Teaching Innovations, Volume 37, Issue 3, pp. 75–89
DOI: 10.5937/inovacije2403075J

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Original research paper

Paper received: Apr 19 2024
Paper accepted: May 16 2024
Article Published: Oct 23 2024

Interference and Development of Articulation in Mother Tongue and Foreign Language in Preschool Children

Extended summary

Linguistic interdependence is a challenge not only when it comes to bilingualism, but also to learning any new language, especially in the domain of phonetics and phonology. Exposure to a new language raises the question of the existence of a common phonological space and its influence on the formation of the sound base of the new language.

Various theories draw attention to the function and importance of the common phonological space during learning a new language (see the Speech Learning Model Theory -SLM; Flege, 1995; Flege & Bohn, 2021; Theory of Phonological Interference; Brown, 1998; Brown, 2000; The Perception Assimilation Model – PAM; Best, 1994; Best et al., 2007).

In children with articulatory and phonological disorders, understanding the development of the phonetic-phonemic system of a new language is of particular importance.

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2 The research was financed by the Ministry of Science, Technological Development and Innovations of the Republic of Serbia, Contract No. 451-03-66/2024-03/ 200018.

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The aim of the research was to determine the articulation patterns of preschool children in their mother tongues, Serbian and French, and to relate these patterns to articulation deviations in English.

The research included 33 preschool-age children with articulation disorders from Belgrade who attended a preschool program in English and whose mother tongues are Serbian and French. The mean age of the children was five and a half years (SD =.49, age range 5–6,10 years). Eighteen of them spoke Serbian and 15 spoke French as their mother tongue.

The Global Articulation Test (Kostić et al., 1983) was used to assess articulation disorders in the Serbian language. Articulation deviations in the French language were assessed with the test for the assessment of articulation disorders and phonological disorders (Fr. Dépistage Rapide Articulation et Phonologie – DRAP) (Niederberger et al., 2021), while a part of the test for the diagnosis of articulation disorders in children aged 3.0–8,11 years (Eng. The Diagnostic Evaluation of Articulation and Phonology - DEAP; Dodd et al., 2002) was used to evaluate the articulation in the English language.

Apart from descriptive statistics, we used Student's t-test, chi-square test, Mann-Whitney U test, correlation analysis, and the Two-Way ANOVA.

Eighteen children (10 boys and 8 girls) spoke Serbian. The average age of the children was five years and five months (SD=.510). In 13 children (72.2%), substitution of the sounds Ч, Ћ, Ш and Ж with С, З and Ц was identified; four children (22.2%) had an omission of the sounds Р, Л and Љ, while one child (5.6%) had a distortion of the sounds С, З and Ц.

In the English language, in nine Serbian speaking children (50%), the substitution of the sounds /tʃ/, /ʃ/ with /s/ and /z/ was identified, in seven (38.9%) the omission of the sounds /r/, /l/ and /w/, while distortion of the sounds /tʃ/, /s/ and /z/ was identified in two children (11.1%).

In Serbian speaking children, no statistically significant difference was detected in articulation disorders in Serbian and English ($t(17)=-1$, $p=.331$), while Spearman's correlation shows a significant degree of connection between articulation patterns in Serbian and English ($\rho= .708$ $p<.001$).

The two-factor analysis of variance confirms the influence of articulatory deviations in the Serbian language on the formation of the articulatory base of the English language ($F(2, 16)=6.78$, $p<.01$).

In relation to gender, no statistically significant difference in terms of articulation disorders was found between boys and girls, neither in Serbian ($U(18)=38$, $p=.821$) nor in English ($U(18)=38.50$, $p=.883$) .

Eight boys (53.3%) and seven girls (46.7%) were speakers of French. The average age of the children was five years and six months (SD=. 480).

The largest number of the tested French children had distortions of the sounds /ʃ/, /ʒ/, /s/, /z/ (10 children, 66.7%), followed by substitutions of the sounds /ʃ/ and /ʒ/ with the sounds /s/ and /z/ (three children, 20%) while two children (13.3%) made the omission of the /l/ sound.

The highest percentage of the French children (7 children, 46.7%) showed no deviations in the development of articulation in English. Distortion of the sounds /tʃ/, /ʃ/, /s/ and /z/ was detected in two French children (13.3%), in four (26.7%) the substitution of the sounds /tʃ/, /ʃ/ with the sounds / s/ and /z/, while in two children (13.3%) the omission of the voice /l/ was identified, which influenced the emergence of a statistically significant difference in articulation achievements in French and English ($t(14)=2.44$, $p=.028$).

In relation to gender, articulation disorders did not differ statistically significantly in any of the tested languages (for French $U(15)=23.50$, $p=.533$; for English $U(15)=25.50$, $p=.758$).

Using Spearman's correlation, a statistically strong correlation between articulation disorders in French and English was found ($\rho=.846$, $p<.000$).

The results of the two-factor analysis of variance also confirmed the influence of interference between the articulatory bases of French and English ($F(2, 14)=20.15$, $p<.000$), while the influence of gender on the appearance of difficulties in English in the French speaking children was not distinguished as significant ($F(1, 14)=.471$, $p=.639$).

The results of the research confirmed the theoretical implications of the impact of the transfer and interference of the mother tongue on the language being learned, in this case through changed articulation schemes and patterns of the phonemic-phonetic space of the new language. The importance of transferring articulation patterns from different native languages to the formation of the articulation base of a new language opens up space for further research, bearing in mind that adequately constructed phonemic-phonetic patterns of the sounds of the language being learned influence the easier processing of phonologically complex words, morphosyntactic markers that are uttered, but also to a number of discourse functions and successful oral communication, which is not the case with this group of children.

Keywords: mother tongue, foreign language, interference, articulation, bilingualism

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