

RESEARCH OF THE ABILITY TO ISOLATE SYLLABLES FROM WORDS IN PRESCHOOL AGED CHILDREN

Monika Máčajová¹, Soňa Grofčíková²

Abstract: The presented study deals with theoretical starting points, issues and research findings in the area of phonological awareness in relation to the elementary linguistic literacy of preschool aged children in Slovakia. The theoretical-empirical study is focused on a child's ability to manipulate with syllables. The research was conducted with 866 respondents in the age range of four to seven years old. The aim was to find out a child's ability to isolate certain syllables from a word and name the word or syllable resulting from the removal of the specified syllable. Except two tasks for practicing, there were five tested words. Children presented their skill to isolate or omit initial, middle and final syllables in the tested words. The results are part of a more extensive study focused on the development of a complex tool used to evaluate the level of phonemic awareness.

UDC Classification: 37, **DOI:** 10.12955/cbup.v7.1406

Keywords: syllable, syllable isolation, phonological awareness, phonemic awareness

Introduction

In the current State Educational Programme for Pre-primary Education in Kindergartens in Slovakia, the Phonological Processes and Phonological Awareness are one of the sub-areas of the educational area Language and Communication. Pre-literate activities are already realized in preschools as an important part of language acquisition. Although reading instruction begins later at the primary school, some important skills which are included in the phonological awareness must be mastered prior to reading (Máčajová et al., 2017). Research findings show that children's ability to comprehend and understand language is higher than their ability to produce speech (Garrett, 2009). The perceiving and learning of the sounds in a language help children to form appropriate phonological representations for real words. Individual qualitative differences of the phonological representations predict reading acquisition (Ziegler and Goswami 2005).

Phonological and phonemic awareness

The term, phonological awareness, refers to a child's cognitive ability and reflect the sound patterns of words at different levels (syllables, onsets, rimes). Anthony and Francis (2005) consider the level of sensitivity to the sound structure in oral language to be significant however independent of meaning. Then child's experiences with oral language seem to play an important role in phonological awareness development. Phonological awareness is the conscious ability of a person to perceive, comprehend, differentiate, detect and deal with the sounds in language and speech in the larger units as words and syllables (Torgesen, 2002; Vaessen, 2010; Goswami, 2015).

Phonological awareness manifests itself in various phonological skills which develop in predictable time and as we mentioned earlier, recognition always precede production. These skills can be practiced in various activities and tasks consisting of rhyming (word that exhibits correspondence with another), matching rhyme and alliteration, syllable blending and splitting, full phoneme segmentation and manipulation (e.g. deleting, substituting).

Phonological skills are differentiated depending on word structure, whether the task is aimed at syllables or smaller units like sounds, phonemes (Anthony et al., 2003; Anthony and Francis, 2005). They are manifested gradually by detection (matching similar sounds), synthesis (combining phonemes into syllables and words), and analysis (segmenting words or syllables into phonemes) (Abbott et al., 2008; Jošt, 2011). Máčajová (2011) described the conditions of correct audible analysis and synthesis as follows: maturity of a child; achievement of appropriate, adequate level of cognitive processes and systematic perception; quality of attention; language mastery; and good vocabulary.

Bentin (1992) pointed to the research findings and assessment that children at the preschool age are quite successful in tasks where rhymes are detected, the number of syllables in the words are counted, but they are not able to isolate phonemes in the words. According to the author, preschool age children can recognize the number of words in a sentence (word level); can segment and blend at least three-

¹ Faculty of Education, Constantine the Philosopher University in Nitra, Slovakia, mmacajova@ukf.sk

² Faculty of Education, Constantine the Philosopher University in Nitra, Slovakia, sgrofcikova@ukf.sk

syllabic words (syllable level); can understand the principle of rhyming and recognize rhyming words (rhyme level) and should be able to isolate the first and last phonemes in the words, to segment and blend phonemes in a word consisting of three phonemes, and to create a new word by changing a phoneme in it (sound level).

Phonological awareness as a broader term includes phonemic awareness as a related construct. Both are focused on the sound elements in spoken language. Jošt (2011) considers phonemic awareness to be one of the phonological skills that is included in the ability to analyse words into smaller units (analysis of the first, middle or last phoneme of a word). Then phonemic awareness is the most advanced level that can be achieved by a child and is subordinated to phonological awareness. It refers to the ability to perceive, identify or detect and consciously operate with the smallest units, phonemes in the speech. Torgesen et al. (2005) define phonemic awareness as knowledge about characteristics of individual sounds or words that consist of separate phonemes, or smaller units than a syllable.

It refers to a specific audible ability which help us to recognize separate sounds in the words, distinguish sounds from the flow of speech like perceiving sounds, identifying word boundaries, identifying segments of words, and detecting similarities among words. These abilities demonstrated in the manipulation with speech sounds are required for the successful decoding of orthographic symbols, the alphabet (Mikulajová and Dujčíková, 2001; Torgesen, 2002; Seidlová Málková, 2014; Grofčíková and Máčajová, 2017).

Liberman (in Vaessen, 2010) stated that the perception of phonemes cannot be considered as an integral part of the human language system, and it is a reason why a child's preliterate level of phonemic awareness is very low. Bentin (1992) also emphasized that it is necessary to develop an early form of phonemic awareness prior to reading instruction because phonemic awareness is not possible to be initiated with the alphabet. Children, whose level is not adequate, must be trained for phonemic segmentation as a requirement for easier acquisition of reading.

Phonological awareness expects a child to become aware of the acoustic form of spoken language and, at the same time, of the ability to abstract the content of words and utterances (Zelinková et al., 2002). It includes phonological sensitivity as the ability to differentiate the audible form of spoken language (gets mature between the age of five and seven) and the process of moving from intuitive understanding of the nature of language structure to the conscious operations with linguistic units of words (Anthony et al., 2003; Ziegler and Goswami, 2005; Vágnerová, 2012).

Šelingerová (2017) describes three stages of phonological awareness development. In the first stage, the child perceives the word as a meaningful unit, but is unable to separate the form of the word from its content. In the second stage, there is non-analytical, implicit awareness of the sound structure of the word, but it is still rather limited. It is a lexical ability appearing in the language development. In the third stage, conscious manipulation with sounds in the words appear. It is the start of explicit awareness, associated with the initiation of formal teaching and the acquisition of reading and writing skills.

Data and Methodology

The study presents the results of the research aimed at detecting preschool children's ability to isolate a syllable from a word and then pronounce a new word arising from omitting a certain syllable. Results are part of a larger study focused on the development of a complex instrument for evaluating the level of phonemic awareness. The test for the assessment of phonological and phonemic awareness (Máčajová, 2013) diagnoses the abilities which are closely related to phonemic awareness: work with rhymes; ability to analyze and synthesize at the word, syllable and sound level; phoneme and syllable omitting; phoneme and syllable isolation; word differentiation and localization of changes in sentences. In the part where activities for isolation are tested, it is focused on two abilities: sound isolation and syllable isolation. The study results are partly indicators of the level of Slovak children's ability to isolate certain syllable in the target word. Based on this, the research question was: What is the level of Slovak children in different age categories in the area of "Syllable isolation"?

The research included 28 kindergartens in Slovakia. Tested children were between the age of 4 to 7 years old. Together there were 866 respondents, 446 girls and 420 boys. Children with speech defects and children with delayed start in schooling were excluded from the testing. In total, we evaluated 4330 children's utterances (5 tested items per child).

The area of syllable isolation is considered as a one of the most difficult testing areas. Emphasis was put on to the word that remains after removing a certain syllable. The requirements for target word selection were the following: the newly created word must exist; must be known to the children; and must be pronounceable for them. Other selection criteria were related to the length of the word (number of syllables and sounds); to the way of compounding sounds into the word; to the position and kind of the syllable which is omitted. In four target words, the first or final syllables were omitted; in two of them opened and in two of them closed syllables were omitted. In the fifth target word, a closed syllable in the middle of the word was omitted. The test consisted of four two-syllabic words and one three-syllabic word. The words *lano* (rope) and *jedlo* (meal) were administered for the training of the children. Through the combination of the mentioned criteria for word selection, we decided on these words:

1. *Búda* (shed) is a two-syllabic word where the first opened syllable “*bú*” is isolated and the second opened syllable “*da*” remains. Child pronounces “*da*”.
2. *Pena* (foam) is a two-syllabic word where the second opened syllable “*na*” is isolated and the first opened syllable “*pe*” remains. Child pronounces “*pe*”.
3. *Kočík* (pram) is a two syllabic word where the first opened syllable “*ko*” is isolated and the second closed syllable “*čík*” remains. Child pronounces “*čík*”.
4. *Líška* (fox) is a two-syllabic word where the second opened syllable “*ka*” is isolated and the first closed syllable “*líš*” remains. Child pronounces “*líš*”.
5. *Ceruzka* (pencil) is a three-syllabic word (opened-closed-opened) where the middle closed syllable “*ruz*” is isolated and the first and final (both open) “*ce*” and “*ka*” remains. Child pronounces “*ceka*”. This is the most difficult task in this tested area.

Instructions for the teacher: Teacher pronounces the selected word, for example *koleso* (wheel) and then individually one syllable, for example “*ko*”. The task for the child is to pronounce the word without the syllable “*ko*”. Child says “*leso*”. In the diagnostic test, there is written which syllable has to be isolated by the child.

Instruction for the child: In this game, syllables will disappear. I am pronouncing the word and syllable and you are repeating the same word, but you are omitting the syllable. I say the word “*koleso*” and syllable “*ko*”. “*Ko*” gets lost and “*leso*” remains.

Assessment: If a child says the word correctly, 1 point is recorded. If child doesn't omit the correct syllable and says a different word than the target one or doesn't answer any word, 0 points are recorded.

Results and discussion

The first target word was “*búda*” (shed). Children pronounced the word without the first opened syllable, i.e. they said “*da*”. The target word is a two-syllabic word composed of two opened syllables. The overall results in all age groups are presented in Table 1.

Table 1: Omitting of syllable “*bú*” in the word “*búda*”

<i>búda (bú)</i>														
AGE CATEGORY														
ANSWERS	4.0-4.5		4.6-5.0		5.1-5.5		5.6-6.0		6.1-6.5		6.6-7.0		Overall	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
CORRECT	15	18.07	40	25	41	31.54	82	42.71	118	57.84	49	50.52	345	39.84
INCORRECT	68	81.93	120	75	89	68.46	110	57.29	86	42.16	48	49.48	521	60.16
OVERALL	83	100	160	100	130	100	192	100	204	100	97	100	866	100
% SUCCESS	18 %		25 %		32 %		43 %		58 %		51%		-	40 %
% FAILURE	82 %		75 %		68 %		57 %		42 %		49 %		-	60 %
MEDIAN	0		0		0		0		1		1		-	-

Source: Author

Overall success of the children was less than half, at 39.84%. This tested word is considered as an easy one in the area of Syllable isolation, therefore we are surprised with the low success rate. In all age categories the percentage of success ranged from 18% to 58%. We cannot confirm our assumption that the percentage of success in testing increases with age, because children from 6.1 to 6.5 years were

more successful in testing than the oldest age group. The two oldest age groups (i.e. children from 6.1 to 7 years old) gained a success rate over 50% and a median value of “1” that they were able to omit the first syllable in the word “búda”. In younger age groups, the median value was “0” and it means that children aged 4 to 6 years old do not have to cope with this task. In testing syllable isolation in the word “búda” (shed), the results demonstrate that:

1. Children aged 4 to 6 years old do not have to omit syllable “bú” in the word “búda”. The median value for that age category is “0”.
2. Children aged 6.1 to 7 years old can omit the first syllable in the word “búda”. The median value for that age category is “1”.
3. For this word “búda”, it is not confirmed that the ability to omit the syllable and to create a new word increases with age. The oldest age group was less successful than younger children.
4. The overall success rate was 39.84%, meaning that less than 40% of children aged 4 to 7 years old could isolate syllable in the word “búda” and pronounce “da”. However, 60% of the tested children did not cope with this task.

The second tested word was “pena” (foam). The task was to pronounce the word “pena” without the last opened syllable “na”. This is a two-syllabic word composed of two opened syllables. The overall results in all age groups are presented in Table 2.

<i>pena (na)</i>														
AGE CATEGORY														
ANSWERS	4.0-4.5		4.6-5.0		5.1-5.5		5.6-6.0		6.1-6.5		6.6-7.0		Overall	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
CORRECT	7	8.43	33	20.63	45	34.62	88	45.83	116	56.86	52	53.61	341	39.38
INCORRECT	76	91.57	127	79.37	85	65.38	104	54.17	88	43.14	45	46.39	525	60.62
OVERALL	83	100	160	100	130	100	192	100	204	100	97	100	866	100
% SUCCESS	8 %		21 %		35 %		46 %		57 %		54 %		-	39 %
% FAILURE	92 %		79 %		65 %		54 %		43 %		46 %		-	61 %
MEDIAN	0		0		0		0		1		1		-	-

Source: Author

Results in the word “pena” are very similar, almost identical, to the previous word “búda”. The overall success rate of the children is less than 40% at exactly 39.38%. This tested word is considered as an easy one (like the previous one), therefore we were again surprised with the low success. In all age categories the percentage of success ranged from 8% to 57%. We cannot confirm our assumption that percentage success increases with age in testing, because children aged from 6.1 to 6.5 years old were again more successful in testing than the oldest age group. The two oldest age groups (i.e. children from 6.1 to 7 years) gained a success rate over 50% and the median value for these age groups is “1”. For children up to 6 years old, the median value is “0” and it means that they did not cope with this task. In testing syllable isolation in the word “pena” (foam), the results demonstrate that:

1. Children aged 4 to 6 years old did not omit the syllable “na” in the word “pena”. The median value for that age category is “0”.
2. Children aged 6.1 to 7 years old can omit the syllable “na” in the word “pena” and pronounce “pe”. The median value for this age group is “1”.
3. For the word “pena”, it was not confirmed that the ability to omit the syllable and to create a new word increases with age. The oldest age group from 6.6 to 7 years was less successful than children at the age from 6.1 to 6.5 years.
4. The overall success rate was 39.38%, meaning that less than 40% of the children aged from 4 to 7 years old could isolate the syllable “na” in the word “pena” and pronounce “pe”. However, 60% of the tested children do not cope with this task. In comparison with the previous tested word, results are very similar. The main difference is the position of the omitted syllable, but the two words are similar in structure and number of syllables.

The third tested word was “kočik” (pram). The task was to pronounce the word “kočik” without the first opened syllable “ko” (i.e. they should say “čik”). This is a two-syllabic word composed of one opened and one closed syllable. The overall results in all age groups are presented in Table 3.

Table 3: Omitting of syllable “ko” in the word “kočik”

<i>kočik (ko)</i>														
AGE CATEGORY														
ANSWERS	4.0-4.5		4.6-5.0		5.1-5.5		5.6-6.0		6.1-6.5		6.6-7.0		Overall	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
CORRECT	10	12.05	28	17.5	31	23.85	87	45.31	100	49.02	47	48.45	303	34.99
INCORRECT	73	87.95	132	82.5	99	76.15	105	54.69	104	50.98	50	51.55	563	65.01
OVERALL	83	100	160	100	130	100	192	100	204	100	97	100	866	100
% SUCCESS	12 %		18 %		24 %		45 %		49 %		48 %		-	35 %
% FAILURE	88 %		82 %		76 %		55 %		51 %		52 %		-	65 %
MEDIAN	0		0		0		0		0		0		-	-

Source: Author

Overall success rate of the children is only 34.99%. This result is very insufficient. In all age categories the percentage of success ranged from 12% in the youngest age group to 49% in the age group from 6.1 to 6.5 years old. As it was with previous words, we cannot confirm our assumption that the percentage of success increases with age, because children from 6.1 to 6.5 years old were again more successful in testing than children at the age from 6.6 to 7 years. Focusing on the age group from 5.6 to 6 years old showed that there is a 21% increase in comparison with the younger age group. None of the age groups achieved a percentage success rate above 50% and the median value for all of them is “0”. It means that children at the age of 4 to 7 do not cope with this task. In testing syllable isolation in the word “kočik” (pram), the results demonstrate that:

1. Children aged 4 to 7 years old do not know if they omit the syllable “ko” in the word “kočik”, creating the word “čik”. The median value is “0”.
2. For the word “kočik”, it is not confirmed that the ability to omit the syllable and to create a new word increases with age. The oldest age group was less successful than children aged 6.1 to 6.5 years old, although the difference is minimal.
3. The overall success rate was 34.99%, meaning that less than 35% of the children aged from 4 to 7 years old could isolate the syllable “ko” in the word “kočik” and pronounce “čik”. Up to 60% of tested children failed this task. Significant increase in the tested ability is observed from children aged 5.6 years old onwards, although in no age group did the success rate of the children exceeds 50%.

Another tested word was “liška” (fox). The task was to pronounce the word “liška” without the last opened syllable “ka”, so that the children would say “liš”. This is a two-syllabic word composed of one closed and one opened syllable. The overall results in all age groups are presented in Table 4.

Table 4: Omitting of syllable “ka” in the word “liška”

<i>liška (ka)</i>														
AGE CATEGORY														
ANSWERS	4.0-4.5		4.6-5.0		5.1-5.5		5.6-6.0		6.1-6.5		6.6-7.0		Overall	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
CORRECT	5	6.02	23	14.38	31	23.85	67	34.90	93	45.59	47	48.45	266	30.72
INCORRECT	78	93.98	137	85.62	99	76.15	125	65.10	111	54.41	50	51.55	600	69.28
OVERALL	83	100	160	100	130	100	192	100	204	100	97	100	866	100
% SUCCESS	6 %		14 %		24 %		35 %		46 %		48 %		-	31%
% FAILURE	94 %		86 %		76 %		65 %		54 %		52 %		-	69 %
MEDIAN	0		0		0		0		0		0		-	-

Source: Author

The overall success rate of children is again very low at 34.99%. In all age categories the percentage of success ranged from 6% in the youngest age group to 48% in the oldest age group. These results are very inadequate, although comparable to the previous results. Both words are similar in their number and structure of the syllables, the difference is in the order of the omitted syllable. This is the first word in the tested area, where our assumption that the success rate increases with the age of children, was validated. The median value for all age groups is “0”. It means that children aged 4 to 7 years old do not cope with this task. In testing syllable isolation in the word “liška” (fox), the results demonstrate that:

1. Children aged 4 to 7 years old do not know if they omit the syllable “ka” in the word “liška”, creating the word “liš”. The median value is “0”.
2. For the word “liška”, it is confirmed that the ability to omit a syllable and to create a new word increases with age.
3. The overall success rate is 30.72%, meaning that less than 31% of children aged from 4 to 7 years old can isolate syllable “ka” in the word “liška” and pronounce “liš”. Up to 69% of the tested children failed this task.

The last tested word in the area of Syllable isolation was “ceruzka” (pencil). The task was to pronounce the word “ceruzka” without the middle closed syllable “ruz” and say “ceka”. It is the most difficult task in this tested area. Arguments for its difficulty are the following: it is the longest word; a three-syllabic word consisting of two opened and one closed syllable in the middle; the children must be able to omit the middle syllable; the new word “ceka” is meaningless. This word was selected deliberately and aimed at exceptional children. The overall results in all age groups are presented in Table 5.

Table 5: Omitting of syllable “ruz” in the word “ceruzka”

<i>ceruzka (ruz)</i>														
AGE CATEGORY														
ANSWERS	4.0-4.5		4.6-5.0		5.1-5.5		5.6-6.0		6.1-6.5		6.6-7.0		Overall	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
CORRECT	1	1.20	6	3.75	7	5.38	15	7.81	39	19.12	15	15.46	83	9.58
INCORRECT	82	98.80	154	96.25	123	94.62	177	92.19	165	80.88	82	84.54	783	90.42
OVERALL	83	100	160	100	130	100	192	100	204	100	97	100	866	100
% SUCCESS	1 %		4 %		5 %		8 %		19 %		15 %		-	10 %
% FAILURE	99 %		96 %		95 %		92 %		81 %		85 %		-	90 %
MEDIAN	0		0		0		0		0		0		-	-

Source: Author

Table 6: Overall results in the area of Syllable isolation

SYLLABLE ISOLATION								
		AGE CATEGORY						OVERALL
		4.0-4.5	4.6-5.0	5.1-5.5	5.6-6.0	6.1-6.5	6.6-7.0	
BÚDA (bú) SHED	Correct answers	15	40	41	82	118	49	345
	% success	18%	25%	32%	43%	58%	51%	40%
	MEDIAN	0	0	0	0	1	1	2
PENA (na) FOAM	Correct answers	7	33	45	88	116	52	341
	% success	8%	21%	35%	46%	57%	54%	39%
	MEDIAN	0	0	0	0	1	1	2
KOČÍK (ko) PRAM	Correct answers	10	28	31	87	100	47	303
	% success	12%	18%	24%	45%	49%	48%	35%
	MEDIAN	0	0	0	0	0	0	0
LÍŠKA (ka) FOX	Correct answers	5	23	31	67	93	47	266
	% success	6%	14%	24%	35%	46%	48%	31%
	MEDIAN	0	0	0	0	0	0	0
CERUZKA (ruz) PENCIL	Correct answers	1	6	7	15	39	15	83
	% success	1%	4%	5%	8%	19%	15%	10%
	MEDIAN	0	0	0	0	0	0	0
OVERALL	Correct answers	38	130	155	339	466	210	1338
	% success	9%	16%	24%	35%	46%	43%	31%
	MEDIAN	0	0	0	0	2	2	4

Source: Author

The overall percentage of success reflects the difficulty of the task we described above. Only 9.58% of the children managed to do the task. We consider the achieved results as adequate to the difficulty of the tested word as well as to the previous results, which were lower than expected. In all age groups,

the percentage of success ranged from 1% in the youngest age group to 19% in the age group from 6.1 to 6.5 years old. As well as in the testing of the previous words, the assumption that the success rate increases with age was not confirmed, as children from 6.1 to 6.5 years were more successful in testing than children in the oldest age group. The median value for all age groups is “0”. It means that children aged 4 to 7 years old do not cope with this task. In testing syllable isolation in the word “ceruzka” (pencil), the results demonstrate that:

1. Children aged 4 to 7 years old do not know if they omit the syllable “ruz” in the word “ceruzka”, creating the word “ceka”. The median value in all age groups is “0”.
2. For the word “ceruzka”, we cannot confirm that the ability to omit the syllable and to create a new word increases with age. The oldest age group was less successful than children aged from 6.1 to 6.5 years, although the difference is only 4%.
3. The overall success rate is 9.58%, meaning that less than 10% of children aged from 4 to 7 years old can isolate middle syllable in the word “ceruzka” correctly. Up to 90% of the tested children failed this task.

Summarizing the results in the area of Syllable isolation

Syllable isolation is the second area in which children were tested in ability to omit certain syllables and produce a new word. The results presented in Table 6, point to the percentage success in each tested word, and to the median as a valid standard. The overall percentage rate in the area of Syllable isolation is at very low level, i.e. 31%. All average success rates do not show significant variance around this percentage, with the exception of the word ceruzka (pencil) which had a 9% success rate.

Analysis of the percentage success in relation to age groups does not show that the success of children increases with age. The ability to produce new word by isolating some syllable is better in the age group from 6.1 to 6.5 years old (46%) than in the oldest age group (43%). Taking into consideration arithmetic means and percentage success, we can establish the following order of words:

1. The best results were achieved in the first tested word “búda” (40%). Children could produce the new word by isolating the first syllable “bú” from the word “búda”.
2. In the word “pena”, the success rate was 39%. In this word, the second syllable “na” was omitted. The percentage difference compared to the previous word is only 1%.
3. The third word with a 35% success rate is “kočík”, there the first opened syllable “ko” was isolated.
4. In the word “liška”, the second opened syllable “ka” was omitted and overall only a success rate of 31% achieved.
5. The worst ability to produce a new word by omitting some syllable was found in the word “ceruzka”. There was isolated the middle closed syllable “ruz”. The three-syllabic word had a success rate of only 10%.

Conclusion

The aim of the paper was to present the partial results of a larger study on the phonological and phonemic awareness of children in preschool age in Slovakia. A certain level of phonological skills is a predictor of later ability to read and write. When children grow older, they become more sensitive to the smaller units of words. However, sensitivity to syllabic and intra-syllabic phonological segments, the ability to isolate and work with single phonemes does not develop spontaneously. Therefore, learning to read an alphabetic orthography provides most children with the opportunity to develop full phonemic awareness. On the other hand, pre-literate activities in kindergartens can help the children to develop a certain level of phonological and phonemic awareness which is necessary later in the formal reading and writing instruction (Bentin, 1992; Anthony and Francis, 2005; Grofčíková and Máčajová, 2017).

Abbott et al. (2008) stated that five and six-year-old preschoolers should be able orally blend and delete words and syllables without the support of pictures or objects; orally blend the onsets, rimes, and phonemes of the words; and orally delete the onsets of words, with the support of pictures.

Our research results in testing Syllable isolation have demonstrated that the overall success rate of children aged 4 to 7 years old is only 31%. The median value “1” was established for two words “búda” and “pena” in the age group from 6.1 to 7 years old. It means that children at this age can isolate a syllable from the word “búda” and “pena” and can produce the rest of the words correctly. In

all other age groups and in all other words, the median value was "0". Children aged from 4 to 7 years old do not produce or create new words if some syllable is omitted in those tested words. In evaluating the success of children, we can classify the words into three groups. The first two words are included in the first group. Both are two-syllabic composed of two opened syllables. The percentage success is almost the same. We are not surprised by the similar percentage success of these two words. The second category includes the words "kočik" and "líška". They are very similar in structure, two-syllabic words formed by an opened and closed syllable, differing only in the order of these syllables. The opened syllable is omitted in both words. The difference in success rate is minimal, although children were more successful in testing the word "kočik". We have included the word "ceruzka" in the third group, which was the most challenging word compared to the other words. It has been targeted here to reveal children with above average abilities in the tested area. In up to four of the five tested words, children in the age group from 6.1 to 6.5 years old achieved better results than children from 6.6 to 7 years old. Diagnosing the large number of preschool participants helps to create a norm for phonological and phonemic awareness as one of the indicators of literacy difficulties.

Acknowledgements

The paper is the outcome of the VEGA project no. 1/0637/16 entitled The Development of a Diagnostic Instrument for the Assessment of the Level of Phonemic Awareness of Pre-School Age Children.

References

- Abbott, D., Lundin, J., Ong, F., & Soto, D. (2008). *Preschool learning foundations 1*. Sacramento: California Department of Education.
- Anthony, J. L., Lonigan, C. H., Driscoll, K., Phillips, B. M., & Burgess, S. R. (2003). Phonological sensitivity: A quasi-parallel progression of word structure units and cognitive operations. *Reading Research Quarterly*, 38(4), 470-487. Retrieved from <https://doi.org/10.1598/RRQ.38.4.3>
- Anthony, J. L., & Francis, D. J. (2005). Development of phonological awareness. *Current Directions in Psychological Science*, 14(5), 255-259. Retrieved from <https://doi.org/10.1111/j.0963-7214.2005.00376.x>
- Bentin, S. 1992. Phonological Awareness, Reading, and Reading Acquisition: A Survey and Appraisal of Current Knowledge. *Advances in Psychology*, 94(1), 193-210. Retrieved from [https://doi.org/10.1016/S0166-4115\(08\)62796-X](https://doi.org/10.1016/S0166-4115(08)62796-X)
- Garrett, B. (2009). *Brain and Behavior. An Introduction to Biological Psychology*. Thousand Oaks: SAGE Publications, Inc.
- Goswami, U. (2015). *Children's cognitive development and learning*. Research report. York, UK: Cambridge Primary Review Trust, Pearson Education.
- Grofčíková, S., & Máčajová, M. (2017). Abilities of phonological awareness in the context of cognitive development in preschool age. *Journal of Language and Cultural Education*, 5(3), 46-56. Retrieved from <https://doi.org/10.1515/jolace-2017-0027>
- Jošt, J. (2011). *Čtení a dyslexie*. Praha: Grada Publishing.
- Máčajová, M. (2011). *Jazyková gramotnosť : teórie a metódy jej rozvoja*. Nitra: UKF.
- Máčajová, M. (2013). *Diagnostika fonologického a fonematického uvedomovania v predškolskom veku*. Habilitačná práca. Nitra: PF UKF.
- Máčajová, M., Grofčíková, S., & Zajacová, Z. (2017). *Fonologické uvedomovanie ako prekurzor vývinu gramotnosti*. Nitra: UKF.
- Mikulajová, M., Dujčíková, O. (2001). *Tréning fonematického uvedomovania podľa D. B. El'konina*. Metodická príručka. Bratislava: Dialóg.
- Seidlová Málková, G. (2014). *Struktura fonologických schopností*. In *Vývoj jazykových schopností v predškolskom veku*. Praha: Grada.
- Šelingerová, A. (2017). Fonologické uvedomovanie ako prekurzor vývinu gramotnosti. *Školní psycholog*, 18(1), 108-113.
- Torgesen, J. K. (2002). The prevention of reading difficulties. *Journal of School Psychology*, 40(1), 7-26. Retrieved from [http://dx.doi.org/10.1016/S0022-4405\(01\)00092-9](http://dx.doi.org/10.1016/S0022-4405(01)00092-9)
- Torgesen, J. K., Al Otaiba, S. A., & Greek, M. L. (2005). Assessment and Instruction in Phonemic Awareness and Word recognition skills. In Catts, H. W. & Kahmi, A. G. (Eds.). *Language and reading disabilities* (2nd edition). New York: Pearson Education, Inc., 127-156.
- Vaessen, A. A. (2010). *Cognitive dynamics of fluent reading and spelling development*. Datawyse: Universitaire Pers Maastricht.
- Vágnerová, M. (2012). *Vývojová psychologie : dětství a dospívání*. Praha: Karolinum.
- Zelinková, O., Axelrood, P., & Mikulajová, M. (2002). *Terapia špecifických porúch učenia*. In *Terapia narušenej komunikačnej schopnosti*. Martin: Osveta, 251-270.
- Ziegler, J. C., Goswami, U. (2005). Reading Acquisition, Developmental Dyslexia, and Skilled Reading Across Languages: A Psycholinguistic Grain Size Theory. *Psychological Bulletin*, 131(1), 3-29. Retrieved from <https://doi.org/10.1037/0033-2909.131.1.3>