

PHONOLOGICAL AWARENESS IN ILLITERATE ADULTS

Consciência fonológica em adultos não alfabetizados

Adna Pontes Neves Lopes⁽¹⁾, Carla Alexandra da Silva Moita Minervino⁽¹⁾

ABSTRACT

Purpose: to analyze the estimation of ability in phonological awareness of illiterate adults. **Methods:** forty four adults, over the age of twenty eight and of both sexes, participated in the survey. The adults were divided into two groups, namely: (1) illiterate, and (2) literate in childhood. The following instruments were used: Data on demographic data; Predictors of Reading Skills (THPL) test consists of tasks of rhyme, alliteration, and segmentation, administered individually and on a tablet. **Results:** it occurs a significant difference in estimating ability in phonological awareness between the two groups. It is noteworthy that the ability to rhyme in the task was significantly higher in adult literacy. It was observed that the task of segmenting words has been considered more difficult. The results suggest a standard of skill, namely Alliteration > rhyme > targeting. An interesting finding relates to the execution time of the task, it was found that there was a statistically significant difference with regard to the execution time of the tasks of alliteration, rhyme and segmentation between the two groups. **Conclusion:** when verified the correlation between runtime and skill in the task, it was revealed that the correlation did not occur in both groups the same way: the group of positive correlation literate and illiterate group of negative correlation.

KEYWORDS: Reading; Phonetics; Educational Status

■ INTRODUCTION

The act of reading, though it seems natural to men, is a skill that must be taught and learned. Differently from speech, which is a skill that is interconnected with human genetics and enables the child to differentiate speech sounds from the first months of life, the act of reading requires a neural modification that gives conditions for decoding the graphics and sound symbols that represent speech. It is an ability learned through teaching and, although it seems a simple task, it is a complex and multifaceted act involving social, cognitive, emotional and environmental factors.

The *11th Education for All Global Monitoring Report*¹ reveals that ten countries account for 72% of the percentage of illiterate adults in the world. Among them, Brazil is in the 8th place, and, although there are government initiatives like the programs

Literate Brazil and Youth and Adult Education (EJA) in an attempt to help solve this social deficit, there is still much to do. Countries with high illiteracy rates are marked by a lack of social and economic development¹.

Reading is to make sense of what is read, so it can be inferred that there is no reading if there is no understanding². Obviously, it is a process that leads the subject to extract meaning from information contained in a text. It is beyond decoding a symbol or grapheme-phoneme correspondence³. To achieve a full understanding of a text, it is necessary that the individual has automated the process of decoding written words.

Phonological awareness, which is one of the skills that foster the learning to read, may be understood as the ability to perceive that speech can be decomposed into phonological units (sentences, words, syllables and letters), and such units can be manipulated to form new words and to create new meanings⁴⁻⁶. This skill is acquired according to the degree of complexity, going from the simplest to the most complex process: Word - Syllable - Phoneme⁴.

⁽¹⁾ Universidade Federal da Paraíba (UFPB), João Pessoa, Paraíba, Brasil.

Source of financial support: CNPq

Conflict of interest: non-existent

Phonological awareness is divided into levels: syllable awareness, awareness of intra-syllabic elements and phonemic awareness. The syllable awareness and intra-syllabic elements allow the person to recognize rhymes, similar phonological units at the end of words (*mamão/fogão*), and also to recognize similar phonological units at the beginning of words (*pata/panela*) that are called alliterations^{4,7}. The syllable and phoneme awareness, besides helping in reading acquisition, is a strong predictor for the writing domain. Among all these tasks, phonemic awareness is considered the most complex level of phonological awareness^{4,8}.

Since the 70s, there is research^{4,7,9-15} investigating the importance of phonological awareness to reading acquisition. Among these surveys, it is emphatic that this skill is a facilitator for learning to read. It was also found that training in phonological awareness contributes to overcoming difficulties in reading^{5,16,17}. Correia and Martins¹⁸ stated that phonological awareness has proved to be the most significant skill for the reading domain in adults in the literacy process. Research with illiterate and literate adults assessed the performance in phonological awareness skills, effectively revealing that the group of illiterate adults showed lower performance in these skills, while the group of literate adults denotes the consistency and permanence of these skills.

The illiterate adults performed better on tasks of rhyme, alliteration, and segmentation of syllables than in phonemic segmentation tasks¹⁹. Some factors contributing to failure in performance in phonological awareness among illiterate adults were a result of the lack of formal education and low socioeconomic level¹⁹⁻²³. In particular, the underperformance of illiterate adults in tasks involving phonemic segments is highlighted, more than in tasks involving syllables, or with rhyme detection. The authors report that the ability to detect rhyme and the ability to segment syllables are influenced by the literacy process. However, there is no correlation between performance in both tasks, which means that skills would not be interdependent²⁴. In particular, the discovery means that the segmentation abilities do not depend on previous development to identify sounds aspects of speech, therefore, the person may be able to segment syllables, even if the person is not able to appreciate the sound of similarity, and vice versa²⁴. However, research on the performance in phonological awareness skills in illiterate adults is still the subject of much speculation. According to Lopes, in a systematic review on the topic of phonological awareness and reading including samples with children, adolescents and adults between 2000 and October 2013, in a selection of 37 articles that

researched on the subject, only four articles included adults in their sample.

Knowing that Brazil is eighth in the world ranking of countries with the highest rate of illiterate adults, and phonological awareness being observed as a strong facilitator ability to acquire reading, this research aimed to analyze the estimate of ability in phonological awareness of illiterate adults.

■ METHODS

Participants

This research was accepted by the Ethics Committee of the Federal University of Paraíba with the number of Protocol 377.659. Data collection was conducted with the voluntary participation of the subjects who signed a free and informed consent form. The participants were 44 adults, 26 females and 18 males, aged between 28 and 56 years ($M = 40.9$; $SD = 7.6$). For the sample selection, a convenience sampling technique was used. The subjects were divided into two groups, one of illiterate adults, and the other of literate adults. The illiterate adults were students from an extension project called *Zé Peão* from an institution with projects aimed at adult literacy in the city João Pessoa-PB.

The following inclusion criteria were considered: subjects without any suspicion of mental retardation; they could not be attending literacy classes for more than two months, except if after this period they had not mastered reading and writing skills yet. Because of the difficulty in finding illiterate subjects in the education systems, illiterate adults who did not participate in a literacy program were also included. Literate subjects were selected by convenience from the researcher networking, given the criteria they were close in age to the illiterate subjects.

Instruments

To address the objectives of this research, the following instruments were used: Form with questions about sociodemographic data to collect general data about the participant; Predictors of Reading Skills Test (THPL), which is a computerized test developed by Moita et al. (2014)²⁵, aiming to analyze cognitive skills related to reading competence. This is an instrument based on Item Response Theory and Computer Adaptive Testing (IRT).

The THPL consists of rhyming tasks, alliteration, segmentation (phonological awareness) and visual memory. The tasks are displayed in a virtual space to be answered individually, with the help of a mobile device (tablet). In rhyme and alliteration tasks, a stimulus figure (with sound representation) and three test figures are presented; among the test figures,

one of them rhymed or alliterated with the stimulus figure. In the segmentation task, a stimulus figure (with the sound representation) and five possible answers that may correspond to the number of segments are presented, however, there is only one possible correct response. The THPL enables the researcher to have an immediate access to the individual performance of the examinee after the completion of the test. The results are available to the system user (researcher) and the system administrator.

The THPL database consists of items with various levels of difficulty, however, as the items are answered, the following ones vary according to the level of difficulty. Due to this adaptation of the instrument to the ability of the examinee, at the beginning of the test all the respondents get questions with the same level of difficulty, however, throughout the test each person will have responded to a different set of items. In the present study, rhyming, alliteration and segmentation tasks were used.

Procedures

The application of THPL, instrument used in this study, was done with a tablet (Operating System IOS 7) and, when necessary, the participants had

headphones at their disposal for better understanding of the task. The test was applied individually and each participant spent 30 minutes in average for completing the test. The participants were informed that their names and responses would be kept as confidential.

The results of the demographic data sheet classified the gender, age and profession of the participants. Statistical analysis applied to data obtained through THPL used the Mann Whitney U test with a significance level of $p < 0.05$.

RESULTS

The results will be presented to meet the proposed objectives. Referring to sociodemographic data sheet, the results classified the gender, age and profession of the participants. Regarding gender, the sample of this research consists of 44 subjects in total, 26 females and 18 males, aged between 28 and 56 years ($M = 40.9$; $SD = 7.6$). In regard to professional field, the subjects were classified in five main areas: autonomous, civil engineering, students, civil servants and domestic service. The frequency of occurrence of professions, which were separated by groups analyzed, are shown in Figure 1.

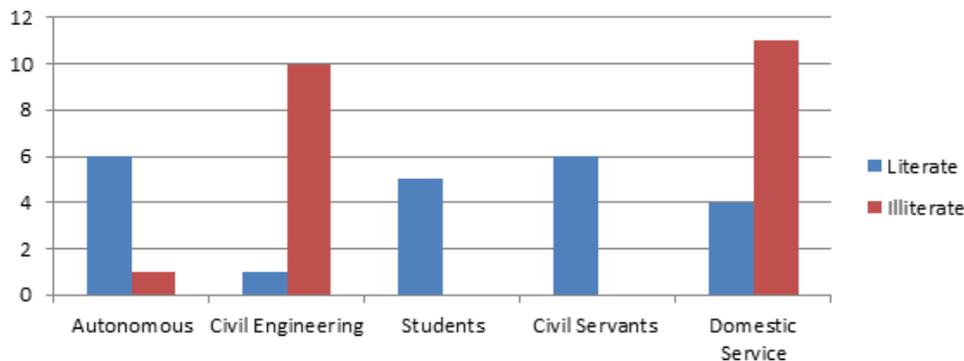


Figure 1 – Frame rate professional sample

Statistical analysis applied to data obtained through THPL resulted in the estimates of skills/proficiency of each individual. Descriptive statistical analyzes to obtain mean, median, standard deviation, minimum and maximum were carried out.

Considering that all the measures used are classified as interval and each group had less than 30 participants, tests of normality and homogeneity of variance were performed to verify if the

assumptions of parametric analysis would be met (Kolmogorov-Smirnov normality test). Normality and homogeneity of variance were not found in all of the conditions involved in the analysis ($p < 0.05$). Due to the specificity of the groups, non-parametric tests were performed. The Mann Whitney U test with level of significance $p < 0.05$ was used to compare groups.

Table 1 summarizes the descriptive results (mean, standard deviation, minimum and maximum) for the percentage of correct answers in the tasks proposed to the two groups analyzed [literate adult (LA) and illiterate adults (IA)]. Both groups analyzed (LA and IA) had better results in the performance of the alliteration task (approximately 90% and 98% correct answers respectively). It is important to mention that literate adults had a higher percentage of correct answers in all three tasks analyzed.

It is observed that the task of segmenting was possibly the most difficult task to be performed by the illiterate group, a fact that can be seen from the difference between the percentages of correct answers in the tasks (Table 1).

The data in Table 2 present some descriptive measures of the skills of literate and illiterate adults in rhyming, alliteration and segmentation tasks. It is noteworthy that the scale of THPL's ability ranges from -3.0 to +3.0.

Table 1 – Descriptive statistics of the results of the phonological awareness tasks*

%	Literate			Illiterate		
	Alliteration	Segmentation	Rhyme	Alliteration	Segmentation	Rhyme
Mean	98,86	83,92	95,38	90,34	72,12	73,14
Median	100,0	87,50	100,0	89,44	72,50	70,00
SD**	3,68	9,82	9,68	7,72	14,06	15,07
Minimum	87,50	62,50	62,50	75,00	50,00	44,44
Maximum	100,0	100,0	100,0	100,0	100,0	100,0

*Considered the correct percentage for each task, because of the adaptive nature of the Predictors of Reading Skills Test.

** Standard Deviation

Table 2 – Ability estimate in phonological awareness (rhyme task, and segmentation alliteration) groups in adult the literate and illiterate

	Literate **			Illiterate **		
	Alliteration	Segmentation	Rhyme	Alliteration	Segmentation	Rhyme
Mean	2,75	1,20	2,64	1,73	0,49	0,62
Median	3,00	1,08	3,00	1,75	0,43	0,51
SD***	0,83	0,62	0,81	1,11	1,14	1,59
Minimum	-0,554	0,507	-0,023	-0,554	-3,000	-0,538
Maximum	3,000	3,000	3,000	3,000	3,000	3,000

*values for the level of skill ranges may vary from -3 to +3

** in all estimates of skills there was significant difference between groups ($p = 0,001$)

*** Standard Deviation

In Table 2 it is noticed that, as well as the results for percentage of success, the LA showed better results than IA in estimates of the phonological awareness skill and the ability in rhyme task that showed an average difference of 2.02 was highlighted. The data show that the average skill in alliteration (2.75 and 1.73 respectively) was higher than in segmentation and rhyme in both groups and that the segmentation task had the poorest results in both groups. In order to analyze whether such differences would be significant, we used the Mann-Whitney test and according to the results obtained for each task, alliteration ($U = 378.00$ $p =$

0.001), segmentation ($U = 406.00$, $p = 0.001$) and rhyme ($U = 432.00$, $p = 0.001$), the values obtained were statistically significant in all cases ($p = 0.001$).

The results suggest that the same standard of skill happened for the two groups as presented here (from the highest to the lowest): Alliteration > rhyme > segmentation. In this sense, there is the hypothesis that alliterating is easier than segmenting for the groups analyzed.

An average estimate of ability in phonological awareness (alliteration + rhyme + segmentation) obtained by groups through THPL was observed

after analyzing the results by task. Table 3 summarizes the results.

The results presented in Table 3 suggest that there is a statistically significant difference ($U =$

437.5, $p < 0.0001$) in the ability to phonological awareness between the two groups analyzed. Thus, it is observed that the literate group obtained better results than the illiterate group.

Table 3 – Ability estimate of average phonological consciousness in thpl*

	Literate	Illiterate
Mean	2,18	1,02
Median	2,31	0,87
SD**	0,40	-0,73
Minimum	1,178	-0,582
Maximum	3,00	2,836

* Test *Mann Whitney* = 437,5; $p < 0,0001$

** Standard Deviation

Table 4 summarizes the results of descriptive statistics (mean, median, standard deviation, minimum and maximum values) for the time spent on each task analyzed (alliteration, rhyme and segmentation). It is observed that alliteration task required more time to be performed in both groups

investigated, followed by the rhyme and then the segmentation task. Thus, with respect to time spent on the performance of the task, there is the following analysis: alliteration > rhyme > segmentation for both groups. However, the literate group took less time than the illiterate group to perform each task.

Table 4 – Description of time spent in descriptive values each task

	Literate			Illiterate		
	Alliteration	Segmentation	Rhyme	Alliteration	Segmentation	Rhyme
Mean	364,50	206,82	320,23	441,23	349,59	431,50
Median	379,00	203,00	335,50	452,50	292,50	406,00
SD***	166,17	43,99	64,75	144,74	152,64	156,77
Minimum	156	156	181	243	203	173
Maximum	742	749	820	855	358	423

* the measure of this time reported in seconds

** values $p < 0,05$

*** Standard Deviation

It was found that there were statistically significant differences with regard to the execution time of alliteration, segmentation and rhyme tasks ($p = 0.05$; $p = 0.001$; $p = 0.004$, respectively) between the two groups.

Finally, the relationship between time and an estimated average of skill in each task performed by groups was verified. The results suggest the existence of positive and significant correlation in the segmentation and rhyme task in the group of literate adults ($r = 0.59$; $p = 0.0004$ and $r = 0.56$; $p = 0.007$, respectively), it was identified that the longer the individual used to perform the main task

the higher his skill was. However, there was no correlation between time spent on performance and alliteration task in the literate group.

With regard to the illiterate group, it was observed only positive and significant correlation between time spent on performance and alliteration task ($r = 0.58$; $p = 0.004$). Although the occurrence of correlation between time spent and segmentation task is not significant, it is highlighted that the correlation was negative ($r = -0.26$; $p = 0.23$), fact that did not occur in other tasks. Therefore, the greater the ability is, the lower the time spent on performance possibly is.

■ DISCUSSION

This study aimed to analyze to estimate the ability in phonological awareness in illiterate adults. The study included literate and illiterate adults who were participating in literacy programs. All participants were subjected to tests that assessed the ability and performance in alliteration, rhyme and segmentation tasks.

In this study it was observed that: (1) there are differences in performance and ability to rhyme, alliteration and segmentation tasks between illiterate and literate adults; (2) the task of segment was the most difficult to perform; (3) the alliterate task was the easiest to be performed; (4) the pattern of difficulty in both groups was (from the easiest to the most difficult) alliterate > rhyme > segmentation; (5) regarding the standard time spent on performance, the following order (from the fastest to the slowest) was observed: segment < rhyme < alliterate.

The results revealed that the illiterate group obtained underperformed literate adults in all phonological awareness tasks analyzed. Similar performance was found in other studies that compared children with reading difficulties and children without reading difficulties^{9,16,26} and literate adults with literate adults^{19,27}.

The facility for the alliteration task, followed by the rhyming task and then the difficulty to perform the segmentation task in the group of illiterate adults, coincides with the same pattern of ability in pre-reading children as Dias and Minervino²⁸ and Pereira and Minervino²⁹ who also used the THPL to assess the level of performance in pre-reading children and children beginning to read. Partially similar results were found in studies in which illiterate young people and adults were compared, at the beginning and end of the school year in the literacy process, pointing out a hierarchy of difficulty in phonological awareness skills, having the task of sounds segmentation as the most difficult one. However, the easiest task was rhyming followed by alliteration. Despite this difference in rank position, a significant correlation between reading performance at the end of the school year with the performance in rhyme judgment task and targeting^{20,27} was found.

As it already mentioned, phonological awareness is a skill that is positively correlated with the development of reading^{4,7,9-15}. Among the abilities that make the phonological awareness, the ability to segment demands from the reader attention to speech sounds. The reader must be able to identify the syllables that make up a word, and each phoneme making up a syllable. This sound reflection of the word requires activation of their phonological and mental lexicon memory^{10,14}. So, to

perform segmentation tasks – whether in syllabic, intra-syllabic or phonemic level – the reader needs sound and graphic familiarity with the language⁵. The skills to rhyme and alliterate are easier to be acquired and can arise even before learning the grapheme-phoneme conversion, that is, regardless of school environment⁷.

The ability to segment, especially phonemic segmentation, is one of the most difficult levels to be reached among the phonological awareness skills. With formal teaching this skill is better developed^{4,5,8}. Participants in the group of illiterate adults revealed poor performance in the segmentation task. It is interesting to remember that they were at the beginning of the literacy process. In face of such a result, a hypothesis that the segmentation task is not part or was not yet developed as part of the course content of the Zé Peão and Ibraema program is formulated. The implementation of the segmentation task in the course content could favor, according to the literature, the acceleration of the literacy process.

The findings of Melo and Correia²⁷ strengthen the hypothesis that segmentation ability should be included or better developed in adult literacy programs. It is noticed that when analyzing whether the phonological awareness skills would be the best predictors for the reading performance of illiterate adults, using multiple regression (stepwise) involving judgment of rhyme, segmentation of sounds, beginning level of reading and writing, knowledge of capital letters and lowercase letters and the working memory index, results that indicate segmentation task as a good predictor of progress in the reading among young people and adults evaluated were found.

In a practical perspective, the profile revealed in the evaluated skills showed that the segmentation task was the most difficult to be performed in both groups, with more significant difference in the group of illiterate adults. This result suggests that this ability should be receive attention by adult literacy programs, as previous research showed this to be strongly related to reading skill^{20,27}.

■ FINAL CONSIDERATIONS

This research aimed to examine the ability of illiterate adults in phonological awareness tasks, as this skill is of great relevance to the acquisition of reading. To meet the objectives of this study, the performance level of the subjects evaluated in rhyming, alliteration and segmentation tasks was analyzed. It was observed that the illiterate adult group underperformed the literate adults, revealing that despite mastering oral language and their life

experiences are more improved than in children, the phonological awareness is a skill that can only be fully developed with formal education.

It is known that phonological awareness is not the only skill that favors the learning to read. Other cognitive factors, as well as social, environmental and emotional factors, are part of this process. Thus, in theoretical spheres the results of this study corroborate the research that emphasize the importance of phonological awareness to the acquisition of reading and writing, and add to the research conducted with illiterate adults in order to expand this research area and generate new perspectives of research, focusing on the relationship between

segmentation skills and reading acquisition of illiterate adults.

Adults who intend to learn to read, besides facing socioeconomic barriers, negligence in the physical structure and social prejudice, must face their own fears, prejudice and perceptions in relation to their own potential. There are already many challenges to be faced by this people to get to a learning environment and, above all, facing difficulties with the teaching method is a problem that can be alleviated. It is noteworthy, however, that the results of this research collaborate with the improvement of adult literacy programs.

RESUMO

Objetivo: analisar a estimativa da habilidade em consciência fonológica de adultos não alfabetizados. **Métodos:** participaram da pesquisa 44 adultos, de ambos os sexos, com a idade superior a 28 anos. Os adultos foram divididos em dois grupos, a saber: (1) não alfabetizados, (2) alfabetizados na infância. Utilizou-se os seguintes instrumentos: Ficha sobre dados sociodemográficos; Teste de Habilidades Predictoras da Leitura (THPL), composto por tarefas de rima, aliteração e segmentação, administrados de forma individual e em um *tablet*. **Resultados:** ocorreu diferença significativa na estimativa de habilidade em consciência fonológica entre os dois grupos. Destaca-se que a habilidade na tarefa de rimar foi significativamente superior no grupo de adultos alfabetizados. Observou-se que a tarefa de segmentar palavras foi considerada a mais difícil. Os resultados sugerem um padrão de habilidade, a saber: Aliteração > rima > segmentação. Um dado interessante refere-se ao tempo de execução da tarefa; foi verificado que houve diferença estatisticamente significativa no que se refere ao tempo de execução das tarefas de aliteração, segmentação e rima entre os dois grupos analisados. **Conclusão:** ao verificar a correlação entre tempo de execução e habilidade na tarefa, foi possível perceber que a correlação não ocorreu nos dois grupos da mesma forma: no grupo de alfabetizados houve correlação positiva e no grupo de não alfabetizados correlação negativa.

DESCRITORES: Leitura; Fonética; Escolaridade

REFERÊNCIAS

1. UNESCO. Education for all by 2015. Will we make it?, Paris: UNESCO Publishing & Oxford University Press, 2007.
2. Viana FL, Ribeiro IS, Fernandes I, Ferreira A, Leitão CGS, Gomes S et al. O ensino da compreensão leitora: da teoria á prática pedagógica. Coimbra: Almedina; 2010.
3. Roazzi A, Minervino CASMM, Melo MRA. A aprendizagem da leitura e da escrita: princípios teóricos, históricos, níveis conceituais e aspectos motivacionais do processo de aprendizagem do código alfabético. In: Roazzi A, Paula FV, Santos MJ. Leitura e escrita: a sua aprendizagem na teoria e pratica. Curitiba: Juruá Editora; 2014. p. 19-40.
4. Alves UK. O que é consciência fonológica. In: Lamprecht R, Dutra APB, Scherer APR, Barreto FM, Alves UK, Santos RMS et al. Consciência dos sons da língua: subsídios teóricos e práticos para alfabetizadores, fonoaudiólogos e professores de língua inglesa. Porto Alegre: EDIPUCRS; 2009. p. 31-46.
5. Liberman IY, Shankweiler D, Liberman AM. The alphabetic principle and learning to read. Haskins Laboratories Status Report on Speech Research. 1990;101(102):1-13.
6. Pavão V. Dislexia e disortografia: a importância do diagnóstico. IGT na Rede. 2005;2(3):1-6.

7. Freitas G. Consciência fonológica: rimas e aliterações no português brasileiro. *Letras de Hoje*. 2003;38(2):155-70.
8. Chraim AM. Relações implicacionais entre desenvolvimento da consciência fonológica e instrução alfabética na educação de adultos inseridos em entornos sociais grafocêntricos [dissertação]. Florianópolis (SC): Universidade Federal de Santa Catarina; 2012.
9. Capovilla AGS, Capovilla FC, Suiter I. Processamento cognitivo em crianças com e sem dificuldades de leitura. *Psicologia em estudo*. 2004;9(3):449-58.
10. Viana FL, Teixeira MM. Aprender a ler – da aprendizagem informal à aprendizagem formal. Portugal: Asa; 2002.
11. Barrera SD, Maluf MR. Consciência metalingüística e alfabetização: um estudo com crianças da primeira série do ensino fundamental. *Psicologia: Reflexão e Crítica*. 2003;16(3):491-502.
12. Paula GR, Mota HB, Soares MK. A terapia em consciência fonológica no processo de alfabetização. *Pró-Fono R. Atual. Cient.* 2005;17(2):175-84.
13. Guimarães SRK. Dificuldades no desenvolvimento da lectoescrita: o papel das habilidades metalingüísticas. *Psicologia: Teoria e Pesquisa*. 2002;18(3):247-59.
14. Capellini SA, Conrado TLBC. Desempenho de escolares com e sem dificuldades de aprendizagem de ensino particular em habilidade fonológica, nomeação rápida, leitura e escrita. *Rev CEFAC*. 2009;11(2):183-93.
15. Cardoso AMS, Silva MM, Pereira MMB. Consciência fonológica e a memória de trabalho de crianças com e sem dificuldades na alfabetização. *CoDAS*. 2013;25(2):110-4.
16. Capovilla AGS, Capovilla FC. Efeitos do treino de consciência fonológica em crianças com baixo nível sócio-econômico. *Psicologia: Reflexão e Crítica*. 2000;13(1):07-24.
17. Justino MISV, Barrera SD. Efeitos de uma intervenção na abordagem fônica em alunos com dificuldades de alfabetização. *Psicologia: Teoria e Pesquisa*. 2012;28(4):399-407.
18. Correa MF, Martins CC. O papel da consciência fonológica e da nomeação seriada rápida na alfabetização de adultos. *Psicologia: Reflexão e Crítica*. 2012;25(40):802-8.
19. Mota HB, Romero MV, Kaminski TI, Souza DV, Berticelli A. Desempenho de adultos não-lettrados em avaliação das habilidades em consciência fonológica. *Rev CEFAC*. 2012;14(2):249-53.
20. Melo RB. A relação entre consciência fonológica e a aquisição da leitura e da escrita de jovens e adultos [Tese]. Rio de Janeiro (RJ): Universidade Federal do Rio de Janeiro; 2006.
21. Mota MMEP, Castro NR. Alfabetização e consciência metalingüística: um estudo com adultos não alfabetizados. *Estudos de Psicologia*. 2007;24(2):169-79.
22. Moussinho R, Correia J. Habilidades lingüístico-cognitivas em leitores e não leitores. *Pró-Fono R. Atual. Cient.* 2009;21(2):113-8.
23. Ardila A, Bertolucci PH, Braga LW, Caldas AC, Judd T, Kosmidis MH, Matute E, Nitri R, Solis FO, Rosselli M. Illiteracy: The Neuropsychology of Cognition Without Reading. *Archives of Clinical Neuropsychology*. 2010;25:689-712.
25. Moita PMS, Minervino CASM, Chambel MTC. Tecnologia a favor da leitura: construção de um instrumento adaptativo informatizado. Atas do 10o. Encontro Nacional - 8o. Internacional - de investigação em Leitura, Literatura Infantil e Ilustração. Portugal: Fundação Calouste Gulbenkian, 2014.
24. Morais J, Content A, Bertelson PCL, Alegria J. Literacy training and speech segmentation. *Cognition*. 1986;24(1-2):45-64.
26. Capellini SA, Lanza SC. Desempenho de escolares em consciência fonológica, nomeação rápida, leitura e escrita. *Pró-Fono R. Atual. Cient.* 2010;22(3):239-44.
27. Melo RB, Correa J. Consciência fonológica e a aprendizagem da leitura e escrita por adultos. *Estudos e pesquisa em Psicologia*. 2013;13(2):460-79.
28. Dias ÉB, Minervino, CASM. Palavras são palavras rimadas ou aliteradas: análise da relação da complexidade das propriedades da palavra no desempenho de crianças nas tarefas de detecção de rima e aliteração [Monografia]. João Pessoa (Pb): Universidade Federal da Paraíba; 2013.
29. Pereira EELD, Minervino CASM. Palavras em pedaços; pedaços de palavras: Análise do Desempenho de Pré-Leitores e Leitores Iniciantes em Tarefa de Segmentação [Monografia]. João Pessoa (PB): Universidade Federal da Paraíba; 2013.

Received on: November 04, 2014

Accepted on: February 27, 2015

Mailing address:

Adna Pontes Neves Lopes

Rua Farmacêutico Vimário Lacerda Neri, no. 110 / aptº 211, Resid. Candido Portinari, Cuiá

João Pessoa – PB – Brasil

CEP: 58075-640

E-mail: adna_pns@hotmail.com