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ARTÍCULOS DE INVESTIGACIÓN

Phonological awareness and lexical processes in reading in five year old kindergarten and second grade students from a school in the City of Lima

Conciencia fonológica y procesos léxicos de la lectura en estudiantes de inicial 5 años y 2° grado de una institución educativa de Lima Metropolitana

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Summary

The aim of this research was to establish the relationship between phonological awareness and lexical processes in reading. This study was correlational, longitudinal and its design was not experimental. Thirty six students from a public school in the city of Lima were assessed in two stages: kinder and 2nd grade. The Phonological Awareness Assessment Test - PECO and the Lexical Processes subtests - PROLEC-R were used, both in adapted versions. The results showed that there is no significant relationship between phonological awareness and lexical processes in reading. However, there is a significant relationship between syllable identification task and word reading subtest in speed and reading skills indexes. A significant relationship between syllable identification task and pseudowords reading in reading skills index was found. Also, a significant relationship between syllabic omission task and pseudoword reading in reading skills index was evidenced.

Key words: Phonological awareness, lexical processes in reading, learning to read.

Resumen

El objetivo de la presente investigación fue establecer la relación entre conciencia fonológica y procesos léxicos de la lectura. El estudio fue de tipo correlacional, longitudinal y diseño no experimental. Participaron 36 estudiantes procedentes de una institución educativa estatal de Lima Metropolitana, a quienes se evaluó en dos momentos: inicial 5 años y 2° grado de primaria. Se aplicaron la Prueba para la Evaluación del Conocimiento Fonológico - PECO y los subtest de Procesos Léxicos del PROLEC-R, ambos en sus versiones adaptadas. Los resultados evidenciaron que no existe relación significativa entre la conciencia fonológica y los procesos léxicos de la lectura. No obstante, se encontró una relación significativa entre la tarea identificación silábica y lectura de palabras en los índices de velocidad y habilidad lectora así como con el índice de habilidad lectora de lectura de pseudopalabras. Asimismo, se evidenció una relación significativa entre la tarea omisión silábica y lectura de pseudopalabras en el índice de habilidad lectora.

Palabras clave: Conciencia fonológica, procesos léxicos de la lectura, aprendizaje de la lectura.

The relationship between phonological awareness and reading acquisition has been supported for more than three decades, showing that children who have greater phonological awareness when they start school are better prepared for learning to read (Liberman & Shankweiler, 1979; Wagner & Torgesen, 1987; Shaywitz, 1997; Burns, Griffin & Snow, 2000; Snowling, 2000, quoted by Beltrán, López, & Rodríguez, n.d.).

Phonological awareness (PA) is the metalinguistic ability that enable children to reflect on and intentionally manipulate the units of spoken language i.e. words, syllables and phonemes (Mattingly, 1972; quoted in Defior & Serrano, 2011a; Ramos, 2004).

The development of phonological awareness is a subject that is still under discussion because of the use of several definitions and/or tasks in evaluating this ability. However, researchers in this area agree that phonological awareness appears between the age range of three and seven years old (Clemente & Domínguez, 2003). Thus, the development of this ability is considered to be a continuous process comprising a series of stages: from rhyme recognition, passing through segmentation and manipulation of syllables, of intra-syllabic units, to arriving at phonemes (Adams, 1990; Lonigan, Burgess, Anthony & Barker, 1998; Treiman, 1985, quoted in De la Osa, 2003). Therefore, preschool is considered to be crucial in their development since this ability begins to consolidate mainly through experiences with spoken language to serve as background knowledge for learning written alphabetic codes, and significantly increase with this learning. This is achieved due to the type of our phonological system as its simplicity helps for early identification of the most noticeable sonorous components of the language due to the plainness and syllabic nature of our language (Defior, 1991; Defior & Serrano, 2011a; Herrera & Defior, 2005).

With respect to lexical or word recognition processes, Cuetos (1990); quoted in Cuetos, Rodríguez & Ruano, 1996, considers that they enable to decipher the meaning of the words as we read. To this end, children use two ways: the lexical route, also known as the direct route, and/or the phonological or indirect route. The first one enables to associate the orthographical form of the word with its meaning or internal representation, while the second one applies the grapheme-phoneme correspondence to arrive at the meaning of the word.

Learning to read involves a series of stages in which both ways are developed. Thus, children in the early stage of learning to read and write use mainly the phonological route, even though this stage is characterized by its complexity as an abstraction process is needed to associate the letter with the related sound, whereas older children incline towards the direct route since they have a broader lexical repertoire (Domínguez & Cuetos, 1993; Valle, 1989, quoted in Cuetos, Rodríguez & Ruano, 1996).

According to Jímenez and O'Shanahan (2008), the psycholinguistic approach considers that reading is acquired by developing very specific abilities, among them phonological awareness and alphabetic principle, i.e. the grapheme-phoneme conversion rules that are used e.g. when reading new or complex words or pseudowords. This indicates the preference for the use of the phonological route in a transparent language such as Spanish, which needs to be fully developed with accuracy and speed in order to construct a visual storage little by little enabling to read known words, and thus children become good readers.

It is noted, however, that even though it is known the phonological route is the most used at first by children, and that a strong correlation between PA and reading skills have been evidenced by several research studies (Bradley & Bryant, 1991; Defior & Tudela, 1994; De Jong & Van der Leij, 1999; Jiménez & Ortiz, 2000; quoted by Aguilar et al., 2011; Liberman, 1989; Cuetos, 1989; Rueda et al. 1990; González, 1995, quoted in González & Romero, 1999), and that training of phonological abilities is proven to improve the execution of phonological awareness tasks and the acquisition of reading and writing (Blachman, 1994; Bradley & Bryant, 1985; Byrne & Fielding-Barnsley, 1995; Defior, 1990; Domínguez, 1996; Gillam & van Kleeck, 1996; Rueda, 1995; Schneider, Roth & Ennemoser, 2000, quoted in Márquez & De la Osa, 2003), it is not considered a fundamental ability in our country, as exhibited in the results of the 2012 Student Censal Assessment 2012 showing that only about 30,9% of 2nd grade children achieve expected learning outcomes for reading comprehension (Ministry of Education of Peru, 2013). This situation makes us reflect on what and how the predictors and facilitators of the reading/writing process, and consequently the reading comprehension process – critical aspects for school success – work in the classroom.

There are different hypotheses on the relationship between PA and reading experience. We consider that the bi-directional hypothesis (Jiménez, 1996; González, 1996, quoted in Pérez & González, 2004) gives a consistent and reasonable approach on such a relationship, suggesting that phonological awareness is cause and consequence of the reading competence. This is explained by the fact that children develop a minimum knowledge of phonological awareness before learning to read that enables them to acquire elementary reading skills that serve as a basis to make more complex phonological activities, and at the same time such a phonological ability will improve learning to read i.e. there would be a mutual influence among them.

With the intention of finding evidence of this relationship, Aguilar et al. (2011) made a study in Spain to: (a) determine the levels of difficulty of phonological awareness at both syllable and phoneme levels in tasks of identification, addition and omission of syllables and phonemes, (b) identify differences in phonological awareness according to the reading development. Two hundred and ninety nine students from public schools were assessed, whose ages ranged between 5,6 and 7,6 years old, and who were divided in three groups according to the achieved reading level: no reading knowledge, starting of learning to read and ending of reading/writing process. The Phonological Awareness Assessment Test – PECO was used. The results showed significant differences in phonological awareness according to the level of reading development among the groups, taking into account syllabic and phonemic phonological awareness. It was detected that about 18% of the assessed students had difficulties; 55% boys and 45% girls. Based on those results, it is appropriate to intervene when reading problems are associated with phonological awareness.

Also, through a longitudinal study Aguilar et al. (2010) sought to know the influence of phonological awareness and naming speed on reading. Eighty five students were assessed using the Rapid Automatized Naming Test, the PECO test, and the PROLEC-R Reading Assessment Test in two evolutionary moments: at 5,6 and 6,5 years old. The results showed that phonological awareness and naming speed contribute differently to reading decoding. With respect to influence of phonological awareness on reading, significant correlations with accurate reading of words (r= .29; p< .01), time of reading (r= -.24; p< .05), and word reading efficiency index (r= .38; p<

.01) were found. It was noted, however, a significant relationship in reading of pseudowords when it is measured in terms of efficiency (IPS r= .29; p< .01).

Additionally, Hogan, Catts and Little (2005) conducted a research and analyzed how useful the phonological awareness assessments were in predicting reading in the first school years. The sample comprised five hundred and seventy children participating in a longitudinal study of language and reading difficulties. Phonological awareness and letter identification were assessed at kinder level, while phonological awareness, phonetic decoding and word reading were tested in 2nd and 4th grades. The tasks of syllable and phoneme deletion of the Rosner Auditory Analysis Test, adapted by Catts et al. (2001), the Letter Identification subtest of the Woodcock Reading Mastery Tests - Revised (WRMT-R), the Word Identification subtest, and the Word Attack subtest of the WRMT-R were used. The path analysis of phonological awareness and letter identification measures at kinder level provided information to predict reading in 2nd grade, and in 2nd grade, reading measures offered information to predict reading in 4th grade. A reciprocal relationship between phonological awareness and word reading was found. Phonological awareness at kinder level predicts word reading in 2nd grade, while word reading in 2nd grade predicts phonological awareness in 4th grade.

Málaga, Pérez y González (2004) conducted a study aimed at analyzing the development of phonological awareness based on the reading experience and the difficulty level of the used tasks. The sample comprised 74 children divided into four groups: two groups of 4- and 5-year-old students who were not started in learning to read, and two groups of 5- and 6-year-old students who were started in such learning. The Phonological Segmentation Test (PSEFA, by its Spanish initials) was used to assess syllable and phoneme knowledge; the Form A section of the Linguistic Segmentation Test was also used to assess syllable knowledge; and the Phonemic Awareness Test was also applied. The results exhibited an evolution in the different variables according to age with independent of the reading experience, being the scores higher in syllable knowledge than in phonemic knowledge, both before and after having reading experience. The easiest tasks were the syllable knowledge tasks in general. However, some phoneme knowledge

tasks showed moderate percentages before learning to read. It is thus showed that at syllable level the order for the carrying out of tasks according to the level of difficulty, from lower to higher, was as follows: recount, identify, recognize, pronounce words separated into syllables, separate, recognize or compare, omit and add; and at phonemic level the order was: identify, separate, synthesize, segment, recount, omit and add. Those results provide information with respect to explanation, assessment and intervention of poor reading abilities.

In Chile, Muñoz (2002) conducted a study to identify and describe the level of phonological awareness development in 1st grade children, describe the level of word reading performance achieved by children, and assess the level of association between the level of phonological awareness development, the level of reading development, non-verbal intelligence and mothers' level of education, at end of 1st grade. The study comprised one hundred and eight children (57 boys and 51 girls) with an average age of 6.4 years old and low socioeconomic status, attending 1st year of school, from seven municipal schools in the community of Macul. Two moments were assessed: the beginning of the year – four metaphonological tasks of PPL and PAI tests were applied to measure phonological awareness, and the end of the year – the Vocabulary subtest of the Inter American Reading Test was used. The results show that the relationship between reading and phonological awareness is complex. Therefore, it should be considered a process of constant interaction among both variables. With respect to the correlation between phonological awareness and reading, the analysis exhibited a moderate positive association (r=.486, p=.01), indicating that children with greater achievements in metaphonological tasks tend to perform more efficiently in word reading tasks.

In short, it is clear that phonological awareness is the most stable and important predictor in the acquisition of the specifics of reading/writing, word recognition, (Lonigan, Burgess & Anthony, 2000, quoted in Hogan, Catts & Little, 2005; Wagner, 1997; Scarborough, 1998, in Beltrán et al., n.d.; Defior & Serrano, 2011b), due to the fact that it makes children understand the relationship between the written language and the oral language through systematic and explicit tasks, besides facilitating the decoding process. Consequently, it is critical to study such relationship in our population

because the data obtained will allow us to optimize both abilities to thus contribute to the successful acquisition of alphabetic principle with accuracy, fluency and speed in early childhood, that will have an impact on the school performance in general of our students.

Hypothesis

There is a significant relationship between phonological awareness and lexical processes in reading in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

Based on this hypothesis, the following specific hypotheses were considered:

1. There is a significant relationship between the identification task of phonological awareness and the lexical processes in reading in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

2. There is a significant relationship between the addition task of phonological awareness and the lexical processes in reading in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

3. There is a significant relationship between the omission task of phonological awareness and the lexical processes in reading in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

4. There is a significant relationship between the syllable knowledge and the lexical processes in reading in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

5. There is a significant between the phoneme knowledge and the lexical processes in reading in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

Method

A correlational research was used (Hernández, Fernández & Baptista, 2010)

for the purpose of determining and explaining the relationships between the scores of the variables (phonological awareness and lexical processes in reading) in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

The research design was non-experimental and longitudinal (Hernández, Fernández & Baptista, 2010) as the variables were analyzed from observation in its natural context with respect to the participants when they were in 5-year-old kinder (phonological awareness) and then in 2nd grade (lexical processes in reading).

Participants

This study comprise thirty six 2nd grade students (19 girls and 17 boys) from a public school in the city of Lima that were initially part of the national sample (1564 boys and girls) of a study conducted in 2009 describing the profile of the auditory status, vocabulary, articulation of speech sounds and phonological awareness in Peruvian 5-year-old children (CPAL, 2010).

It was considered as inclusion criteria that the students were assessed in phonological awareness in 2009 and in lexical processes in reading in 2011, and that they have not repeated any grades.

Instruments

Phonological Awareness Assessment Test - PECO

The Phonological Awareness Assessment Test (PECO), prepared by Ramos and Cuadrado (2006), is aimed at assessing the level of syllabic and phonemic awareness knowledge i.e. the ability of the student to reflect on and intentionally manipulate the syllables and phonemes forming the words.

The PECO is composed of 6 activities, distributed in 3 tasks for both the syllabic level and the phonemic level. These activities are as follows:

– Identification: It consists in recognizing the syllable and/or the phoneme in a given word. Five images are shown to the child, and he or she is asked to point at the image containing the verbalized syllable or the phoneme.

– Addition: It consists in adding the syllable and/or the phoneme given to form a word. The child is asked to say the word formed by adding the given syllable or phoneme. Cards are used to represent the syllables or phonemes of the words.

– Omission: It consists in deleting a certain syllable and/or phoneme of a word, indicating the remaining part. A drawing (five in total) is shown to the child and he or she is asked to say the name of the drawing, but deleting the indicated syllable or phoneme.

– The scores of the identification, addition and omission tasks, for both syllable and phoneme knowledge, are added to obtain the score of the levels of phonological awareness.

– With respect to scoring, the highest score is 30 – 1 point for each correct answer and 0 for each error. After three consecutive attempts to explain the activity, a score of 0 is granted if the activity has not been understood and it continues with the next task.

– In relation to the psychometric characteristics, the test prepared by the Peruvian Center for Audition, Language and Learning (CPAL in the media) was adapted and validated. The reliability was verified using the Cronbach ´s Alpha coefficient, with a score of .868, and the validity was estimated through a principal components factor analysis with Varimax rotation, showing that the PECO test meets its objective.

Lexical Processes Subtests of the Battery for Reading Processes Assessment, Revised - PROLEC R.

The battery was developed by Cuetos, Rodríguez, Ruano and Arribas (2007), and adapted for the city of Lima by Cayhualla, Chilón and Espíritu in 2010.

For the purpose of this research, only the subtests constituting the lexical processes dimension were used. They are shown below:

– Word reading: It assesses recognition and reading of known words i.e. the use of the direct route for word recognition. This subtest presents a total of 40 words – 20 words with high frequency of use and 20 words

with low frequency of use, balanced with respect to syllable structure and length. The score of the task or reading ability index is obtained from the secondary indexes of accuracy, between 0-40, and time of reading.

– Pseudo-words reading: It assesses the pronunciation of new or unknown words i.e. the use of the phonological route to word recognition. This subtest is comprised of 40 pseudo-words, constructed by changing one letter or two letters in each term of the list of words of the previous task. Both lists share very similar characteristics, since they have the same length and the same syllabic structure. The score obtained is similar to that of the previous subtest.

Procedure

Tests performed on participants were conducted twice. In the first stage, conducted in 2009, a test was performed at the beginning of academic year on children of kindergarten (5 years) from state schools as a part of a national study, with PECO test. From this group, 46 students from a Lima educational institution were selected. The second test, conducted in 2011, applied subtests of PROLEC-R battery lexical processes only to 36 students finishing the second grade of primary education from the abovementioned educational institution. At the end, we counted on that number of participants due to the following reasons: some students repeated the academic grade; others were withdrawn from the school and/or had not taken 2009 test. Then, we proceeded to prepare the database and conduct the statistical analysis on SPSS 17.0 program.

Results

Descriptive Analysis

The goodness of fit to the normal curve analysis was performed with Kolgomorov-Smirnov test in the study variables. Results state that the phonological awareness addition and omission tasks as well as the task of word reading in secondary precision and velocity indexes of reading lexical processes have no normal distribution. On the contrary, the identification task and the total phonological awareness score as well as the task of reading lexical process pseudo-word reading show such a distribution. Therefore, a

data statistical analysis was performed with non-parametric tests (see table 1).

Table 1.
Descriptive Statistics and Kolgomorov-Smirnov Goodness of Fit to Normal Curve Analysis

Variable	Task / area	M	D.E.	Kolmogorov-Smirnov Z	p
Phonological Awareness	Syllabic identification	2.64	1.125	1.255	.086
	Phonemic identification	2.47	1.540	1.150	.142
	Identification	5.11	2.188	.832	.493
	Syllabic addition	1.03	1.483	2.202	.000
	Phonemic addition	.42	1.052	2.924	.000
	Addition	1.44	2.286	2.084	.000
	Syllabic omission	1.92	1.842	1.439	.032
	Phonemic omission	.00	.000		
	Omission	1.92	1.842	1.439	.032
	Total	8.47	5.256	.760	.610
Lexical processes of Reading	Word Reading – Reading skill	55.53	21.435	.559	.914
	Word Reading – Precision	37.53	3.509	1.488	.024
	Word Reading – Velocity	79.61	38.649	1.412	.037
	Pseudo-word Reading – Reading skill	41.19	12.273	.657	.781
	Pseudo-word Reading – Precision	35.47	3.605	.882	.417
	Pseudo-word Reading – Velocity	93.97	29.87	.991	.279

$p < .05$
N=36

Hypothesis Testing

Phonological Awareness and Reading Lexical Process Tasks

Table 2 shows that correlations between the task of syllabic type identification and word reading in reading skill and velocity indexes are moderately low and significant. It was found that in the case of velocity score, said correlation is negative (r_s= -.337). In addition, the result of correlation between syllabic identification and pseudo-word reading in the efficacy index was low,

positive and significant (r_s= .365; p< .05).

Table 2.
Spearman's Correlation between Identification Task and Lexical Processes

Correlation	r_s	p
Syllabic identification – Word Reading / Reading ability	.364	.029
Syllabic identification – Word Reading / Precision	.206	.227
Syllabic identification – Word Reading / Velocity	-.337	.045
Phonemic identification – Word Reading / Reading ability	.090	.600
Phonemic identification – Word Reading / Precision	.085	.621
Phonemic identification – Word Reading / Velocity	-.083	.630
Syllabic identification – Pseudo-word Reading / Reading Ability	.365	.028
Syllabic identification – Pseudo-word Reading / Precision	.208	.223
Syllabic identification – Pseudo-word Reading / Velocity	-.290	.086
Phonemic identification – Pseudo-word Reading / Reading Ability	-.002	.990
Phonemic identification – Pseudo-word Reading / Precision	.085	.621
Phonemic identification – Pseudo-word Reading / Velocity	-.016	.926

p < .05
N=36

Upon relating the syllabic omission task with reading lexical processes, it was found that there is a low, positive and significant correlation only with the score of pseudo-word reading skill index (r_s= .336) (see table 3).

Table 3.
Spearman's Correlation between Syllabic Omission and Lexical Processes

Correlation	r_s	p
Syllabic identification – Word Reading / Reading ability	.289	.088
Syllabic identification – Word Reading / Precision	.121	.484
Syllabic identification – Word Reading / Velocity	-.257	.131
Syllabic omission – Pseudo-word Reading / Reading Ability	.336	.045
Syllabic omission – Pseudo-word Reading / Precision	.281	.096
Syllabic omission – Pseudo-word Reading / Velocity	-.214	.209

p < .05
N=36

Lastly, no correlation was found between the addition task of phonological awareness and word and pseudo-word reading areas of reading lexical processes. Similarly, there is no correlation between syllabic and phoneme levels of phonological awareness with lexical processes.

Phonological Awareness and Reading Lexical Processes

It is seen that there is no relationship between global score of phonological awareness and reading lexical processes in two areas: word and pseudo-word reading (see table 4). Similarly, the general hypothesis of this study is rejected.

Table 4.
Spearman's Correlation between Phonological Awareness and Lexical Processes

Correlation	r_s	p
Syllabic identification – Word Reading / Reading ability	.289	.088
Syllabic identification – Word Reading / Precision	.121	.484
Syllabic identification – Word Reading / Velocity	-.257	.131
Total Phonological Awareness – Pseudo-word Reading / Reading Ability	.228	.181
Total Phonological Awareness – Pseudo-word Reading / Precision	.207	.227
Total Phonological Awareness – Pseudo-word Reading / Velocity	-.157	.361

$p < .05$
N=36

Since low correlations were obtained and, in some cases, they were insignificant between scores of study variables, no multiple regression analysis was performed to establish predictors in lexical processes with data obtained in the sample.

Discussion

Considering that phonological awareness and word recognition (reading lexical processes) are a transcendental mechanism for acquisition of specific reading and writing activities, it is decided to conduct this research in order to become aware of the way these abilities are related in the group of children under study.

Regarding the first specific hypothesis, this one is corroborated in part. Results obtained evidence a significant correlation between the task of syllabic identification and word reading in reading ability (r_s=.364) and velocity (r_s= -.337) indexes. In addition, a significant correlation between syllabic identification and pseudo-word reading skill index is seen (r_s=.365). These findings would be explained since the identification task has a high level of acquisition; i.e., it is easier to be achieved since complexity degree is lesser, but at syllabic and phoneme level, during the initial stage of reading, according to the results obtained by Aguilar et al. (2011).

Regarding the third hypothesis, results show a significant correlation between the task of syllabic omission and pseudo-word reading in reading skill index (r_s=.336). Omitting is a complex task because it requires a bigger level of abstraction and cognitive reasoning, as stated by Pérez and González (2004) who in the course of their research saw no scores in the tasks of omission and addition both of syllables and phonemes or in the group without any experience in learning to read or in this learning field. This might justify the result to which we refer in this paragraph and also the reason for which no relationship was found between the task of addition and reading lexical processes.

Obtaining favorable results in correlations of tasks of identification and syllabic omission with some lexical process indexes may be related to the conclusion proposed (González, 1996, cited in Pérez & González, 2004) stating that syllabic knowledge is developed spontaneously thanks to the influence of characteristics of our language, and upon commencing a written language teaching process, this knowledge notably improves. That is, since our written language is transparent and syllabic, syllabic knowledge levels increase since they come into contact with reading and writing as well as the characteristics of our oral language.

However, no significant relationship was seen between the global score of phonological awareness, measured in kindergarten (5 years), and the reading lexical processes, evaluated in primary education (second grade); therefore, the general hypothesis of this study is rejected. This result is very far from the findings of Hogan, Catts and Little (2005) whereby a strong correlation between phonological awareness and word reading is found in

primary education (second grade), and the ones of Muñoz (2002), whereby a moderate and positive association between phonological awareness and reading is found; or from the results obtained through the study conducted by Aguilar et al. (2010) whereby significant correlations between phonological awareness and word reading in precision, velocity and reading ability indexes were found, but in the case of pseudo-word reading only a significant relationship with reading skill index was found.

On the other hand, this result might be also understood due to the absence of correlation between tasks of phonemic type and/or phonological awareness levels, and reading lexical processes. This lack of relationship between activities and/or phonemic knowledge level and lexical processes would be justified because the development of this type of knowledge depends on the interaction with written language learning (Defior, 1994, cited in Pérez & González, 2004); in this way, from age 6 commences the increase of this ability both at qualitative and quantitative level. That is, we could infer that the teaching factor would not be complying with the role aimed at favoring this learning according to the school year.

Upon the analysis of the foregoing, we could consider then that teaching methodology would be an aspect that would explain best the results obtained. It is clear that the development of syllabic knowledge commences before the child is exposed to explicit teaching of writing and reading and with which an increase is considerably seen (Herrera & Defior, 2005; Pérez & González, 2004); while phonemic knowledge requires formal learning of reading to start, being developed gradually thanks to the reciprocal interaction established (Muñoz, 2002; Alegría, 2006, cited in Aguilar et al., 2011). Thus, this proposal supports bi-directional hypothesis of phonological awareness relationship and reading skill for recognition of the word, since it is expected that while greater the proficiency in reading competency is, a better performance in phonological awareness is achieved. Moreover, we can analyze and question what type of capacities and contents are explicit about phonological awareness in official documents of the Ministry of Education (DCN, maps and learning routes), which ones are scheduled and which strategies are used from kindergarten (3 years) to second grade of primary school. Word recognition automation must be ended with accuracy, fluency, and velocity upon the end of this grade so that from the third grade

of primary school, the students can consolidate this process and use it efficiently in different areas of knowledge. To this effect, conclusions and recommendations from different studies propose to design and incorporate into the curriculum and the scheduling of the abovementioned school grades and years, recreational activities which allow children to focus on and become aware of phonological awareness, taking into account sequencing those activities according to the type of task (analytical or synthetic), linguistic level (syllables or phonemes) and level of difficulty (Aguilar et al., 2011; Pérez & González, 2004), suggestions that we also share for macro and micro levels of our educational system.

Conclusions

The results obtained from this research allowed reaching the following conclusions:

- There is no significant relationship between phonological awareness and reading lexical processes in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

- There is significant relationship between the task of syllabic identification and word reading in velocity and reading skill indexes as well as reading of pseudo-words in reading skill index in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

- There is a significant relationship between the task of syllabic omission and reading of pseudo-words in reading skill index in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

- No evidence of a significant relationship between the task of addition and reading lexical processes in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

- There is no significant relationship between syllabic knowledge of phonological awareness and reading lexical processes in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

- No evidence of a significant relationship between phoneme knowledge

of phonological awareness and reading lexical processes in 5-year-old kinder and 2nd grade students from a school in the city of Lima.

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