p^2 = .48$. Bonferroni pairwise comparisons showed differences between Text Writing and the other two factors, Copying and Dictation ($p < .001$) and Dictation to Teacher ($p < .001$). In terms of writing activities, these teachers emphasized Dictation to Teacher and Copying and Dictation, and also proposed Text Writing activities.

Like Language Experience teachers, teachers in this group frequently propose authentic reading activities from Children's Books.

Classroom observations. As previously mentioned, the number of times each activity occurred was computed for each teacher.

Table 2 shows the means and standard deviations for code-focused and meaning-focused activities per group of teachers.

Table 2. Means and standard deviations for code-focused and meaning focused activities in function of teachers' group

	Teachers					
	Language Experience		Phonic		Balanced	
	M	*SD*	*M*	*SD*	*M*	*SD*
Grapheme/phoneme correspondences	2.88	1.89	22.13	11.32	9.50	5.95
Word decoding	1.63	2.00	6.75	3.45	2.38	2.13
Word encoding	3.88	2.36	15.13	6.69	7.50	4.50
Repeated reading	.25	.71	2.25	3.24	1.38	1.92
Copying and dictation	2.88	2.42	4.00	4.17	8.38	7.39
Total Code-focused	11.50	4.00	50.25	4.68	29.13	3.64
Print and text concepts	1.50	1.77	.62	1.77	1.75	2.71
Vocabulary	1.50	2.77	.50	.76	1.50	.93
Comprehension	15.00	7.75	.75	1.16	6.63	3.74
Text reading	8.75	4.95	2.50	2.62	5.75	2.31
Text writing	14.88	7.04	0.00	0.00	10.25	5.09
Organise words	1.75	2.96	2.25	3.11	2.25	2.25
Total Meaning-focused	43.38	5.18	6.63	4.41	28.13	4.29

As we can see from Table 2, all three groups of teachers provided code-focused activities. Language Experience teachers spent more time on word decoding and encoding. Phonic teachers spent more time on grapheme phoneme correspondences and word encoding activities. Balanced teachers spent more time on grapheme phoneme correspondences and copying and spelling activities. The three groups of teachers also engaged in meaning-focused activities. Language Experience and Balanced teachers spent more time on text writing and comprehension, while Phonic teachers spent more time on text reading and text writing. The comparison between the results regarding code-focused and meaning-focused activities showed that Language Experience teachers spent more time on meaning-focused activities, Phonic teachers spent more time performing code-focused activities, and Balanced teachers performed both. It also showed that the time Language Experience teachers spent on code-focused activities was greater than the time spent by Phonic teachers on meaning-focused activities. In addition, it showed

that the diversity of activities pursued by Balanced teachers, namely in code-focused activities, was greater than the other two groups. What is more, it showed a smaller variability among the teachers from this group concerning both code and meaning-focused activities.

Table 3 shows the means and standard deviations for management and materials according to teachers' group.

As we can see from Table 3, Language Experience and Balanced Teachers adopted differentiated classroom management procedures, while Phonic teachers used only two management procedures—teacher, and individual. The procedures more frequently employed by Language Experience teachers were more child-centred than those of the other two groups. Nevertheless, Balanced teachers also used child-centred practices to some extent.

As to materials, Balanced teachers used all the materials considered in the observation checklist, while both Language Experience and especially Phonic teachers used a smaller range of materials. Language Experience teachers mainly used students' texts and children's books. Phonic teachers proposed almost exclusively oral activities with no material, but occasionally also used worksheets and the manual. The materials more frequently used by Balanced teachers were students' texts, worksheets and the manual.

Table 3. Means and standard deviations for management and materials in function of teachers' group

	Teachers					
	Language Experience		Phonic		Balanced	
	M	*SD*	*M*	*SD*	*M*	*SD*
Teacher	8.61	3.04	9.24	3.08	10.13	3.58
Teacher-child	17.75	16.72	0.00	0.00	5.75	6.45
Pairs/small groups	13.00	15.45	0.00	0.00	1.63	4.60
Individual	3.63	7.91	14.78	9.30	16.13	12.52
Manual	0.25	0.71	13.00	12.89	10.75	16.66
Worksheets	0.00	0.00	16.67	14.03	12.88	13.02
Other texts	3.50	9.90	0.00	0.00	4.25	8.71
Children's books	13.13	16.96	0.00	0.00	5.63	10.45
Students texts	34.13	14.76	0.00	0.00	15.38	11.07
No material	4.25	5.75	25.56	20.68	8.25	7.52

Teachers' Practices and Pupil Outcomes. In order to assess the impact of teachers' practices on pupil reading achievement, a multivariate analysis of covariance (MANCOVA) was performed using the 3 groups of teachers as independent variable, the two reading tests as dependent variables, and mothers' educational level as covariate. Results showed a statistically significant difference in reading tests concerning teachers' groups, *Pillai's trace*=.007, $F(4, 922) = 8.40$, $p < .001$, $\eta_p^2 = .04$. Means and standard deviations for the two reading tests in relation to the three groups are presented in Table 4.

In relation to the word reading task, a Bonferroni post-hoc test revealed that pupils in the Balanced group read significantly more words correctly compared to both pupils in the Phonic group ($p < .005$) and those in the Language Experience group ($p < .001$). The comparison between the pupils in the Phonic and Language Experience groups revealed no statistically significant differences ($p = 1.00$), although pupils in the Language Experience group had a higher mean score.

Regarding the comprehension test, a Bonferroni post-hoc test revealed that the number of correct associations between pictures and sentences was higher for pupils in the Balanced group compared to pupils in both the Phonic ($p < .001$) and the Language Experience ($p < .001$) groups. There were no statistically significant differences between the pupils in the Phonic and Language Experience groups ($p = .699$) although, as in the word reading task, pupils in the Language Experience group had a higher mean score.

Overall, pupils in the Balanced instruction group achieved better results than pupils in the other two groups. There were no differences in any reading test between the latter groups.

Table 4. Means and standard deviations for word reading and comprehension in function of teachers' groups

	Teachers					
	Language Experience		Phonic		Balanced	
	M	*SD*	*M*	*SD*	*M*	*SD*
Word reading	14.69	11.77	13.70	10.89	19.61	9.39
Comprehension	15.22	8. 28	15.32	7.08	19. 80	5.96

Note. Both reading scores ranged from 0 to 32.

5. DISCUSSION

Our main goal was to characterize literacy teaching practices in Portugal and analyze which ones can facilitate reading outcomes at the end of the first grade. Two research questions were raised: Are there specific literacy teaching profiles of first grade teachers? What is the relationship between these profiles and students' reading abilities?

Teachers' Literacy Teaching Profiles. The first question that was raised concerned the existence of different literacy teaching profiles in the first year of schooling in Portugal. Cluster analysis based on self-reported practices showed the existence of three groups of teachers: Language Experience, Phonic, and Balanced. Self-reported practices and further classroom observations revealed that Language Experience teachers placed more emphasis on meaning-focused than on code-focused activities. These teachers used meaningful texts, mainly from children's books, to teach reading, and they emphasised text writing, mainly pupils' texts. Nevertheless, some code-focused activities, such as word decoding and encoding, were also undertaken. They also adopted differentiated management options emphasising children-centred procedures, such as teacher-child and pairs/small groups.

Phonic teachers emphasised code-focused activities, mainly regarding the relations between graphemes and phonemes. They did not very often engage in activities involving children's books. Copying and Dictation were the only writing activities employed by teachers in this group. They used a small range of materials, such as worksheets and the manual, and very often proposed oral activities without a written support. They adopted a very structured and teacher-supported programme when it came to mastering the alphabet. They only used two classroom management procedures: teacher-centred, and individual work.

Balanced teachers simultaneously emphasised code and meaning-focused activities. They balanced direct teaching of grapheme-phoneme correspondences, word decoding and encoding, with the exposure of children to meaningful texts and text construction. They regularly asked pupils to focus on the naming of letters and syllables, but also frequently asked pupils to complete sentences with blanks (incomplete), and to write a text or read a children's book. They used diversified reading materials, such as students' own texts, worksheets designed to practice specific reading or writing skills, the manual, children's books and other texts. They adopted differentiated classroom management procedures, ranging from the teacher lecturing to the students, to pupils working independently.

These results are in line with previous studies that aimed to characterise teachers' practices profiles in Spain (González et al., 2009; Tolchinsky et al., 2012). Language Experience teachers, as described in our study, are quite similar to 'Situational Oriented' teachers described in those studies; Phonic teachers are in line with 'Instructionally Oriented' teachers; Balanced teachers appear similar to 'Multidimensionally Oriented teachers'.

Additionally, classroom observation revealed some interesting features of our three groups of teachers. The time Language Experience teachers spent on code-focused activities was greater than the time spent by Phonic teachers on meaning-focused activities. It also showed that the diversity of activities undertaken by Balanced teachers, namely in code-focused activities, was greater than that of those engaged in by the other two groups.

Teachers' Literacy Teaching Profiles and Reading Abilities. In order to answer the question concerning the relationship between literacy teaching practices and students' reading abilities, pupils in these three groups were assessed at the end of the first grade through two reading tests: word reading, and comprehension. The results indicated that pupils of Balanced teachers performed better in both tests compared to pupils in the other two groups.

These results are in line with those described in the English literature that highlighted 'balance' as the key characteristic of good teachers' practices (Bingham & Hall-Kenyon, 2013; Morris, 2015; Pressley & Allington, 2015). Balance in reading instruction, combining instruction in grapheme-phoneme correspondences (code-focused) with reading and writing authentic texts (meaning-focused); balance in classroom management procedures, from more teacher-centred to more pupil-centred; and balance in the use of different types of reading materials, from materials designed to work on specific skills to more authentic materials.

The results obtained by Balanced teachers may be explained by the central role phonological recoding plays in the initial stages of learning to read, as pointed out by several authors including Alegria (2006), Archer and Bryant (2001), Ehri (1992) McCandliss et al. (2003), Morais (1994, 1995), Share (1995) and Stanovich (1996). Balanced teachers explicitly trained decoding procedures which gave children the opportunity to build connections between the printed word and the decoded meaning.Moreover, these teachers provided authentic reading and writing experiences in a broad range of communicative situations, leading pupils to gain continued experience with alphabetic decoding skills. According to Alegria (2006), the training of decoding skills must be followed by and integrated into authentic reading and writing activities, vocabulary development and knowledge about the world. According to Share (1995), engagement in alphabetic decoding may prompt a self-teaching mechanism that serves as a boot-strapping mechanism which helps readers progress to the identification of words. The more children read, the better readers they become, as suggested by Anderson et al. (1988) and Stanovich (1986).

It is interesting to note that in both reading tests the standard deviations concerning the results from the Language Experience and the Phonic approaches are higher than those associated with the Balanced approach, showing that the first two approaches did not benefit all pupils in the same way. In other words, balancing instruction would be an effective strategy for empowering different child-instruction interactions and improving literacy for all students (Foorman et al., 2006).

No differences were found in reading between pupils under Phonic teachers and those taught by Language Experience teachers. One possible explanation for these results concerns the time spent on code-focused activities by Language Experience teachers. While it is true that these teachers undertook meaning-focused activities more often, they nonetheless also engaged in code-focused activities, namely word decoding and encoding. These teachers also used different management procedures that may facilitate active engagement in literacy learning by all children, as suggested by Moody and Vaughn (1997) and Schumm et al. (2000). The shallowness of the Portuguese orthography, which makes it easy for children to learn the relationship between graphemes and phonemes, may have contributed to the equivalent results of these two groups.

In summary, our research emphasizes that teaching grapheme-phoneme correspondences is an essential element at the onset of reading instruction. It also concurs with the results of English-based research: to achieve good results in reading, pupils must also practice authentic reading and writing activities, both with teacher support and independently (Foorman et al., 2006). These results confirm the view taken by several authors (e.g. Amendum et al., 2009; Connor et al., 2011; Pressley et al., 2001), that combining code instruction with text reading and writing, different reading materials and classroom management procedures is the best way to promote reading in the primary grades. They also show that these teaching practices are the most effective at promoting children's reading outcomes, not only in English but also in a language with a higher degree of orthographic transparency.

These results, which show the impact of first-grade literacy teaching practices on children's reading abilities may help explain why Portuguese pupils had unexpected results in Seymour's study—these may be due not only to the characteristics of the Portuguese orthography, but also to the fact that, at least in our sample, only a third of the teachers used effective literacy teaching practices. As there seems to be some stability in reading results over time, it is not surprising that Portuguese pupils have experienced reading difficulties at the end of primary school, as several national and international assessments have pointed out.

Limitations and Future Research. There are some limitations to our study that should be taken into consideration in future research. Firstly, inasmuch as it is not an experimental one, the study design didn't allow us to establish a causal relationship between teachers' practices and reading outcomes. Secondly, teachers who self-reported their practices were a convenience sample. A random sample would have provided more confidence in the results. Thirdly, despite the initial assessment of reading skills, which enabled us to select only children who couldn't read, some predictors of reading achievement, such as letter naming and phonological awareness, should have been taken into account. Fourthly, only two classroom observations were performed with each teacher. It would have been better to conduct more observations across the year, combined with other means with the ability to provide more information on the activities teachers used, including teacher planning, the books pupils read, and pupils' school notebooks. Fifthly, there could

be differences among the three groups in teachers' attitudes and engagement towards teaching. A larger sample size for each group of teachers would have given more confidence in the results. Sixthly, although mother's educational level was controlled, there could have been differences in students' economic backgrounds. Seventhly, although the time spent on literacy instruction at/by each school/teacher was reported to be 8 hours weekly, there may have been small variations that were not controlled. Finally, our research does not allow us to reach conclusions about the long-term effect of instruction. Future longitudinal studies should also consider the assessment of writing acquisition, in particular in orthographies like the Portuguese one, where the mapping between phonemes and graphemes is more inconsistent than the mapping between graphemes and phonemes.

Educational Implications. This study has a number of educational implications that can be useful for teacher training:

a) Teachers should balance instruction between code and meaning, classroom management procedures and reading materials.

b) The explicit and systematic teaching of alphabetic decoding should be considered during early reading experience and combined with authentic reading experiences, using written language in a broad range of communicative situations.

c) A variety of management procedures should be used: the teacher lecturing to the students should be combined with independent work and paired/small group activities, thereby allowing moments of more individualized scaffolding and the encouragement of student self-monitoring.

d) A diversity of reading materials should be privileged, allowing pupils to have different reading experiences in order to develop reading abilities.

AUTHORS' NOTE

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