Dialect: Integrating Technology and Reading Assessment to Diagnose Spanish Reading Difficulties

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Abstract

The current study describes the development of an Ipad-based assessment tool to identify

Spanish reading difficulties of Kindergarten through third-grade students. The tool follows a

whole-to-part approach to reading diagnosis, and provides valuable information about reading

development from the perspective of each subprocess. The tool was validated in a sample of

1378 Chilean students from Kindergarten to third grade. Results from this pilot study revealed

that 79% of first graders are lagging behind in their reading development, that phonological and

phonemic instruction in the assessed kindergarten classrooms is almost non-existent, and that

25% of students beyond first grade have reading difficulties in at least one subprocess. The use

of an Ipad-based assessment is an efficient way to diagnose early reading difficulties and provide

intervention strategies to overcome those difficulties in a timely manner, particularly in a large

classroom context where teachers lack knowledge about how to diagnose reading ability.

Key words

Reading assessment, technology-based assessment, reading diagnosis

Introduction

Functional literacy is a key skill for school success and an essential condition for access to both professional and higher education opportunities. The OECD defines a person as functionally literate if he or she "…can engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development" (United Nations, 1984, para. 15.62).   According to the World Literacy Forum, lacking basic literacy skills may have an economic impact on the lives of individuals, which may translate in incomes that can be up to 40% lower than those of people who are competent readers and writers (Martínez & Fernández, 2010). For most Latin American countries, the acquisition of more advanced reading and writing skills still remains a challenge and an impediment to economic growth and development (Hanushek & Woessmann, 2009). In this context, Chile has increased its literacy achievement levels compared to other countries in the region. However, these levels of achievement are still not enough for its young people to acquire the knowledge and skills necessary to function in an information-based society (UNESCO, 2008).

Although Chile's population is almost entirely literate, children and adolescents' performance on reading assessments both nationally and internationally falls below what is needed to function in an information-based cultural context (Villalón, 2008; Mineduc, 2011). An even more complicated issue is the enormous difference in the performance levels of students from more and less advantaged socioeconomic backgrounds in our country. Students attending private schools (about 7% of the school population) typically perform two or three levels above their peers who attend public schools and who come from low socioeconomic homes. This gap widens as children progress through grade levels (Mineduc, 2011; Villalón, Föster, Cox, Rojas-

Barahona, Valencia & Volante, 2011; Bravo, Villalón & Orellana, 2004). Similarly, the

performance gap among students somehow mirrors the differences in quality of instruction in

both types of schools (Author & Author, 2014 a fact that contributes to the high levels of

inequity in the Chilean educational system (Valenzuela, Bellei, & de los Ríos, 2014).

One of the greatest challenges for the Chilean educational system is, precisely, narrowing

that gap, by improving the quality of instruction and having reliable modes to monitor student

progress and guide instruction. While there are many obstacles that hinder the acquisition of the

desired levels of quality, there are three that clearly affect literacy development, particularly at

the elementary level. The first one has to do with the lack of preparation teachers have in order to

adequately assess, monitor and provide intervention in children's literacy development (Strasser

& Lissi, 2009). The second barrier is the large size of average Chilean public school's

classrooms that can have as many as 47 children per room with one teacher; this prevents most

teachers from devoting more individual time and support to students when they are learning to

read (Mizala, Romaguera & Farren, 2002). Finally, the lack of valid and reliable measures, and

lack of literacy specialists in the early elementary grades have contributed to the fact that prompt

and in-depth diagnosis of individual reading abilities has been historically neglected in our

country (Sotomayor, Parodi, Coloma, Ibáñez & Cavada, 2011).

One way to address the need for timely diagnosis and instructional support is to provide

teachers, parents, and administrators with accurate information about each student's reading

development to help students attain higher comprehension levels, and as a result, give those from

more disadvantaged backgrounds a real opportunity to access higher education and more cultural

capital. The purpose of this study was to examine the application of a reading assessment tool in

a Spanish-speaking context, which can provide parents and administrators with valuable

information of children's reading abilities. The research question we aimed to address is: what can we learn of children's Spanish language abilities thorough the application of a tablet based reading assessment?

With this idea in mind, and in order to provide Chilean teachers with valid and reliable diagnostic tools we created Dialect, an iPad-based assessment system that is almost entirely self-administered and of free access to all Chilean population. Dialect consists of two screening assessments that target the different components of reading. In the first assessment (Dialect I) is a screening of reading comprehension in which students are required to read several increasingly more complex reading passages and click on the correct answer on the screen (i.e., the word that best completes one of the sentences in each item). Students' scores are presented in terms of Lexile ® measures, a well-known and established scale that matches children with text according to their reading abilities. The Lexiles were used to determine specific cut point scores for each grade level. In case a student's total score falls below the established cut point, the screen tells the evaluator that further testing is needed. Those students requiring further testing then go through a second tool (Dialect II) that assesses knowledge of print, phonological awareness, letter knowledge, word recognition, and vocabulary. A full description of the assessments and their flow chart is provided later in this paper.

Approaches to early reading diagnosis

For many years, reading difficulties were addressed from a medical perspective in which this condition was mainly attributed to neurological factors (Stahl, Kuhn, & Pickle, 1999; Kibby, 1985; Barr, Blachowicz, Katz, & Kaufman, 2002). Eventually, the shift towards a more scientific approach to the study of reading provided sufficient background and evidence to look at reading

difficulties from a cognitive perspective in order to understand the origins and nature of many

reading problems, and find adequate (research-based) interventions to help struggling readers

overcome these difficulties. Several models of reading provided sufficient theoretical

underpinnings that helped understand the complex processes and components involved in

reading and meaning construction. Gough & Tumner's (1986) simple view of reading defined

reading as the interaction of two components: decoding and language comprehension, and the

extent to which these two components interacted determined the existence of a reading difficulty

such as dyslexia or hyperlexia (Stahl et al, 1999). However, practical evidence both from clinical

work and classroom experience have shown that reading comprehension difficulties are more

complex than it was initially though. The findings from the National Reading Panel (2000)

ratified the relevance of five key reading subprocesses in terms of reading achievement, and

somehow directed attention to ways to diagnose specific subprocess difficulties and target

intervention in each particular area. The simple view, although helpful in providing a simplified

view of reading was therefore unable to explain many more situations in which the interplay of

aspects of reading beyond decoding and language comprehension affected understanding of

written texts.

Several cognitive models (e.g. the component model, Aaron, Malateshar Joshi, Gooden &

Bentum, 2008) provided more detailed explanations that took into account the importance of

phonological and phonemic awareness, letter knowledge, and access and knowledge of print,

vocabulary, and word identification and their interrelationships. One example is the Cognitive

Model of reading assessment (McKenna & Stahl, 2003), which has been considered a useful

framework for assessment. This model places reading comprehension as the goal of reading, and

offers a flow for decision-making in the assessment of reading where to reach the goal of reading

comprehension the reader must succeed at three main components: automatic word recognition, language comprehension, and strategic knowledge. Each of these components comprises other subcomponents. A difficulty in any of these components may result in an impediment for achieving reading comprehension. Automatic word recognition builds on fluency, decoding and phonological awareness, and concepts of print. Language comprehension is achieved through background knowledge, vocabulary knowledge, and text and structure knowledge. Strategic knowledge refers to knowledge of general and specific strategies for reading depending on the purpose of the reader. All these components and subcomponents interact to achieve reading comprehension.

Similarly, evidence about successful reading instruction in the early grades has also provided insights as to how children became proficient readers, pointing to the key role of evidence-based classroom instruction that considers all subprocesses in reading. Key in determining the relevant skills involved in reading was the work of Snow and colleagues (1998) *Preventing Reading Difficulties in Young Children*, which conceptualized reading by determining the sets of skills that predict reading success, based on empirical evidence, and provided a series of recommendation for the instruction of reading in English. Whilst the study of skills involved in reading is well developed in English, much is still to be studied for Spanish language in Spanish-speaking contexts.

Reading development among Chilean students

Studies about Chilean beginning readers have focused on the importance of phonological and code-related abilities for comprehension (Kim & Pallante, 2012; Bravo, Villalón & Orellana, 2006). Much of the research conducted to date has focused on predictors of reading ability, which have shown to vary across grade levels. For example, Bravo and colleagues (2006) found that letter knowledge and phonological awareness predicted first grade reading, whereas fourth

grade reading comprehension predictors were letter knowledge, word recognition and text structure. It has also been observed that students who show low levels of silent reading comprehension in first, second, and third grade, also perform poorly on phonological and word decoding tasks (Author, Author & Fitzgerald, 2014). On the other hand, large-scale standardized measurements of reading comprehension ability (e.g., SIMCE or PISA) at higher-grade levels show that the majority of Chilean students perform within the lowest comprehension levels compared to similar developing countries. Since no systematic screening or diagnosis procedures take place in the early elementary years, it seems plausible that those students whose needs for early intervention in phonological and word-decoding abilities are not met at an early stage, will lag behind in comprehension tasks as well.

In most Chilean schools the only screening procedures that take place focus on reading rate (words per minute) and/or silent reading comprehension, but there are no assessments that inform teachers about a student's reading level, because such levels have not yet been established, and the differences between independent, instructional and frustration levels is not taken into account when it comes to reading instruction (Trepton, Burns, & McComas, 2007). Consequently, assessment information is seldom used to inform instructional practices or differentiate instruction at a stage in which it is crucial for learners to acquire code-related skills to facilitate comprehension of increasingly more complex texts. Knowledge about which reading subprocesses can predict reading comprehension is critical to facilitate the identification of readers who may need additional support and instructional intervention and become independent readers.

Dialect, an online tool to assess beginning Spanish reading ability

Given that Chilean teachers lack the tools, time, and more technical knowledge to diagnose reading difficulties in the elementary grades, we devised a tool that could help teachers carry out this task with minimum cost in terms of time, materials, and experience. We thought that because classrooms are usually quite large (40 to 45 students per class) and schools don't have reading specialists, having a tool that could assess individual students in a more automatized way, with assessments that are reliable and valid, could provide teachers with timely and accurate information about every student in their class, so as to plan individualized support to those students who require additional assistance in a specific reading area.

The theoretical model underlying Dialect is a whole-to-part approach to reading diagnosis (Cunningham, 1993), where silent reading comprehension is the main long-term goal of reading and, to achieve comprehension, students must demonstrate proficiency in word identification, language comprehension, and print processing abilities (Roberts, Christo, & Shefelbine, 2011; Cunningham, Schmidt, Nathan, & Raher, 2011; Adams, 1990). Within word identification, Cunningham and colleagues distinguish two word-reading abilities: automaticity (e.g., reading a printed word in no more than .25 seconds), and mediated or decoded reading (e.g., reading a printed word using other more conscious strategies such as decoding or structural analysis). In the scope of language comprehension two kinds of knowledge are required: knowledge of text structure and knowledge of the world, which translates into lexical, background, experiential, and schema knowledge. Finally, the third aspect included in the model is whole-print processing; in other words, factors that determine reading fluency. Included in this component are eye movements, print-to-meaning links, inner speech, prosody, and the ability to carry out all these tasks concurrently (Spadorcia & Erickson, 2002).

One of the advantages of the whole-to-part models is the possibility of establishing paths

along which the diagnostician can screen more specific reading difficulties with comprehension

as a starting point. Besides looking at word identification and language comprehension,

Cunningham asserts that examining print processing beyond word identification can help

determine a reader's print processing level based on the performance scores of the three whole

components. Thus, the whole-to-part model takes into account important aspects of print

processing, which are tightly linked to comprehension, such as making print-to-meaning

connections, eye movements, prosody, silent reading, and parallel processing. These aspects of

print processing are not explicitly assessed in our tool, but have important implications in terms

of a reader's strengths and weaknesses as well as in the decisions a teacher makes when it comes

to providing more individualized assistance.

Our assessment facilitates teacher diagnosis in that it establishes two decision trees, one

for grades K and other for 1st to third grade, which are consistent with the whole-to part model

including the potential areas of difficulty that students may encounter when comprehending texts

at each level of development. The sequence is rooted on theoretical and empirical knowledge

about the way reading subprocesses unfold and the most effective assessment strategies

(Torgesen & Hayes, 2005). Figure 1 depicts the steps included in the diagnostic assessment for

Kindergarten students who, on average, have not yet acquired silent reading comprehension

abilities by the end of the school year. Assessment begins with knowledge of letter names and

sounds, followed by phonological awareness tasks such as blending, identifying rhymes, initial

sounds and segmenting phonemes. Of these four tasks, phoneme segmentation appears to be the

hardest for Kindergartners, which in fact is harder than segmenting syllables, an activity that

most preschool classroom teachers in Chile do on a daily basis, whereas phoneme segmentation

is rarely part of phonological instruction.

Following phonological tasks there is a listening comprehension assessment where

students listen to a brief story and are asked to answer a few questions focused on story plot and

character traits. Students mark their responses by clicking on the correct icon on the screen (i.e.,

the picture that best represents the correct answer). Finally, receptive vocabulary is assessed

using TEVI, a Chilean validated version of the Peabody Vocabulary Test (Dunn & Dunn, 2007).

The child listens to a word and then clicks on the image that represents the word. This

assessment uses both basal and ceiling parameters for each child, so scoring procedures are the

same as the ones employed by the PPVT test and the paper-and-pencil version of TEVI. Student

responses are delivered wirelessly and recorded on an excel spreadsheet which teachers can

access through the project's website using an individual password and/or request statistical

analysis which are provided via a written report within 15-20 days after test taking.

Figure 1. Decision Tree for Dialect assessments in Kindergarten
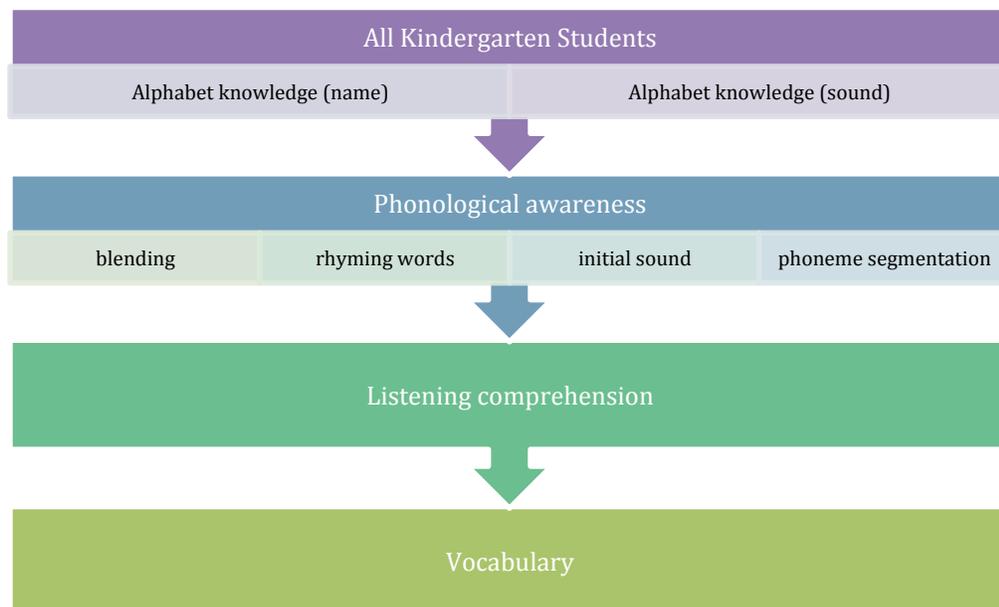
For students in grades first through third, the decision tree is less linear and begins with *silent reading comprehension* as can be observed in Figure 2. This assessment serves as an initial screening to determine which students might need further, more process-specific testing. If first grade students answer 9 or more of 45 items correctly, they are not tested beyond silent reading comprehension because their Lexile ® reading level is within the expected range for his or her age group. The same is true for second grade, where the cut point score is 12, and for third grade, where the cut point is 15 out of 45 items. Students who score below these cut points continue with *word recognition* and *listening comprehension* assessments as shown in the decision tree (see figure 2). Students not meeting the cut points for word recognition are also assessed in *letter knowledge* (name and sound) and *phonological awareness*, which are foundational skill for successful word recognition. In parallel, if students fail to pass the *listening comprehension* assessment, they must take the TEVI vocabulary test, which assesses a necessary skill for successful listening comprehension. An advantage of using a decision tree, is that the assessments a child must go through are only those he or she actually needs, so excessive testing is avoided. The scoring and reporting procedures are the same as the ones described for the Kindergarten students, plus the additional Lexile ® measure reported for each individual child. In the current study we report the results from all assessments with the exception of listening comprehension where reliability levels were lower than those of the other sections.

Figure 2. Decision Tree for Dialect assessments in grades 1-3

Dialect I   **Dialect II**
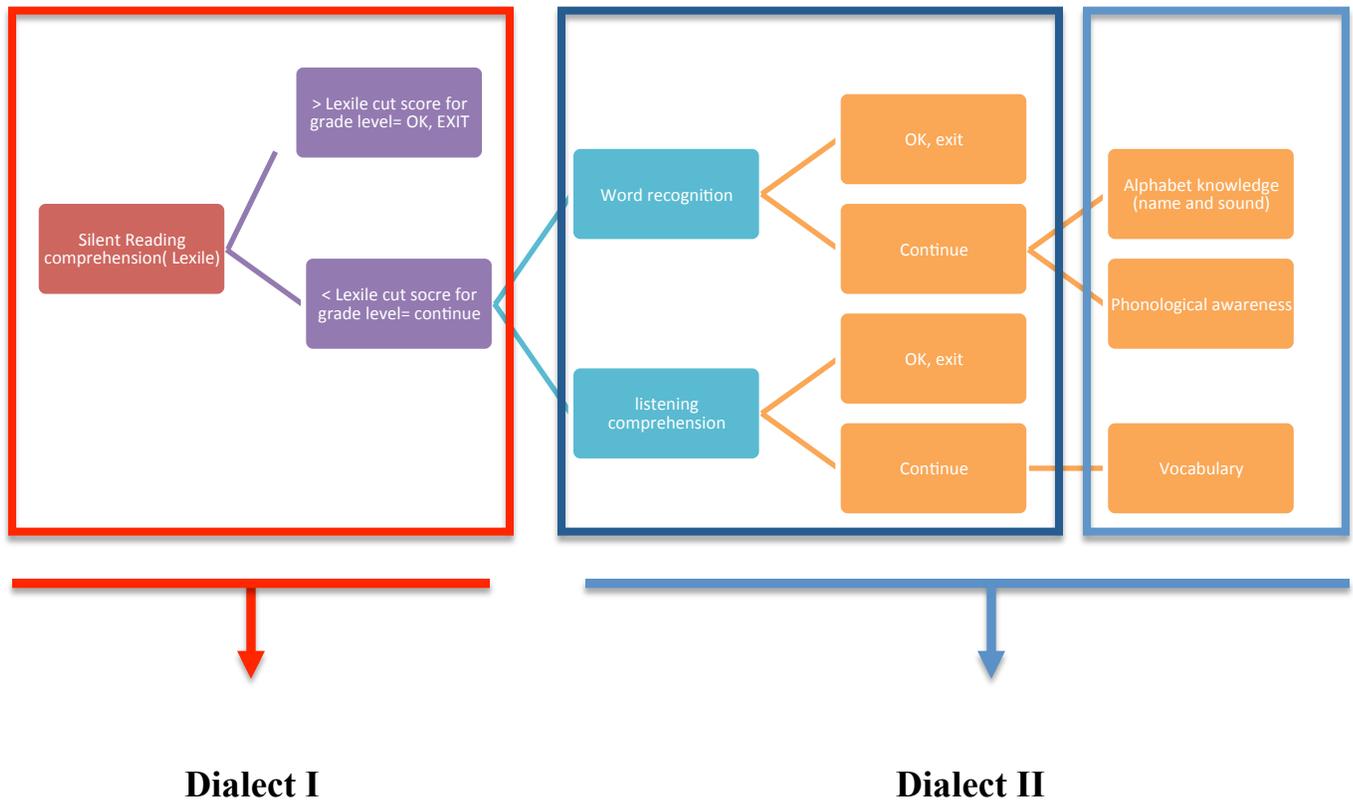
For the first assessment of Dialect we used a silent reading comprehension test

specifically designed by MetaMetrics® which provides results in Lexiles ®. For the second part

of the assessment we adapted items from already existing measures that had been validated

independently of each other on a paper-and-pencil version. For example, to assess phonological

awareness, knowledge of print, and alphabet knowledge we used the items included in Villalón

& Rolla's (2000) *Prueba de Alfabetización Inicial*. To assess vocabulary, we adapted the TEVI-

R (*Test de Vocabulario en Imágenes*, revised) by Echeverría, Herrera & Segure (1995). To

assess word recognition strategies, we used the format of the Flash and Analysis word test

developed by Karen Erickson and James Cunningham (1993). We used Spanish words from a

3,000 list of words students should know by the end of grade 4, compiled by the Chilean

Ministry of Education. We randomly selected 300 words and ranked them in order of syllabic

complexity. Words were then flashed on the iPad screen for .25 seconds for the children to read

them automatically. If a student could not read a word automatically, the word was shown again,

but this time the child had 3 to 5 seconds to identify it.

Methods

Design and participants

We conducted a crossectional study among 1378 students in grades Kindergarten through

third grade (K= 249, 1st= 401, 2nd= 350, and 3rd=378) using Dialect, to examine students' reading

development and identify specific reading difficulties in any of the reading subprocesses.

Students came from 9 municipal and subsidized schools from different districts across a large

metropolitan area. Municipal schools comprise about 38% of the entire school population in

Chile and are fully funded by the government. Subsidized schools, on the other hand, receive

some funding from the state and parents pay a very small amount for tuition; they account for

about 54% of the school population (Mineduc, 2013). The remaining 8% corresponds to private

schools where parents pay full tuition. For demographic purposes, it is important to explain that

most students attending municipal schools in Chile come from low socioeconomic homes,

whereas students in subsidized schools come from middle-income families (Valenzuela et al,

2014; Mizala, Romagnera, & Farren, 2002). Likewise, and as was previously mentioned, student

achievement in reading and mathematics is closely connected with school type, with private

schools outperforming subsidized and municipal schools. In the national reading comprehension

assessment given to students in second grade in 2012, for example, children from low

socioeconomic homes in municipal schools scored 230 points compared to high socioeconomic

level students from private schools that, on average, scored 283 points. The national average was

250 points (Mineduc, 2013).

Data sources

Data consisted of individual scores from 1378 students for each of the assessments based

on results obtained by each child on the Dialect I or screening test. For each assessment, raw

scores were transformed into percent of correct items, with the exception of vocabulary scores,

which were presented as percentiles using the norms that Echeverría et al (1995) had determined

for the Chilean population.

Validity and reliability

An initial pilot application in May 2013 to a sample of 150 students allowed us to

examine the tool in a school context and establish reliability measures. Large-scale application

to all participants took place in October 2013, two months before the end of the school year.

Trained evaluators were responsible for overseeing the students as they progressed through the

various stages of the assessment and ensured proper transferring of data to the servers for later

analysis. In the future the test will be administered by teachers but for purposes of establishing

reliability and learning more about the application of the assessments we used trained evaluators.

There was no need to calculate inter-rater reliability, since most of the test is self-scored.

Content validity had been previously established for all the assessments except Dialect I

(silent reading comprehension). Construct validity for the Silent Reading Comprehension test

relies on solid research evidence about text measurement and item construction using the

Lexile® Analyzer, as well on the judgment of a panel of experts that advised us during the

development. To confirm face validity, we also compared scores across grade levels. Results

showed that students' mean scores increased as the grade level increased; similar to what the

national reading assessment (SIMCE) has shown across grade levels. Procedures to establish

concurrent and predictive validity for the whole assessment are under development.

Results and Discussion

Table 1 presents the mean scores and standard deviations for each of the subtests

across the grade levels. As can be observed from preliminary analyses, 79.1% of first graders

(303 students) did not meet the silent reading comprehension cut point for their grade level. The

same was true for 26.9% (N=92) of second graders, and 17.9% (N=67) of third graders. For first

graders, the mean score obtained on Dialect 1 corresponds to Beginning Reader in the Lexile

framework (MetaMetrics, 2006; Williamson, 2006). It can also be observed that there is a

significant increase in the mean Lexile ® level of third graders compared to second graders.

Analyses of variance confirmed that the students' mean scores across grade levels differed

significantly: $F(2, 458)=34.781$, $p=.000$). Because there are no previous studies examining

reading performance and/or determining the percentage of Chilean students reading below their

corresponding grade level, it is impossible to draw any conclusions from these results, except for

the fact that, as expected, the percentage of students not meeting the cut point decreases as grade

level increases. These results also indicate that the silent reading comprehension test was able to

capture struggling readers in each grade accordingly.

Table 1. Percentage of students (and mean Lexile levels) not making the cut point score (Dialect

1: silent reading comprehension) at each grade level.

Grade*	%	N	M	SD

First	79.1	303	BR	291.41
Second	26.9	91	36.11	227.47
Third	17.9	67	256.48	226.99

*Kindergarten was not assessed on silent reading comprehension as the pilot study indicated that students had not learned to read yet.

Table 2 displays mean scores and standard deviations for Dialect 2 subsets. These results correspond to those students who did not meet the cut point scores in each grade level, and include all Kindergarten students who, for exploratory purposes, were assessed in all areas.

Table 2. Means (percent correct) for each subtest for students who took Dialect 2.

Grade	Alphabet Knowledge M *(SD)*	Print Knowledge M *(SD)*	Vocabulary M *(SD)*	Word Recognition M *(SD)*
Kindergarten (259)	24.5 (22.39)	39.5 (25.59)	23.8 (24.92)	.1 (.79)
First (303)	48.3 (29.02)	54.2 (20.79)	21.8 (30.45)	.9 (2.22)
Second (91)	73.3 (21.25)	69.5 (19.71)	17.5 (26.16)	7.1 (12.58)
Third (67)	85.6 (13.83)	82 (16.46)	9.2 (8.04)	17.7 (20.82)

Grade	Blending	Rhymes	Initial Sound	Segmentation
	M *(SD)*	M *(SD)*	M *(SD)*	M *(SD)*
Kindergarten	45.9 (24.12)	33.4 (26.31)	32.0 (20.72)	15.3 (20.42)
First (303)	55.2 (25.55)	35.8 (27.13)	33.1 (20.78)	30.5 (26.73)
Second (91)	67.8 (26.54)	41.3 (24.77)	35.4 (22.4)	42.7 (33.84)
Third (67)	79.1 (22.06)	57.5 (26.68)	36.4 (26.35)	54 (36.5)

Clearly, for Kindergartners, first, and second-grade students' word recognition ability is the lowest-performing area, which is worrying given that this component has been found to be the strongest predictor of reading comprehension for struggling readers in the early grades (Lesaux, Rupp & Siegel, 2007; Adlof, Catts & Lee, 2010). This finding indicates that a considerable percentage of students are probably at an initial decoding stage; that is, can probably read only a handful of frequently used words automatically, and have trouble decoding a large amount of words they are expected to know by the end of third grade. On the other hand, both Kindergarten and first grade students obtained less than 50% correct items on alphabet letter identification and there was considerable variability in the results as shown by standard deviations, which shows that, on average, not all students can identify all letters, some don't

know any letters, and some know most, if not all. Similarly, certain phonological tasks presented

low percentages of achievement. In Kindergarten, for example, phoneme segmentation was the

weakest area. The same is true for first grade readers who also appear having difficulty in

segmenting phonemes within words. Blending, on the other hand, appears to be the easiest

phonological task across all grade levels. This may probably be due to the fact that in the

majority of Chilean public schools there is a stronger emphasis placed on syllabic rather than

phonological awareness in preschool. Thus, most children are capable of putting sounds together

rather than isolating them, and it is not surprising that children are familiar with certain simple

syllable combinations (e.g. consonant-vowels, such as "ma," "pa") but cannot manipulate

phonemes or identify letter sounds (Coloma, Covarrubias & De Barbieri, 2007; Arancibia,

Bizama & Sáez, 2012).

Using analysis of variance we were able to examine significant differences in the

development of reading subprocesses across grade levels. ANOVA results showed that there

were significant differences for word recognition, one of the subprocesses where students

obtained very low scores. Significant differences were also observed for letter knowledge, $F(1,$

$355)=39.154$, $p=.000$); print concept $F(1,355)=5.896$, $p=.016$; and vocabulary, $F(1,282)=20.001$,

$p.000$. For phonological tasks, analyses of variance confirmed significant differences between

grade levels for phoneme blending, $F(3,719) = 40.47$, $p= 0.000$; rhymes, $F(3, 719)= 15,81$,

$p=0.000$; initial sound identification, $F(3,719)= 17.42$, $p=0.000$, and phoneme segmentation, $F(3,$

$719)= 50.21$, $p= 0.000$. These results confirm that the mean scores obtained by students from

each grade level differ significantly from one another in all the variables of interest as expected.

We also correlated scores from the different subtests in Dialect 2 with the scores obtained

by the students on the silent reading comprehension test (Dialect 1). Correlational analyses

served two purposes: first, they contributed to the validation of Dialect 1 in terms of construct

validity. Second, they allowed us to further explore the relationships between performance on

silent reading comprehension and other reading subprocesses for children in all grade levels.

Results are displayed on Table 3. The highest positive correlations were observed for

vocabulary and word recognition (.655 and .745 respectively), whereas the lowest correlations

were found between the silent reading comprehension and phoneme-blending subtest. It is

interesting to note that the highest correlations are found between silent reading comprehension

and the two reading subprocesses where overall, readers had the lowest performance.

Table 3. Correlations

Subtest	N	Correlation with Silent Reading Comprehension Test
TEVI (Vocabulary)	119	.655**
Knowledge of print	119	.569**
Phoneme segmentation	119	.560**
Phoneme isolation	119	.533**
Rhymes	119	.503**

Phoneme blending	119	.358**
Alphabet knowledge	119	.524**
Word recognition	119	.745**

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Discussion

Results from both assessments reveal that, across grade levels, students who have trouble comprehending texts they read on their own have difficulties on very specific areas of reading, such as word recognition, vocabulary, and certain phonological tasks that are necessary for acquiring automaticity and accuracy in word recognition. The current results are consistent with substantial empirical evidence from previous studies about Chilean readers where phonological awareness and comprehension appear to be the main difficulties readers face (Bravo et al, 2003; Arancibia et al, 2012; Coloma et al, 2007). Studies have also confirmed the causal relationship between difficulty in performing phonological tasks, particularly at the syllable-level, and reading delay (Bravo et al, 2006; Márquez & de la Osa, 2003; Herrera & Defior, 2005). In transparent languages, such as Spanish, students must have acquired the alphabetic principle to begin reading, and a minimum level of phonological awareness development can provide sufficient scaffolding for the acquisition of more complex processing. It is therefore necessary to provide systematic phonological instruction as a foundation for further reading development.

Another aspect that raises concern is the low mean percentages of achievement in word

recognition items. If we take into account the transparent nature of Spanish orthography, word

recognition ought to be a relatively simple task for most Spanish reader; however, and given

readers' performance on the phonological tasks, it may be inferred that word recognition

difficulties may be caused by insufficient phonological and phonemic instructional exposure and

practice. Phonological and phonemic awareness are critical to learning to decode, and learning to

decode in first grade is also critical (Juel, 1988). Results from regression analysis showed that,

for these students, word recognition is a strong predictor of silent reading comprehension, and

phonological awareness—particularly phoneme segmentation (Author et al, 2014). These

findings are indicative of needs that must be addressed from an instructional perspective in a

timely manner (Vellutino, Tunmer, Jaccard, & Chen, 2007; Stanovich, 1991). Consequently,

systematic practice and direct instruction in phonological awareness and letter-sound

relationships need to be emphasized more strongly in Chilean preschool classrooms to help

students become skilled readers and prevent struggling readers from lagging behind (Torgesen,

Wagner & Rashotte, 1994). Along with instruction, it is also recommended that close monitoring

of student progress in the areas of phonemic awareness, alphabet knowledge, and word

recognition be incorporated in the form of systematic observation and record keeping,

particularly for students whose phonemic and decoding abilities are at a lower level.

A major concern that the current findings bring about is the large percentage of first

graders who cannot comprehend basic texts, and who may eventually struggle if not given the

necessary support in specific reading areas. Silent reading comprehension also remains a major

obstacle for one in four students in second and third grade, and this can have important

consequences for these students' academic progression as reading tasks and demands become

increasingly more complex. Results also showed that most Kindergarten and first grade students cannot identify, segment, or blend sounds in words, and that across all grade levels, and that Chilean students struggle with word recognition well into third grade. These findings, which are consistent with prior studies in Chile (e.g., Bravo et al, 2006) support the need to implement large-scale screening and diagnosis procedures to ensure that all students will acquire the reading abilities needed to adequately function in a literate world. Along with reliable diagnosis, teachers need to implement interventions that facilitate students' progression towards accuracy and comprehension so that readers can become independent (Ortlieb, 2012).

Conclusions

The current study described the procedures for the development of Dialect, a tool to carry out reading diagnosis in grades Kindergarten through third among Chilean students. It also provided descriptive and correlational data about Spanish-speaking children in Chile, which reveals that a high percentage of beginning readers in public school classrooms are struggling with reading tasks that are critical for reading success. Among these tasks is phonological awareness, letter knowledge and word recognition, all of which constitute essential building blocks for reading comprehension (Torgesen et al, 1994). Although the study did not include classroom observations, one inference driven from the data that was collected seems to suggest that sound, systematic, and explicit instruction on these components is scarce, so students do not have many opportunities to practice these tasks on a daily basis. It is expected that, with evidence-based intervention programs that target these components students will be able to acquire a solid base for further reading success.

Statistical procedures also showed that Dialect is a valid and reliable tool to identify specific reading difficulties. It would be expected that if whole class diagnoses can be

implemented in Chilean classrooms in a more systematic way, teachers would be able to assist

children who seem to be struggling with specific reading abilities in an effective and timely

manner.

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