The effect of the Mesezene method on phonological awareness and rapid automatised naming

thesis summary

The objective of the study

The aim of the present research is to better understand the impact of the Mesezene method on phonological awareness and rapid automatised naming as a pedagogical option for reading preparation and teaching in the 21st century. The background in literature is provided by two previous pilot studies presented in detail in the dissertation itself. The present study is carried out with a larger sample size, a more accurate measurement tool and a qualitatively more detailed analysis. The aim of the empirical work is to gain a better understanding of the impact of the pedagogical methodology used, and thus to make evidence-based technology available for professional practice. The research ethics permit was issued by the Research Ethics Committee of the Faculty of Pedagogy and Psychology of Eötvös Loránd University, registration number: 2021/355.

The Mesezene method

The Mesezene programme has been provided for the experimental group, which was conducted by a certified kindergarten teacher who had been accredited during a state approved 30-hour training course for the application of the method. After the initial measurement, the children of the focus group received the training, which lasted a total of 7 months. In terms of language development, the training can be divided into 2 larger time units.

During the first 4.5-month session, the training programme's story-telling and play activities focus on phoneme identification for phonological awareness. Each week during the method-specific activities, children are introduced to a symbol representing a vowel or consonant. The encounter is provided by a storytelling context, lasting approximately 15-20 minutes. The method associates nine vowels and ten consonants with a symbol representing a fairy tale character. The remaining four days of the week provide 5-10 minute play activities to keep the methodology alive. During these activities, children are given playful instructions, mainly on how to identify the speech sound.

In the second unit of the programme, lasting for 2.5 months, the sounds of the figures are blended together. The result of the synthesis is always a closed, VC syllable. The children perform the blending operation with the help of a visual handout. The special importance of synthesis manipulation is outlined due to its role in reading technique. During the development of syllable reading, a linguistic transformation similar to blending takes place, which combines phonemes evoked by separate symbols into speech sounds realized in coarticulation.

None of the pilot studies shown significant difference on phoneme or syllable deletion either in inter- or intragroup comparisons (Szűcs, Tar, 2020a; 2020b). Thus, further investigation in the field would not be required, however, in the last phase of the programme, trained special needs educators supported the training for the focus group. Phoneme and syllable deletion tasks were integrated and presented to the children using the method-specific tools. Therefore further assessment of the area becomes justified again.

The control group did not receive any explicit language development programme. We can assume that their linguistic-cognitive development was developed spontaneously, without any particular external influence during the study.

The sample

Exactly 100 children participated in the baseline survey, but six of them had changed institutions or were unable to attend the output measurement due to long illness, therefore a total of 94 children provided data for the study. All children were in their last year of kindergarten, the average age of the focus group at the time of the input measurement was 5;8 years (N = 45, of which 29 boys, 16 girls), while the average age of the control group was 5;7 years (N = 49, of which 27 boys, 22 girls). All children speak Hungarian as their mother tongue and have intact hearing. None of the participants had special educational needs or disadvantaged socioeconomic status. During the research, the children attended kindergartens maintained by the municipal government of Pest County.

The circumstances of the research

The tests were performed twice, with an eight-month difference between the input (which took place in the autumn, from mid-September to mid-October in 2021, before the start of the training programme) and the output (immediately after the end of the training, from mid-May to mid-June). In all cases, the data collection took place in the morning, in a calm, quiet room.

Measurement tool

The test device consists of two larger units. The first is rapid automatised naming, the second is the examination of phonological awareness. Unlike the previous measurements (see: Szűcs, Tar, 2020a; 2020b), I omitted the Hungarian pseudoword repetition test, which examines phonological short-term memory capacity (Racsmány, Lukács, Németh, Pléh, 2005). Based on previous experiences, there is no detectable effect in this area either in intergroup or intragroup comparisons, therefore I do not consider it necessary to examine this memory dimension until the protocol for the training programme itself is changed.

Rapid automatised naming

To examine rapid automatised naming, the Columbia RAN test was used (Marosits, 2007), during which the child had to name visual signs of serially arranged colours (green, red, black, blue, yellow) and images (scissor, key, umbrella, clock, and comb) of familiar objects. During the process of testing, I recorded the time in seconds, the number of errors and revisions. By the latter, I define those cases when the child initiates (in some cases, ends also) a wrong realization, notices it and makes a correction. The phenomenon is therefore not classified as an explicit error, but it provides information about the way the cognitive function operates, therefore it might fill an important role during the analysis. The recording of revisions is necessary because the results obtained in the area are inconsistent (Szűcs, Tar, 2020a; 2020b), and thus the integration of a new measured factor is required in order to understand the phenomenon more precisely.

Measuring phonological awareness

A self-developed set of tasks was used to examine phonological awareness based on previously conducted measurements. The number of trials had been shortened on each language level (syllable, phoneme) and operations (identification, deletion, synthesis), because during the previous test recordings, the children showed signs of fatigue and deconcentration, and thus a certain degree of distortion may appear in the recorded data. Moreover the target phonemes and syllables used in each test have been optimized.

The operations of identification (syllable and phoneme level), deletion (on both syllable and phoneme level), and synthesis (only on phoneme level) were examined. Each subtest contains two identification and deletion trials with word-beginning and word-closing positions. Thus, the results can be analyzed based on the position of the speech sound and the syllable in the word, obtaining a more detailed picture of the functioning of the given phonological knowledge.

The previous studies did not include the measure of the functioning of syllable structure level operations, therefore in the present research tool, the rhyme awareness was pointed up also. Rhyme identification and two qualities of rhyme production were measured, one required purely verbal based fluency, and one had been supported with rhythmic and semantic surroundings.

Research questions

The present research aims to explore and answer two major questions. The first is connected to phonological awareness, while the second is related to the ability of rapid automatised naming.

1. Does the Mesezene methodology have an effect on phonological awareness, and if so, on which linguistic levels (syllable, rhyme, phoneme) and in what operational quality does it manifest itself? Previously conducted small-sample pilot studies investigating the Mesezene have shown the possibility of the method's effect on phonological awareness. The most substantial impact was in the field of phoneme identification, where not only intra- but also intergroup comparisons revealed significant differences (Szűcs, Tar, 2020a; 2020b). The ability to identify phonemes is essential to start learning to read and form the letter-sound relationship. One of the important questions of this research is whether the training programme can support the ability to identify speech sounds.

The pilot studies also point out that the present pedagogical technology positively affects the children's ability to blend sounds. In the case of children with a typical socioeconomic status, a significant improvement in the field can be demonstrated in within-group comparison. However, based on the previous small sample measurement, the effect was not detectable in intergroup relations. Compared to this, in the case of socially and economically disadvantaged children, the effect seems to be more defined, as both the inter- and intragroup analysis revealed a significant difference. In the field of phonological awareness, the question arises as to whether the effect rightly assumed in the blending operation is really present, and if so, whether it can only be significant in intragroup or even intergroup comparisons.

2. In the case of rapid automatised naming, the impact of the methodology is not clearly explicit, since none of the previous studies showed an effect aroused in intergroup comparisons,

neither in the naming of colors or objects, nor in terms of errors or the temporal characteristics of naming. At the same time, in the case of children living in typical socioeconomic conditions, in the intragroup comparison a significant reduction in the number of errors in color naming occurred, and the temporal characteristics of object naming also improved. Moreover, in the case of cumulatively disadvantaged children, the temporal dimension of color naming changed noticeably. Based on the present data, the question arises as to whether the results that are not completely consistent and the effect that is not strongly delineated can be seen during a new measurement with a larger number of participants, or whether the effect can be found during a more detailed, qualitative analysis that also integrates the number of revisions, which may also explain the significant improvement of the temporal characteristics outlined during the two measurements in within groups comparisons.

Based on the previous literature analyses and the presented research questions, I formulate the following hypotheses.

H.1. Phoneme identification

H.1.1. Based on Szűcs and Tar (2020a), I assume that in the field of the identification of speech sounds (both consonants and vowels) we find a detectable difference in the intergroup comparison during the output measurement in the integrated data analysis.

H.1.2. Since, according to Jordanidisz's (2015) study, the easiest identification task for the Hungarian-speaking children is the vocal identification of word onsets, while in the case of the sample she examined, the children's performance is not far behind in the task of isolating word-final fricatives, and the tool of the present study in the phoneme identification task measures only word onsets or closing position, therefore I assume that in a comparison within the group, the children of the control group will also improve in terms of isolating speech sounds. However, I believe that the level of significance is lower than that one observed in the case of the study group.

H.2. Syllable identification

H.2.1. Based on the study of Szűcs and Tar (2020a), I hypothesize that the method not only affects the identification of phonemes, but also syllables. I assume that the focus group performs better compared to its previous results in syllable identification, while in the case of the control group there is no detectable difference in the comparison of the results of the input and output measurements.

H.2.2. Szűcs and Tar (2020a) found no significant differences in syllable identification in the case of children with typical socioeconomic status in an intergroup comparison. Although in the later research conducted by the authors with socioeconomically disadvantaged children (Szűcs, Tar, 2020b) a significant intergroup difference appeared in this respect as well, taking into account that the present study is also conducted with children living within typical economic situation, I therefore assume that in the field of syllable identification no detectable differences would occur in intergroup relations.

H.3. Phoneme blending

H.3.1. Based on the results of Szűcs and Tar (2020a), I assume that during the two-item (CV+VC) phoneme synthesis task, in the comparison within the group, the test group improves significantly compared to itself, while a similar phenomenon would not be detected in the control group, considering that the manipulation level knowledge begins to develop significantly by the beginning of elementary school education (Jordanidisz, 2015).

H.3.2. Furthermore, I assume that during the output measurement no detectable differences occur in the intergroup comparison for any of the examined blending tasks.

H.4. Deletion

H.4.1. Previous research has found no detectable difference in deletion manipulations. The training programme has been modified based on the results of these pilot studies and now includes elimination-sensitive units. Given that children develop syllable-level awareness sooner than phoneme-level awareness, I hypothesise that for this complex task requiring operational-level knowledge, only a difference at the syllable level will be detectable. In this case, however, there will be a difference in both between- and within-group comparisons.

H4.2. If there is a significant difference in phoneme deletion, it is only revealed in intragroup comparisons in the case of the focus group, while remains invisible between groups.

H.5. Assumptions on the syllable structure level

H.5.1. I hypothesise that there will be no detectable difference between the two groups regarding the identification on syllable structure level. I do not assume any divergence in within-group comparisons, but if there is a difference, it will be revealed in the focus group only.

H.5.2. According to Jordanidis (2015), pre-school children already have the ability to access the word-closing syllable, while the methodology does not include a task requiring explicit rhyme production, therefore I consider that there will be no detectable difference between the two groups in terms of semantic aided rhyme production, neither in the input nor in the output measures. Moreover, if an intragroup comparison of the input and output measures reveals a difference, it will be detectable for both groups.

H.5.3. I assume no detectable difference between the groups in the word-based rhyme production task, but I believe that the test group will perform significantly better on the post-training measure compared to its previous results.

H.6. Rapid automatised naming

H.6.1. Since some units of the training programme require colour-based naming on time pressure, I assume it will be detectable on the temporal characteristics of the colour naming. Based on the previous studies of Szűcs and Tar (2020a; 2020b), I assume that the difference is only intragroup related and not detectable between groups.

H.6.2. I hypothesize that the positive effect on the temporal specificity of the rapid automatised naming shown in previous studies (Szűcs, Tar, 2020a; Szűcs, Tar, 2020b) is the result of a reduction in the number of revisions. Therefore, I consider a significant improvement in this area for the study group. I consider that a similar phenomenon is not observed in the control group in the input-output measure, but I do not assume that the difference is significant in a between-group comparison.

H.6.3. I hypothesize, apart from revisions and the temporal dimension of colour naming, no within-group differences are detectable for all other indicators with regards to the two measurements. If there is a difference, I assume that it is due to spontaneous maturation, therefore it is not only outlined for the test group but also for the control group.

Answering the hypotheses

H.1. Phoneme identification

Answer to H.1.1.

Based on the input measurement, the integrated phoneme identification results of the two groups do not differ significantly and are therefore comparable. The output measurement for vowel identification showed a significant difference in a between-group comparison (U = 678.5, z = -3.355, p < 0.001, r = 0.346). The level of significance is moderate. The statistical analysis of the identification of the consonants also revealed differences between the data of the two groups (U = 598.5, z = -4.357, p < 0.001, r = 0.449). The present data support hypothesis H1.1.

Answer to H.1.2.

The hypothesis implicitly makes three claims. Children in the control group will improve in phoneme identification tasks, that means 1) they will be demonstrably better at identifying vowels and 2) they will be notably better at identifying consonants, while 3) the significance level of the potential difference between the two measurements of the control group is below that of the focus group.

In the identification of vocals, the reference group did not improve significantly in any of the indicators tested compared to the input measurement (integrated vocal identification: U = 1451, z = 1.834, p = 0.67, r = 0.185; initial vowel: U = 1355, z = 1.386, p = 0.166, r = 0.14; closing vowel: U = 1440, z = 1.816, p = 0.069, r = 0.191). The part of the hypothesis that assumed a significant within-group change in the vowel identification ability of the control group does not seem to hold.

For all the consonants tested, there is a difference between the input and output performance of the control group. The level of significance for all dimensions tested is slight (integrated consonant identification: U = 1558, z = 2.611, p = 0.009, r = 0.267; initial consonants: U = 1510.5, z = 2.555, p = 0.011, r = 0.258; closing consonants: U = 1505, z = 2.336, p = 0.019, r = 0.235). For consonant identification, the data support the hypothesis.

The within-group analysis revealed significant differences for the focus group along all the indicators examined and, where there was a notable difference in the reference group, the significance level was always lower compared to the experimental group. The data analysis therefore supported the third part of the hypothesis.

H.2. Syllable identification

Answer to H.2.1.

A szótagazonosítási próbák vonatkozásában a vizsgálati csoport jelentős mértékben változott önmagához képest. The integrated evaluation of syllable identification revealed a strong effect size (U = 1593.5, z = 5.017, p < 0.001, r = 0.528), while the extent of difference for analysis of the identification of the initial syllable (U = 1420, z = 4.082, p < 0.001, r = 0.422) and the closing syllable (U = 1416, z = 3.839, p < 0.001, r = 0.404) were found to have a medium effect size.

In the case of the control group, none of the examined variables showed significant differences (integrated identification of syllables: U = 1349, z = 1.102, p = 0.27, r = 0.111; initial syllable identification: U = 1239.5, z = 0.338, p = 0.698, r = 0.034; closing syllable identification: U = 1342.5, z = 1.219, p = 0.223, r = 0.123). Mathematical statistics therefore support the hypothesis.

Answer to H.2.2.

According to the intergroup statistics of the identification of all syllables, the two groups differ significantly during the output measurement (U = 789, z = -2.654, p = 0.008, r = 0.273). The present data suggests that there is a detectable difference in performance between the two groups and that the hypothesis is not correct. However, this cannot be supported by the test of the identification of the word-closing syllables, where no significant difference in performance between the two groups was found (U = 988.5, z = -1.187, p = 0.235, r = 0.122). Unfortunately, the syllable identification in word-initial position could not be implemented because of the larger difference in the input measurement (U = 1405, z = 2.707, p = 0.007, r = 0.279), thus we cannot use this data to argue for either the falsification or the verification of the theorem. My hypothesis was supported by the data obtained in the area of word-initial syllables, refuted by the integrated-syllable data analysis, and certain variables (word-initial syllable identification) cannot be calculated, so mapping the area and verifying/rejecting the hypothesis should be the focus of future research.

H.3. Phoneme blending

Answer to H.3.1.

The control group did not change significantly from their previous performance in either the VC ($U = 1200.5$, $z = 0.00$, $p > .999$, $r = 0$) or CV ($U = 1225$, $z = 0.22$, $p = 0.826$, $r = 0.022$) blending task. However, for the test group, a significant difference was found for both VC ($U = 1755.$, $z = 6.946$, $p < 0.001$, $r = 0.732$) and CV syntheses ($U = 1395$, $z = 3.75$, $p < 0.001$, $r = 0.395$). The present data support the hypothesis.

Answer to H.3.2.

Unfortunately, due to the difference in the input measurement, the data from the VC synthesis and the integrated blending tasks are not comparable in the output measurement in intergroup terms. The data obtained from the CVC ($U = 1031$, $z = -0.711$, $p = 0.477$, $r = 0.073$), and VCVC blending ($U = 1047.5$, $z = -0.861$, $p = 0.389$, $r = 0.088$) do not differ significantly. They therefore support the hypothesis. However, the analysis of the results of the CV ($U = 852$, $z = -2.222$, $p = 0.026$, $r = 0.229$), as well as the VCCV ($U = 923$, $z = -2.142$, $p = 0.032$, $r = 0.22$) synthesis shows that the focus group has improved significantly, which is reflected in the intergroup aspect. The latter two statistics therefore refute the hypothesis.

H.4. Deletion

Answer to H.4.1.

In the within-group analysis of the syllable deletion tasks, no significant differences were found in the control group in any of the factors tested (integrated syllable deletion: $U = 1300$, $z = 0.764$, $p = 0.445$, $r = 0.077$; closing syllable deletion: $U = 1238.5$, $z = 0.297$, $p = 0.766$, $r = 0.03$; initial syllable deletion: $U = 1317.5$, $z = 1.036$, $p = 0.3$, $r = 0.104$). In contrast, the values of the test group improved significantly compared to the input measurement (integrated syllable deletion: $U = 1675.5$, $z = 5.59$, $p < 0.001$, $r = 0.589$; closing syllable deletion: $U = 1577.5$, $z = 4.918$, $p < 0.001$, $r = 0.518$; initial syllable elimination: $U = 1527.5$, $z = 4.958$, $p < 0.001$, $r = 0.522$). The effect size is strong in all cases. The data analysis supports the hypothesis, however, there was a detectable effect in the performance of the test group in the area of phoneme level deletions also (the exact presentation and analysis of the speech sound level data is presented in the answer to H.4.2).

Answer to H.4.2.

The test group showed a significant change in all the speech tasks, while the reference group produced almost identical results in the output measure (integrated results of the focus group: $U = 1701.5$, $z = 6.036$, $p < 0.001$, $r = 0.636$; integrated results of the reference group: $U = 1364$, z = 1.43, $p = 0.153$, $r = 0.144$; initial vowel deletion focus group: $U = 1282.5$, $z = 2.927$, $p = 0.003$, $r = 0.308$; initial vowel deletion control group: $U = 1396.5$, $z = 1.78$, $p = 0.075$, $r = 0.179$; initial consonant deletion focus group: $U = 1620$, $z = 5.752$, $p < 0.001$, $r = 0.606$; initial consonant deletion control group: $U = 1274$, $z = 0. 889$, $p = 0.374$, $r = 0.089$; elimination of closing vocal in the focus group: $U = 1440$, $z = 4.88$, $p < 0.001$, $r = 0.514$; elimination of closing vocal in the reference group: $U = 1323$, $z = 1.592$, $p = 0.111$, $r = 0.16$; elimination of closing consonant in the focus group: $U = 1260$, $z = 3.094$, $p = 0.002$, $r = 0.326$; elimination of closing consonant in the reference group: $U = 1274$, $z = 0.889$, $p = 0.374$, $r = 0.089$).

Thus, the present data unanimously support the hypothesis, but differences in the performance of the two groups in most speech sound deletion tasks can be detected in the intergroup analysis (integrated results of the phoneme deletion task: $U = 478$, $z = -4.964$, $p < 0.001$, $r = 0.511$; initial consonant deletion: $U = 866$, $z = -2.339$, $p = 0.019$, $r = 0.241$; initial vocal deletion: $U = 723.5$, $z = -3.319$, $p < 0.001$, $r = 0.342$; elimination of closing vocal: $U = 817$, $z = -2.757$, $p = 0.006$, $r = 0.284$). Only the analysis of the deletion of the final consonants ($U = 964$, $z = -1.453$, $p = 0.146$, $r = 0.149$) could not reveal divergence among the two groups. The statistical differences in the between-group comparisons support the rejection of this hypothesis, and thus this assumption cannot be confirmed.

H.5. Assumptions on the syllable structure level

Answer to H.5.1.

On the outcome measure, the mathematical statistic for between-group comparison showed that the test group differed significantly from the control (U = 835, z = -2.077, p = 0.038, r = 0.214). In the area of rhyming, both groups improved significantly compared to themselves (focus group: U = 1486.5, z = 3.916, p < 0.001, r = 0.412; control group: U = 1547.5, z = 2.529, p = 0.011, r = 0.255). The significance level is moderate for the test group and slight for the control group. The present data falsify the hypothesis.

Answer to H.5.2.

For semantic-based rhyme production, no significant difference between the performance of the two groups is reported for either input (U = 1211.5, z = 0.89, p = 0.374, r = 0.091) or output measures (U = 1014, z = 0.87, p = 0.385, r = 0.089). In intragroup comparisons, a difference in the performance of both the test (U = 1404.5, z = 3.614, p < 0.001, r = 0.385) and reference (U = 1494, z = 2.379, p = 0.017, r = 0.24) groups can be detected. The only difference is in the effect size of the comparisons within the group. The divergence is moderate for the test group and slight for the reference group. Data analysis supports the hypothesis in question.

Answer to H.5.3.

Statistically significant differences in rhyme production with words were detected for both the test and control groups (focus group: U = 1692.5, z = 5.838, p < 0.001, r = 0.615; control group: U = 1477, z = 2.193, p = 0.028, r = 0.221). A strong effect size was found for the focus group and a slight degree of significance for the control. In intergroup comparisons, there is also a difference (U = 635.5, z = -3.657, p < 0.001, r = 0.377). The present data suggest that the focus group performs significantly better in both intra- and intergroup comparisons. The analysis disproved the first half of the hypothesis, as there was a difference in intergroup comparisons, while the second half was confirmed, given that the study group showed a significant difference in word-based rhyme production compared to itself.

H.6. Rapid automatised naming

Answer to H.6.1.

No detectable between-group difference occurs in the temporal characteristics of the rapid automatised naming in the output measure (U = 1296, z = 1.466, p = 0.143, r = 0.151). In a within-group comparison, a significant performance change in the focus group is detected (U = 326.5, z = -5.539, p < 0.001, r = 0.583). The present data therefore support the hypothesis.

It should be added, however, that the performance of the control group also improved between the two measurements (U = 685.5, z = -3.66, p < 0.001, r = 0.369). The difference between the two results is found in the level of significance, which is strong for the focus group and moderate for the control group.

Answer to H.6.2.

On the output measure, there is no difference in performance between the two groups for either the colour naming (U = 1157, z = 0.532, p = 0.595, r = 0.57) or the object naming revisions (U = 1211.5, z = 0.965, p = 0.335, r = 0.099). This therefore seems to support the hypothesis. However, both the focus and the reference group varied significantly relative to itself along the two indicators tested (colour naming revisions in the focus group: U = 636.5, z = -3.383, p < 0.001, r = 0.356; colour naming revisions in the control group: U = 791, z = -3.203, p = 0.001, r = 0.323; object naming revisions if the focus group: U = 545, z = -4.026, p < 0.001, r = 0.424; object naming revisions of the control group: U = 722.5, z = -3.577, p < 0.001, r = 0.361). Even in terms of effect size, we do not find divergence, as the data show a moderate magnitude of difference along both variables in both groups. The present hypothesis is therefore refuted by mathematical statistics.

Answer to H.6.3.

There is a detectable difference in the amount of errors in colour naming for both groups. A medium effect size (U = 759, z = -3.156, p = 0.002, r = 0.332) is observed for the test group and a slight effect size (U = 928, z = -2.497, p = 0.013, r = 0.25) for the control group. A similar phenomenon is also observed in the temporal dimension of object naming. In a within-group comparison, there is a detectable difference, but the effect size is medium for the test (U = 599.5, z = -3.338, $p < 0.001$, r = 0.351) and only slight for the reference group (U = 852.5, z = -2.474, p = 0.013, r = 0.249). In terms of the amount of errors in object naming, there is no significant difference between the results of the two measures for either group (focus group: U = 859, z = -1.739, $p < 0.082$, r = 0.183; control group: U = 1039.5, z = -1.301, p = 0.193, r = 0.131).

Thus, the data on errors in object naming are unchanged, while errors in colour naming and temporal specificity of object naming show a change in performance for both groups. The data analysis therefore supports the hypothesis.

Answering the research questions

In accordance with Hungarian legislation and the position declared by the European Commission, the aim of this paper is to evaluate the impact of a programme which, we assume, could be suitable for positively influencing meta-linguistic abilities, taking into account the specificities of the pre-school child and structuring the development around an age-appropriate intrinsic motivational system.

Previous studies on the method have raised the possibility of an effect on phonological abilities (Szűcs, 2019), and within this, there have been major changes in the area of phoneme identification and phoneme synthesis (Szűcs, Tar, 2020a). The effect seems to be even more profound in the case of children living within socially and economically disadvantaged circumstances (Szűcs, Tar, 2020b). Literacy is based on stable phonological knowledge, since the development of the grapheme-phoneme relationship can only be built up in the case of accurate phonological representation. We are therefore talking about a programme that, based on the publications to date, may have a positive impact on the foundation of reading skills, even before the actual reading instruction begins. Several sources (Lőrik, 2006a; Fazekasné Fenyvesi, 2021) report on the need to test, measure and then apply pedagogical technologies in the kindergarten period that help to access the internal structure of words and provide more stable phonological knowledge. Senczi (2010) stresses that, in addition to the cognitive-linguistic aspect, the motivational factor is also important, since it leads children to use the ‘key’ that reading skills provide.

The present study was framed around two research questions: the impact of the Mesezene method on phonological awareness and on rapid automatic naming.

The results on phonological ability are in line with previous literature. Children in the programme acquired phonological knowledge that resulted in statistically detectable differences on tasks in the areas of phoneme identification, phoneme synthesis and syllable identification. Identification operations play a role primarily in the construction of the grapheme-phoneme association, since in the case of a stable phonological unit, the mental representation of the letter associated with the speech sound can take firmer, deeper root, while synthesis manipulation plays a role in the construction of reading skills, since the syllable and word reading requires the blending of phonological units derived from grapheme impulses.

The programme has been improved based on previous measurements, and as a result, it has been enhanced with playful tasks that support the training of operational skills that require more complex phonological knowledge. While in the previous measurements there was no detectable effect in the area of phoneme and syllable deletion (see Szűcs, Tar, 2020a; 2020b), the data from the present analysis show one of the most outlined improvements in this area. The significance of the finding is that there has been a remarkable change not only regarding identification and synthesis, but also in the more complex elimination, which requires an executive function beyond phonological knowledge.

In Hungarian children, there is a lag in the development of syllable structure awareness compared to native English-speaking children, which is most likely due to lexical, morphological and morphosyntactic differences between the two languages (Jordanidis, 2015). In the present study, the groundbreaking data on syllable structure awareness suggest that the method catalyses the development of the skill in the making at this age.

Assessing the indicators of the rapid automatised naming, there are slight differences between the two groups of the present measurement, which can be seen mainly in the effect sizes of the intragroup analyses. A slight facilitating effect is observed for the temporal indicators, where we find a difference in the significance level in the within-group comparisons. Moreover, we can reject the assumption based on previous measurements (Szűcs, Tar, 2020a; 2020b) that revisions may be behind the performance improvement occurring during previous studies, as the two samples show practically identical performance in both between- and within-group comparisons. As a result, it can be assumed that some of the tasks of the methodology have a facilitating effect in the area of word retrieval over time, which does not affect the production quality, i.e. there are no fewer errors and the number of revisions in the end is not reduced, but only the temporal indicators show a stronger effect size.

The work thus confirmed the previous literature in the field of identification and synthesis capabilities, and demonstrated the success of the nova of the method, the deletion operations, for the sample under study. It reported significant variations in word-based rhyme production and rhyme identification, while minor variations occurred in the temporal indicators of semantic rhyme activation and rapid automatic naming. However, in addition to the responses, a number of questions have been raised that require further measurement and research.