

Original paper

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Phonemic Awareness as an Indicator of Preliteral Abilities in Serbian Speaking Children With and Without Specific Language Impairment

Abstract: *This study is based on theoretical and empirical understanding of phonemic awareness in Serbian speaking children with and without specific language impairment (SLI). The aim of this paper is to compare the phonemic awareness in children with SLI and children with typical language development (TLD) who are between 5.11 and 7 years of age. This study included 40 participants with SLI and 80 participants with TLD. The subtest for evaluation of phonemic awareness from The Test for Evaluating Reading and Writing Pre-Skills – PredČiP (Kuvač Kraljević & Lenček, 2012) was used. Statistically significant differences were confirmed on both tasks of phonemic awareness ($p < .001$). The half of children of the SLI group had borderline or poor achievement, generally lower than children with TLD. Bearing in mind that Serbian language has a regular orthography and clear morphological specificities, compared to most world languages, it is expected that Serbian-speaking children would master phonological awareness tasks more easily. Consequently, we believe that an early detection of phonological disorders is particularly important for the Serbian-speaking children. Having in mind that literature data indicate that children who, prior to starting school, are diagnosed with SLI, later encounter interference with reading and writing, we suggest the implementation of a*

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specific preventive program for developing phonological skills, or training of phonemic awareness, in all children.

Keywords: *phonological ability, phonemic awareness, specific language impairment, typical language development.*

Introduction

Specific language impairment (SLI) is defined as an impairment of spoken language comprehension, production, or both, in the absence of hearing impairment, general developmental delay (i.e., a normal performance IQ), neurological impairment, and autism diagnosis (Vandewalle et al., 2012). SLI is diagnosed when a child's language development is disproportionately poor relative to other skills for no apparent reason (Bishop, Hayiou-Thomas, 2008). The level of disruption of individual linguistic aspects is not the same in all children with SLI. Disturbances can occur in several aspects of language structures, including phonological, morphological, syntactic and lexical-semantic, so that children with SLI are not able to build up their mother tongue despite the otherwise typical development and socio-cultural opportunities (Leonard, 1989). Several research studies done in different languages show that children with SLI specifically manifest deficits in phonological awareness (Cordewene et al., 2012; Larkin et al., 2013; van Weerdenburg et al., 2011). Besides, children with SLI are one of the groups with the highest risk of interferences in the development of the pre-literacy skills and dyslexia, as a result of frequent phonological disorders (Milošević, Vuković, 2011).

Phonological awareness is defined as individual awareness of the sound structure of a language (Peeters et al., 2009). It is a metalinguistic ability that requires explicit knowledge of the different sizes of phonological segments of spoken words (phonemes, syllables, rhymes), equally strong to the conscious ability to notice, contemplate, and manipulate these phonological units. There are several approaches to

the description of phonological abilities. In this paper, we will observe phonological abilities in the context of the Wagner-Torgesen model of phonological processing which perceives phonological processing as a multidimensional capability. According to this model, phonological ability includes three independent, but correlative components: phonological awareness, phonological memory and rapid naming (rapid word recognition) (Torgesen et al., 1994; Wagner, Torgesen, 1987; Wagner et al., 1997). Phonological awareness is a hierarchically organized capability, lined up by the degree of complexity of phonological processing (Peeters et al., 2009). Accordingly, phonological awareness encompasses three levels: the level of rhyme (rhyme awareness), the level of syllable (syllabic awareness), and the level of sound (phonemic awareness).

Phonemic awareness

Phonemic awareness is the ability to understand that a spoken word can be divided into smaller units and that these units can be manipulated. In order for a child to master phonemic awareness, the child must have the ability, although still without knowing the phonological principles, to distinguish phonemes or allophones clearly.

A large number of studies shows that the identification of the first phoneme in the process of phonemic analysis of a word is significantly easier in relation to the last phoneme in the word, which again is easier to detect than the phoneme in the middle of the word (Stage, Wagner, 1992). In addition, the word length (number of phonemes in a word) and the complexity of the word structure have a significant impact on performance in the phonemic anal-

ysis of words (spelling), according to the study on the early spelling skills of children with SLI (Cordewener et al., 2012). Several other authors observed that the ability of spelling was affected also by the type of phonemes or graphemes, and that writing mistakes were more common in writing vowels, further confirming the importance of perceptual abilities in the development of phonological awareness (Wimmer, Landerl, 1997 as cited in Cordewener et al., 2012; Stage, Wagner, 1992)

Phonemic awareness represents the basis of phonological, and indirectly orthographic decoding, i.e. formation of phonological representations, because of which it strongly influences the initial stages of acquiring reading skills (Wagner, Torgesen, 1987). In languages with regular orthography, the phonological structure of the printed word is easily accessible, using a simple form of converting the grapheme into a phoneme. In contrast, in irregular orthography, such as in English or Hebrew, readers are forced to process the printed word by using larger phonological units. Therefore, there are also references to orthographic complexity affecting the connection between reading and phonological awareness (Vaessen et al., 2010).

Unlike the deep orthography of the English language, in Serbian language there is a direct and unambiguous correspondence of graphemes and phonemes, where each letter corresponds to only one sound (a total of 30 characters and the same number of phonemes, of which there are five vowels). Furthermore, phonology does not vary depending on the context and morphology, which places the Serbian language in the group of languages with shallow orthography (Subotić et al., 2012).

Development of phonological skills is a long process, disrupted in a number of children with SLI. Therefore, the objective of this study was to compare the phonemic awareness in children with SLI and children with typical language development (TLD) at the age of 5.11 to 7 years, in order to determine the phonological development disorders in Serbi-

an speaking children with SLI. Phonemic awareness was examined through the phonemic analysis (spelling) and the phonemic synthesis (blending).

Having in mind that this type of research in the Serbian language has not been conducted yet, we believe that the results of this research will contribute to our knowledge about the deficits of the phonemic awareness, that is phonemic analysis (spelling) and phonemic synthesis (blending) in Serbian speaking children with SLI. We begin from an assumption that Serbian speaking children with SLI will have lower phonemic awareness in comparison to children with TLD. The second assumption is that higher achievements on phonemic analysis will be associated with higher achievements on phonemic synthesis in both groups.

Methods

The sample

This cross-sectional study included 120 participants, both genders, aged from 5 years 11 months to 7 years. The sample was divided into two groups: SLI group and TLD group. SLI group included 40 participants with SLI (8 girls and 32 boys), with a mean age of 77.9 months ($SD = 4.47$ months). The children were recruited from the Institute for Psychophysiological Disorders and Speech Pathology "Prof.dr Cvetko Brajovic" in Belgrade, Serbia.

The SLI was diagnosed by qualified speech and language therapists. The following battery of language tests was used in this procedure: *Peabody Picture Vocabulary Test – PPVT-III-HR* (Dunn et al., 2010), *Tests for Speech and Language* and *the Children's Grammar* (Kostić, Vladislavljević & Popović, 1983), *Test for Evaluating Image Description Skills* and *Test for Evaluating Speech Development – Definition Test* (Vasić, 1994).

If a child with no neurological problems, cognitive impairment (i.e. IQ within normal range) or hearing impairment, deviates from what is consid-

ered as typical development in all of the above assessments, then a diagnosis of SLI is given. SLI was formerly known as a developmental dysphasia, a term typically used in Serbia (Vuković, Stojanović, 2011). Although not standardized, the above-mentioned assessments are regularly used in Serbia in all institutions for speech and language therapy. Additionally, the *Revised Weschler's Intelligence Scale for Children* – RWISC, normed on the Serbian population, was administered in the SLI group (Biro, 1997; Vuković et al., 2010). Their full-scale IQ was above 85 and confirmed by an educational psychologist.

The TLD group was a control group and included 80 participants with no speech, language, motor or cognitive development problems (40 girls and 40 boys), with a mean age of 75.9 months ($SD = 4.47$ months). Children with TLD were recruited from two preschool kindergartens, “Pametnica” and “Baby Palace” in Belgrade. There was no statistically significant difference related to the IQ functionality between the two groups; their IQ was between 90 and 110. It was shown previously that the participants of the TLD group had no speech or language, nor motor or cognitive development problems (Vuković et al., 2010).

The research confirmed the statistical difference in relation to the age of participants ($t(118) = 2.34, p = .021$). However, the magnitude of the differences in the means was very small (eta squared = .04). The mean difference in the average age between the two groups was two months, whereas a 95% confidence interval of the difference ranged from 0.31 to 3.74 months. Intendedly, we tried to include in our research children with TLD that are younger compared to children with SLI, in order to show the importance of language delay in children with SLI. The selected methodological approach is not uncommon in this scientific field (Ramus, Marshall, Rosen, & van der Lely, 2013). In relation to gender, there was a statistical difference with a small effect size ($\chi^2(1, N = 120) = 8.79, p = .003, \phi = -0.29$). A larger number of boys in the SLI group is a re-

sult of random sampling, but also speaks in favor of a higher occurrence of language disorders in boys. The differences in the occurrence of language disorders in relation to gender have been confirmed in numerous studies. The higher occurrence of SLI in males compared to females has been found with a ratio from 1.3:1 to 3:1 (Shriberg, Kwiatkowski, 1994; Shriberg et al., 1999; Tomblin et al., 1997). All children (both SLI and TD groups) were monolingual Serbian native speakers.

Measures

To collect the data, the subtest for evaluation of phonemic awareness from *The Test for Evaluating Reading and Writing Pre-Skills* – PredČiP (Kuvač Kraljević, Lenček, 2012) was used. Generally, the PredČiP test is a triage test used to assess a child's linguistic readiness for acquiring the initial academic skills. It consists of tasks for assessment of phonology, phonologic memory, pragmatics, and visual perception. For the purposes of this study, we used the particular segment of the test that covers evaluation of both phonemic analysis (spelling) and phonemic synthesis (blending) called the *phonemic awareness task*.

The task of evaluating phonemic awareness was carried out by using 14 items of the PredČiP test. This phonemic awareness task includes seven tasks of phonemic analysis of sounds in words and seven tasks of the synthesis of sounds into words. Each task has three examples for practice that should be given prior to testing. In the phonemic analysis task, participants were asked to say how many sounds there are in a given word. The number of sounds in the words ranged from three to six. In the phonemic synthesis task, the goal was to create a word from the presented sounds. In this task, the number of sounds ranged from four to nine. In both cases, the selection of words followed the principle of simple to complex, from familiar to less well known, from phonetically detectible and simple to phonetically more demanding, from semantically more com-

mon forms to semantically rarer forms. The theoretical range of results is 0 to 7, where higher results represent better achievement in phonemic analysis or phonemic synthesis. Finally, the achievement of all participants was grouped into three categories (poor, borderline, fine), in accordance with the test instructions (Kuvač Kraljević & Lenček, 2012). The norms for categorizing achievement are presented in Table 1. The internal consistency was examined using the Cronbach's alpha coefficient. The PredČiP test demonstrated excellent reliability ($\alpha = .95$).

Table 1. Norms for categorizing achievement on the phonemic awareness task

Phonemic awareness task	Phonemic awareness (category)		
	Poor	Borderline	Fine
Achievement	0	1–3	4–14

Procedure

The research was conducted during a three-month period, from March to June 2017. The children were individually assessed on the PredČiP test according to the test manual instructions (Kuvač Kraljević, Lenček, 2012). The selected set of phonological tasks from the PredČiP test was administered by a qualified speech and language therapist. The examiner was experienced in the PredČiP test administration. Prior to the testing of language abilities, the speech and language therapist introduced herself to the child and explained that they would spend some time together and get to do some tasks. The appropriate breaks were given to the child when needed. In order to avoid fatigue, the testing was split in two sessions conducted on two different days. Prior to the testing, all parents of examined children provided signed and informed consent and all children gave their verbal consent.

Statistical analysis of the data

First, descriptive statistics was calculated. Next, in order to test the differences between two groups in relation to age, *t*-test for independent

samples was used, whereas Chi-square test was used to test the differences related to gender. Moreover, prior to all further statistical analysis, Kolmogorov-Smirnov test was performed in order to test the normality of data distribution. Since the data was not normally distributed, nonparametric statistical techniques were performed. The mean and standard deviations are listed for descriptive purposes only. Mann-Whitney *U*-test was applied in order to examine the differences between the groups on a continuous measure. The effect size was expressed by *r* coefficient. Finally, the relationship between the indicators of phonological abilities was calculated by the Spearman's Rank Order Correlation. For all statistical analysis, α level was set at .05. Analysis and data processing were performed using Statistical Package for the Social Sciences for Windows (SPSS version 21.0).

Results

Phonemic awareness results

As presented in Table 2, higher average scores were achieved on both tasks of phonemic awareness in TLD group. More precisely, the participants of the TLD group successfully analyzed (allocated) sounds in more than six out of seven given phonemic analysis tasks ($M = 6.41$, $SD = 1.14$). In contrast, participants of the SLI group successfully analyzed two tasks on average ($M = 2.25$), with a greater dispersion of results ($SD = 2.25$).

Figure 1 illustrates achievements on the phonemic analysis tasks of SLI group and TLD group. The Mann-Whitney *U*-test was conducted to compare scores of the SLI group and the TLD group on both phonemic awareness tasks. There was a statistically significant difference in the abilities to analyze sounds in words between the SLI group ($Mdn = 2.00$, $IQR = 3.75$) and the TLD group ($Mdn = 7.00$, $IQR = 1.00$; $U = 217.0$, $z = -8.24$, $p < .001$), with a large effect size ($r = .75$).

Table 2. Phonemic awareness task: Descriptive statistics

Phonemic awareness	Group	Min	Max	M (SD)	95% CI		SE	Mdn (IQR)	Mo
					LL	UL			
Phonemic analysis	SLI	0	7	2.25 (2.25)	1.53	2.97	.36	2.00 (3.75)	0
	TLD	2	7	6.41 (1.14)	6.16	6.67	.13	7.00 (1.00)	7
Phonemic synthesis	SLI	0	7	2.63 (2.31)	1.89	3.36	.36	2.00 (4.00)	1
	TLD	1	7	6.16 (1.55)	5.82	6.51	.17	7.00 (1.00)	7

Note: SLI – specific language impairment group ($n = 40$); TLD – typical language development group ($n = 80$).

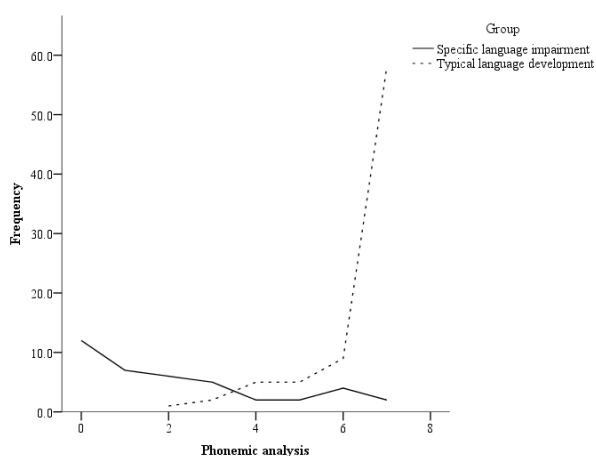


Figure 1. Distribution of scores on the phonemic analysis tasks

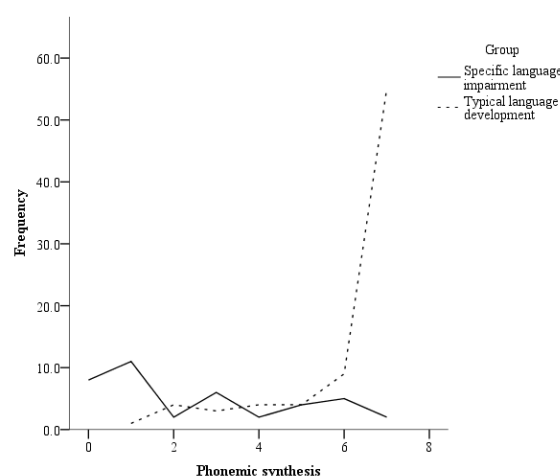


Figure 2. Distribution of scores on the phonemic synthesis tasks

When it comes to phonemic synthesis tasks (Table 2), the participants in the TLD group successfully synthesized sounds into words in more than six of the seven given phonemic synthesis tasks ($M = 6.16$, $SD = 1.55$). On the other hand, the participants in the SLI group successfully completed two tasks on average ($M = 2.63$), with a greater dispersion of results ($SD = 2.31$). Similarly to the phonemic analysis tasks, a statistically significant difference with a large effect size was found when the scores on the phonemic synthesis tasks were compared between the SLI group ($Mdn = 2.00$, $IQR = 4.00$) and the TLD group ($Mdn = 7.00$, $IQR = 1.00$; $U = 334.0$, $z = -7.47$, $p < .001$, $r = .68$). The distribution of the scores on the phonemic synthesis tasks is shown in Figure 2.

Taken together, a half of the participants in the SLI group achieved borderline or poor scores on the phonemic awareness tasks (Table 3). In the TLD group, on the other hand, fine achievement is recorded in all participants. Therefore, the statistical significance in the distribution of participants in relation to the achievement on the phonemic awareness tasks was confirmed. A chi-square test of independence was calculated comparing the frequency of achievement on the phonemic awareness task in SLI and TLD groups. A significant interaction was found ($\chi^2 (2, N = 120) = 48.00$, $p < .001$), with a large effect size ($V = .63$), showing that fine achievement was more likely to be found in the TLD group (100%) than in the SLI group (50%).

Table 3. Phonemic awareness task: Distribution and comparison in relation to achievement

Phonemic awareness (category)	Group, <i>n</i> (%)		χ^2 (<i>df</i>)	<i>p</i>	<i>V</i>
	SLI	TLD			
Fine	20 (50.0)	80 (100.0)			
Borderline	14 (35.0)	0 (.0)			
Poor	6 (15.0)	0 (.0)	48.00 (2)	< .001	.63

Note: Fine – score over 4; Borderline – score from 1 to 3; Poor – score 0; SLI – specific language impairment group (*n* = 40); TLD – typical language development group (*n* = 80).

The association between phonemic analysis and phonemic synthesis

The relationship between phonemic analysis and phonemic synthesis was investigated using Spearman rank order correlation in each group separately. There was a strong, positive correlation between the two variables in the SLI group ($\rho = 0.719$, $p < .001$), as well as in the TLD group ($\rho = 0.514$, $p < .001$), showing that high levels of phonemic analysis were associated with higher levels of phonemic synthesis.

Discussion

The findings of our study showed that children with SLI had a lower achievement on the tasks of phonemic analysis and phonemic synthesis, compared to children with TLD. From the seven tasks given, the average performance of children with SLI was two tasks, while the children with TLD completed on average more than six tasks. In addition, large dispersions of data from the mean on both tasks suggest great individual differences among the children with SLI from our sample. In this group, somewhat better results were noted on the phonemic synthesis tasks, whereas children with TLD scored better on the phonemic analysis tasks (Table 2). Regarding the distribution of the achievements, as presented in Table 3, borderline and poor phonemic awareness were detected in 35% and 15% of the SLI group, respectively. Based on the results, it was confirmed that

phonemic analysis was related strongly and positively to phonemic synthesis (Table 4).

Our results confirm the findings of several studies conducted in the Serbian-speaking area, which also reported poorer achievements on the phonemic awareness tasks in the group of preschool children with SLI (Čolić, 2015), as well as in the group of children with dyslexia and dysarthrography in comparison to children with TLD (Milankov, 2016). This recent study also found that the elements of phonological awareness were significant predictors of reading acquisition in Serbian-speaking children between the age of 6 years 6 months and 10 years (Milankov, 2016). According to the results of one earlier study, the magnitude of the standardized mean differences between children with SLI and children with TLD can be described as large in both phonological analysis and synthesis (Milosevic et al., 2014). Sparse research conducted on Croatian-speaking children also recorded poor achievement of children with SLI on tasks of phonemic analysis and synthesis. For example, Ivšac Pavliša and Lenček (2011) pointed to the difficulties that children with SLI had in tasks of phonemic analysis, stating that the participants were able to segment only the first sound in a word. It is important to note that these individual characteristics of phonological skills act like powerful predictors of the ease with which young children will learn to read (Hulme et al., 2002). Furthermore, approximately balanced and poor achievements of children with SLI on the phonemic awareness tasks indicate its linear under-

development, further proving the interrelation among the development of units within the phonological abilities (Hulme et al., 2002).

In general, we may say that the findings of our study, which suggest significantly lower phonological awareness skills in children with SLI, compared to children with TLD, are similar to the results of other empirical studies. For example, Leitão, Hogben and Fletcher (1997) stated that children with SLI generally had low phonological processing skills. These authors suggested that children with SLI performed tasks of sound and syllable segmentation, spelling, rapid naming of objects, colors, numbers and letters, followed by tasks of repetition of polysyllabic words, much worse than children with TLD did. Generally slower processing speed in children with SLI (Miller et al., 2001) and a deficit of phonological short-term memory (Alt, 2011) could explain our findings. Among other reasons, an inadequate speech discrimination, damage of output speech-motor processes, a reduced ability to segment phonemes or limited vocabulary that leads to a reduced ability to recognize frequency speech patterns are listed (Newbury et al., 2005).

The reduced phonological awareness correlates with reduced pre-literacy and/or literacy skills (Li, 2010). Moreover, phonemic awareness is both a prerequisite for and a consequence of learning to read, most likely due to their reciprocal causation (Yopp et al., 1992). Additionally, phonemic skills are considered central in the process of learning to read (Hulme et al., 2002). Given that reading acquisition and phonemic awareness are related, our results suggest that children with SLI are at a higher risk of the later occurrence of difficulties in learning to read in comparison to children with TLD, which is in accordance with the previous findings of other authors (Catts, 1993; Catts et al., 2005; Ivšac Pavliša, 2009). The effects of early intervention programs in the domain of phonemic awareness on reading acquisition are well documented (Ehri et al., 2011; Gillon, 2000; Koutsoftas et al., 2009; Ukrainetz et al., 2009). Therefore, the implementation of the specific early

intervention programs for developing phonological skills, namely phonemic awareness, is indicated.

Based on these observations, we can conclude that Serbian-speaking children with SLI have the same disturbances in phonological development as children from English-, Italian-, Croatian- or Greek-speaking areas. These findings show that phonological deficits constitute an important feature of SLI. As the findings suggest, the phenomenon of phonological deficits in children with SLI does not depend on the type of language structure, but some other factors, which presents a challenge for future research work. It is a well-known fact that SLI is a multifactorial disorder and not all children with SLI aged 8–12 years have a phonological deficit (Ramus et al., 2013). This could explain a relatively large percentage of fine achievement in the SLI group, as categorized by the given norms (Table 1).

Phonological awareness is established when a child is able to identify and produce rhymes, identify sounds in words, and decompose a word into its sound units. As a number of children cannot display this ability, the importance of early intervention (early speech therapy) is emphasized (Laing, Espeland, 2005), in order to improve the phonological skills, as one of the important components for the acquisition of reading skills. According to our findings, half of children of the SLI group had borderline or poor achievement on the phonemic awareness tasks (Table 3). This should be noted because underdeveloped phonological awareness is more frequent in the school age Serbian-speaking children with dyslexia and dysarthrography than in children with TLD (Milankov, 2016). Since literature data show that phonological skills deficits are closely linked to the occurrence of dyslexia, examination of phonological skills in preschool children is of special importance for predicting the occurrence of dyslexia, mitigation of reading disorders, and, in some cases, prevention of possible consequences of learning disabilities in children diagnosed with SLI.

Several limitations of this study can be underlined. Our data did not meet the stringent assumptions of the parametric techniques and the statistical analysis was limited. With regard to the sample, recruitment was done by using convenience and snowball sampling. Therefore, the results should not be easily generalized. For that reason, larger samples and the application of the criteria of representativeness could provide more assurance for the future studies.

Conclusion

This study adds to the previous theoretical and empirical understanding of phonemic awareness in Serbian speaking children with specific language impairment. First, the differences in phonemic analysis (spelling) and phonemic synthesis (blending) between children with SLI and children with TLD are confirmed. As presented, the effect size of differences and descriptive values indicate large magnitude of the differences. Secondly, this study provided an indication of the extent to which the examined aspects of phonemic awareness were related.

References

- Anthony, J. L., Lonigan, C. J., Burgess, S. R., Driscoll Bacon, K., Phillips, B. M. & Cantor, B. G. (2002). Structure of preschool phonological sensitivity: Overlapping sensitivity to rhyme, words, syllables, and phonemes. *Journal of Experimental Child Psychology*, 82, 65–92.
- Biro, M. (1997). *Weschler Intelligence Scale for children (Revised)*. Beograd: Društvo psihologa Srbije.
- Bishop, D. V. M. & Hayiou-Thomas, M. E. (2008). Heritability of specific language impairment depends on diagnostic criteria. *Genes, Brain and Behavior*, 7 (3), 365–372.
- Catts, H. W. (1993). The relationship between speech-language impairments and reading disabilities. *Journal of Speech and Hearing Research*, 36, 948–958.
- Catts, H. W., Adlof, S. M., Hogan, T. P. & Weismer, S. E. (2005). Are specific language impairment and dyslexia distinct disorders? *Journal of Speech, Language, and Hearing Research*, 48, 1378–1396.
- Cordewener, K. A., Bosman, A. M. & Verhoeven, L. (2012). Characteristics of early spelling of children with Specific Language Impairment. *Journal of communication disorders*, 45 (3), 212–222.
- Čolić, G. R. (2015). Fonološka svesnost dece sa razvojnom disfazijom i dece tipičnog jezičkog razvoja. *Specijalna edukacija i rehabilitacija*, 14 (2), 155–168.

Shedding light on the nature of disorders in the development of phonological abilities of preschool children will enable an early identification of disorders and timely intervention to prevent any psychosocial consequences and disturbances in mastering academic skills (Anthony et al., 2002). Bearing in mind that Serbian language has an extremely shallow orthography and clear morphological specificity, compared to most world languages, it is expected that Serbian-speaking children would master phonological awareness tasks more easily than children who speak some other language with a deep orthography. Considering the differences in linguistic structure, we believe that an early detection of phonological disorders is particularly important for the Serbian-speaking children. Having in mind that literature data indicate that children who, prior to starting school, are diagnosed with SLI, later encounter interference with reading and writing (Catts, 1993; Catts et al., 2005; Ivšac Pavliša, 2009) we suggest the implementation of a specific preventive program for developing phonological skills, or training of phonemic awareness, in all children with SLI.

- Dunn, L. M., Dunn, L. M., Kovačević, M., Padovan, N., Hržica, G., Kuvač Kraljević, J. & Palmović, M. (2010). *Peabody slikovni test rječnika, PPVT-IIIHR*. Zagreb: Naklada Slap.
- Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghoub-Zadeh, Z. & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the National Reading Panel's meta-analysis. *Reading research quarterly*, 36 (3), 250–287.
- Gillon, G. T. (2000). The efficacy of phonological awareness intervention for children with spoken language impairment. *Language, Speech, and Hearing Services in Schools*, 31 (2), 126–141.
- Hulme, C., Hatcher, P. J., Nation, K., Brown, A., Adams, J. & Stuart, G. (2002). Phoneme awareness is a better predictor of early reading skill than onset-rime awareness. *Journal of experimental child psychology*, 82 (1), 2–28.
- Ivšac Pavliša, J. (2009). *Predvještine čitanja u djece s rizikom za teškoće učenja* (disertacija). Zagreb: Edukacijsko-rehabilitacijski fakultet Sveučilišta u Zagrebu.
- Ivšac Pavliša, J. & Lenček, M. (2011). Phonological skills and phonological memory as basic literacy predictors—some differences between children with typical language development, children with perinatal brain lesions and children with specific language impairment. *Hrvatska revija za rehabilitacijska istraživanja*, 47 (1), 1–16.
- Kostić, Đ., Vladislavljević, S. i Popović, M. (1983). *Testovi za ispitivanje govora i jezika (Tests for speech and language)*. Beograd: Zavod za udžbenike i nastavna sredstva.
- Koutsoftas, A. D., Harmon, M. T. & Gray, S. (2009). The effect of tier 2 intervention for phonemic awareness in a response-to-intervention model in low-income preschool classrooms. *Language, Speech, and Hearing Services in Schools*, 40 (2), 116–130.
- Kuvač Kraljević, J., Lenček, M. (2012). *Priručnik za Test za procjenjivanje predvještina čitanja i pisanja (Test for evaluating reading and writing pre-skills)*. Jastrebarsko: Naklada Slap.
- Laing, S. & Espeland, W. (2005). Low intensity phonological awareness training in a preschool classroom for children with communication impairments. *Journal of Communication Disorders*, 38 (1), 65–82.
- Larkin, R. F., Williams, G. J. & Blaggan, S. (2013). Delay or deficit? Spelling processes in children with specific language impairment. *Journal of communication disorders*, 46 (5), 401–412.
- Leitāto, S., Hogben, J. & Fletcher, J. (1997). Phonological processing skills in speech and language impaired children. *International Journal of Language & Communication Disorders*, 32 (2s), 91–111.
- Leonard, L. B. (1989). Language learnability and specific language impairment in children. *Applied Psycholinguistics*, 10 (02), 179–202.
- Li, G. (2010). *Phonological Processing Abilities and Reading Competence: Theory and Evidence*. Bern: Peter Lang AG, International Academic Publishers.
- Milankov, V. (2016). *Deficit fonološke svesnosti kod dece sa disleksijom i disortografijom* (doktorska disertacija). Novi Sad: Medicinski fakultet.
- Miller, C. A., Kail, R., Leonard, L. B. & Tomblin, J. B. (2001). Speed of processing in children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, 44 (2), 416–433.
- Milosevic, N., Milicevic, M. & Causevac, D. (2014). Phonological skills in children with specific language impairment. In: N. Chichevska-Jovanova, D. Dimitrova-Radojichikj & Z. Jachova (Eds.). *Modern Aspects of Special Education and Rehabilitation of Persons with Disabilities: Conference Proceedings* (351–362). Fourth

International Conference, Ohrid, October 17th-19th 2013. Skopje: Faculty of Philosophy, Institute for Special Education and Rehabilitation.

- Milošević, N., Vuković, M. (2011). Leksičko-semantičke sposobnosti kod dece sa specifičnim jezičkim poremećajima. *Specijalna edukacija i rehabilitacija*, 10 (3), 435–445.
- Newbury, D. F., Bishop, D. V. & Monaco, A. P. (2005). Genetic influences on language impairment and phonological short-term memory. *Trends in cognitive sciences*, 9 (11), 528–534.
- Peeters, M., Verhoeven, L., Moor, J. & Balkom, H. (2009). Importance of speech production for phonological awareness and word decoding: The case of children with cerebral palsy. *Research in Developmental Disabilities*, 30 (4), 712–726.
- Ramus, F., Marshall, C. R., Rosen, S. & Van der Lely, H. K. (2013). Phonological deficits in specific language impairment and developmental dyslexia: towards a multidimensional model. *Brain*, 136 (2), 630–645.
- Shriberg, L. D. and Kwiatkowski, J. (1994). Developmental phonological disorders I: A clinical profile. *Journal of Speech and Hearing Research*, 37, 1100–1126.
- Shriberg, L., Tomblin, J. & McSweeney, J. (1999). Prevalence of speech delay in 6-year-old children and comorbidity with language impairment. *Journal of Speech, Language, and Hearing Research*, 42, 1461–1481.
- Stage, S. A. and Wagner, R. K. (1992). Development of young children's phonological and orthographic knowledge as revealed by their spellings. *Developmental Psychology*, 28 (2), 287–296.
- Subotić, Lj., Sredojević, D. i Bjelaković, I. (2012). *Fonetika i fonologija: Ortoepska i ortografska norma standardnog srpskog jezika*. Novi Sad: Filozofski fakultet.
- Tomblin, J. B., Records, N. L., Buckwalter, P., Zhang, X., Smith, E. & O'Brien, M. (1997). Prevalence of Specific Language Impairment in Kindergarten Children. *Journal of Speech, Language, and Hearing Research*, 40 (6), 1245–60.
- Torgesen, J. K., Wagner, R. K. & Rashotte, C. A. (1994). Longitudinal studies of phonological processing and reading. *Journal of Learning Disabilities*, 27, 276–286.
- Ukrainetz, T. A., Ross, C. L. & Harm, H. M. (2009). An investigation of treatment scheduling for phonemic awareness with kindergartners who are at risk for reading difficulties. *Language, Speech, and Hearing Services in Schools*, 40 (1), 86–100.
- Vaessen, A., Bertrand, D., Tóth, D., Csépe, V., Faísca, L., Reis, A. & Blomert, L. (2010). Cognitive development of fluent word reading does not qualitatively differ between transparent and opaque orthographies. *Journal of Educational Psychology*, 102 (4), 827.
- Van Weerdenburg, M., Verhoeven, L., Bosman, A. & Van Balkom, H. (2011). Predicting word decoding and word spelling development in children with Specific Language Impairment. *Journal of Communication Disorders*, 44 (3), 392–411.
- Vandewalle, E., Boets, B., Ghesquière, P. & Zink, I. (2012). Auditory processing and speech perception in children with specific language impairment: Relations with oral language and literacy skills. *Research in Developmental Disabilities*, 33 (2), 635–644.
- Vasić, S. (1994). *Psiholingvistika*. Beograd: Institut za pedagoška istraživanja.
- Vukovic, M. & Stojanovic, V. (2011). Characterising developmental language impairment in Serbian-speaking children: a preliminary investigation. *Clinical linguistics & phonetics*, 25 (3), 187–197.

- Vukovic, M., Vukovic, I. & Stojanovic, V. (2010). Investigation of language and motor skills in Serbian speaking children with specific language impairment and in typically developing children. *Research in developmental disabilities*, 31 (6), 1633–1644.
- Wagner, R. K. & Torgesen, J. K. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin*, 101 (2), 192–212.
- Wagner, R. K., Torgesen, J. K., Rashotte, C. A., Hecht, S. A., Barker, T. A., Burgess, S. R., Donahue, J. & Garon, T. (1997). Changing relations between phonological processing abilities and word-level reading as children develop from beginning to skilled readers: A 5-year longitudinal study. *Developmental Psychology*, 33, 468–479.
- Yopp, H. K. (1992). Developing phonemic awareness in young children. *The Reading Teacher*, 45 (9), 696–703.

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**ФОНЕМСКА СВЕСНОСТ КАО ИНДИКАТОР ПРЕТЧИТАЧКИХ СПОСОБНОСТИ
КОД ДЕЦЕ СА СРПСКОГ ГОВОРНОГ ПОДРУЧЈА
БЕЗ СПЕЦИФИЧНОГ ПОРЕМЕЋАЈА ЈЕЗИКА И СА ЊИМ**

У овом раду сагледавамо фонолошке способности у контексту Вајнер–Торјесеновој модела фонолошке обраде, који фонолошку обраду посматра као вишедимензионалну способност. Према овом моделу, фонолошка способност обухвата три независне, али корелативне компетенције: фонолошку свест, фонолошко памћење и брзо именовање (брзо препознавање речи). Стога, ова студија се заснива на теоријском и емпиријском разумевању фонемске свести код деце која говоре српски језик са и без специфичној језичкој поремећаја (СЈП).

Фонемска свест представља основу фонолошкој, а индиректно и орфографској декодирања, односно формирања фонолошких репрезентација, због чега снажно утиче на почетне фазе стицања већине читања. У језицима са регуларном орфографијом фонолошка структура шtamане речи је лако доступна, коришћењем једносавној обрасца препарања графеме у фонему. Насупрот томе, у језицима са нерегуларном орфографијом, као што су енглески или хебрејски, читаоци су приморани да обрађују шtamану реч корисћећи веће фонолошке јединице. Стога, постоје и радови који указују како орфографска сложеност утиче на везу између читања и фонолошке свести. За разлику од француских или дубоке орфографије енглеској језика, српски језик има директна и недвосмислена удударња графема и фонема, где сваком слову одговара само један глас (укупно 30 знакова и исто толико фонема, од којих је пет самогласника). Даље, фонологија не варира у зависности од контекста и морфологије, што српски језик сврстава међу језике са француским правописом.

Имајући у виду да ова врста истраживања на српском језику досад није рађена, сматрамо да ће резултати овој истраживања допринети нашим сазнањима о дефицијима фонемске свести, односно фонемској анализи и фонемској синтези код деце са СЈП на српском језику. Полазимо од претпоставке да ће деца која говоре српски језик са СЈП имати нижу фонемску свест у поређењу са децом типичној језичкој развоја (ТЈР). Друга претпоставка је да ће боља способност на задацима фонемске анализе бити повезана са бољим способностима на задацима фонемске синтезе у обе групе.

Циљ овог рада је да се упореди фонемска свесност код деце са СЈП и деце са типичним језичким развојем (ТЈР) узраста од пет до једанаест месеци до седам година.

Метод и процедура. Ова студија обухватила је 120 учесника, оба пола, узраста од пет до једанаест месеци до седам година. Узорак је подељен у две групе: СЈП групу и ТЈР групу. Група СЈП обухватала је 40 учесника са СЈП (осам девојчица и 32 дечака), просечне старости од седам година и девет месеци ($SD=4.47$ месеци). Деца са СЈП била су корисници Завода за психофизиолошке поремећаје и говорну патологију „Проф. др Цветко Брајовић“ у Београду, Република Србија. Од мерних инструмената коришћен је сушесни за процену фонемске свесности из Теста за процену предвештина читања и писања – ПрегЧуП (Киваћ Краљевић & Ленчек, 2012).

Резултати. Статистички значајне разлике потврђене су на оба задатка фонемске свесности ($p<.001$). Половина деце из СЈП групе је имала гранична или лоша постигнућа, генерално нижа од деце са ТЈР. Однос између фонемске анализе и фонемске синтезе изражен је коришћењем Сирманове корелације ранга у свакој групи поједино. Постојала је јака, позитивна корелација између две варијабле у СЈП групи ($r=0,719$, $p<.001$), као и у ТЈР групи ($r=0,514$, $p<.001$), што указује да су висока постигнућа на задатку фонемске анализе повезана са високим постигнућима на задацима фонемске синтезе.

Закључци и импликације. Имајући у виду да српски језик има трансларентну ортографију и јасну морфолошку специфичност, у поређењу са већином светских језика, очекује се да ће деца која говоре српски језик лакше савладавати задатке фонолошке свесности. Сходно томе, сматрамо да је рано откривање фонолошких поремећаја поједино важно за децу која говоре српски језик. Имајући у виду да подаци из литературе указују да деца код којих је пре поласка у школу дијагностикован СЈП, касније се сусрећу са сметњама у учењу читања и писања, стога предлагемо спровођење појединог превентивног програма за развој фонолошких вештина, односно тренинг фонемске свесности код све деце.

Кључне речи: фонолошка способност, фонемска свесност, специфични језички поремећај, типичан језички развој.