



Neda R. Milošević¹

College of Social Work, Belgrade, Serbia

Mile G. Vuković

University of Belgrade, Faculty of Special Education
and Rehabilitation, Belgrade, Serbia

Ivana D. Ristić

University of Priština in Kosovska Mitrovica,
Teacher Education Faculty, Leposavić, Serbia

**Original
research paper**

Paper received: Jun 1 2021
Paper accepted: Sep 3 2021
Article Published: Apr 15 2022

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

Extended summary

Background. 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). Therefore, this study is based on theoretical and empirical understanding of phonemic awareness in Serbian speaking children with and without specific language impairment (SLI).

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. In languages with regular orthography, 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,

¹ neda.milosevic@asp.edu.rs

Copyright © 2022 by the authors, licensee Teacher Education Faculty University of Belgrade, SERBIA.

This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original paper is accurately cited.

there are also references to orthographic complexity affecting the connection between reading and phonological awareness.

Unlike the deep orthography of the English language, Serbian language with 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 positions the Serbian language among the languages with shallow orthography.

Bearing in mind that this type of research in Serbian language has not been conducted so far, we believe that the results of the research will contribute to our knowledge about the deficits of the phonemic awareness, namely, 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.

The aim of this paper is 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.

Methods and Procedures. 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 subtest for evaluation of phonemic awareness from The Test for Evaluating Reading and Writing Pre-Skills – PredČiP (Kuvač Kraljević & Lenček, 2012) was used.

Results. Statistically significant differences were confirmed on both tasks of phonemic awareness ($p < .001$). Half of children of the SLI group had borderline or poor achievement, generally lower than children with TLD.

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.

Conclusions and Implications. Bearing in mind that Serbian language has regular orthography and clear morphological specificity, compared to most world languages, it is expected that Serbian-speaking children would master phonological awareness tasks more easily. Consequently, we believe that 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 implementation of a 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

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.
- 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 procenjivanje 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., Faisca, 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.
-