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FORMATION OF TECHNICAL READING SKILLS IN PUPILS WITH DYSPHASIA

Abstract. The article is devoted to the formation of the practical skills of reading in schoolchildren with dysarthria. The scope of research embraces the peculiarities of formation of technical reading skills in children with different degrees of severity of dysarthria. The author has studied the peculiarities of reading skills and the technical aspect of reading in schoolchildren of the 1st and 2nd forms using the standardized methods of O. Inshakova. The results have been compared and have revealed the problems of teaching reading. The given research shows that the children with dysarthria read slower, make more mistakes, and their intonation skills lag behind in comparison to the normally developing peers. Preschool preparation of children with dysarthria plays a great role in the reading skills development.

The results obtained should be taken into account by primary school teachers, pedagogues-psychologists, speech therapists and other specialists in designing individual educational routes for schoolchildren with speech pathology under the conditions of inclusive and special education. The peculiarities identified in the study prove the necessity of organization and development of differentiated teaching methods for this category of children.

Keywords: methods of teaching reading; methods of teaching reading at school; primary school teaching reading; children's reading; technical aspect of reading; junior schoolchildren; logopedics; children with speech disorders; dysarthria.

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Introduction. Teaching children to read is one of the global issues of the modern school. According to I. A. Zimnyaya [8], reading is a specific kind of activity the essence of which consists in the unity between its internal and external aspects. The external aspect of reading is a complex skill which characterizes acquisition of its technical side: speed and accuracy of reading ensuring the listener's normal text comprehension. The interior aspect reflects the process of text understanding, which, according to T. G. Egorov, M. R. L'vov, A. N. Kornev and other scholars, includes such moments as integrity and coherence facilitating the appropriation of the information related in the text. The problem is especially urgent for special pedagogy dealing with teaching children with speech pathology, and specifically children with dysarthria. As modern theoretical and practical research shows, the realization of the technical aspect of reading involves both oral speech and visual recognition of the graphic images of letters. The outcomes of acquisition of the primary reading skills depend on the quality of development of these components.

The role of oral speech in learning reading presupposes the presence of all its characteristics: pronunciation, phonemic perception, syllabic structure, active vocabulary, as well as grammatical struc-

ture and ability to build a coherent utterance, which is often impaired in children with dysarthria. Underdevelopment of oral speech in children with dysarthria substantially hampers the process of acquisition of sound-letter analysis and synthesis. Visual-gnostic and visual-spatial disorders do not allow the formation of stable images of letters, syllable and word. This impairs the process of integration of the auditory and visual information necessary for the solution of the technical problem during reading. In this connection, the solution of the problem of formation of the technical aspect of reading with the help of specially designed methods for children with dysarthria of various degrees of manifestation is especially urgent.

The goal of our research consists in studying the process of acquisition of reading by primary school pupils with dysarthria.

The scope of research includes the technical aspect of reading aloud of primary school pupils with dysarthria.

The object of research embraces the peculiarities of formation of the technical aspect of reading aloud in pupils with various degrees of manifestation of dysarthria.

Our research hypothesis poses that children with various degrees of manifestation of dysarthria have different problems in the formation

of the technical aspect of reading aloud; taking them into account, it may become possible to design efficient individual methods of formation of the technical aspect of reading for each category of children.

The following **tasks** correspond to the goal formulated above:

1) undertaking theoretical and methodological analysis of special literature by home and foreign authors determining the theoretical and methodological parts of investigation;

2) choice of research methods of the study of the process of reading aloud by primary school pupils with the clinical diagnosis “dysarthria” and the minimal manifestations of dysarthria;

3) observation of the technical aspect of reading of primary school pupils and identification of the impairments characterizing speed, method, accuracy and expressiveness of reading;

4) formation of the control group (CG) including children with the typical formation of the skill, and the experimental group (EG) embracing children with problems of acquisition of the technical aspect of reading for conducting a comparative analysis;

5) analysis of the results of the experimental study of the pupils of both groups and design of the priority areas of rehabilitation work.

The following **research methods** have been used to complete the tasks set and achieve the goal identified: the methods of empirical investigation: analytical review, method of individual complex observation of primary school pupils, summative experiment; the methods of statistical analysis of results, quantitative and qualitative analysis of the summative experiment data, where the reliable result is $p = 0.001$.

Observation methods. We have chosen the method of O. B. Inshakova including the study of the reading skills and the technical aspect of reading of the first and second form pupils [2]. The procedure of testing reading skills includes 9 tests with the help of which we studied letter recognition, ability to read letters, syllables, short words of various complexity and simple texts.

The study of the process of formation of the skills of the technical aspect of reading in the pupils of the second, third and fourth forms at different stages of learning needs using texts matching the children’s age. We observe the parameters of speed, method, accuracy and expressiveness of reading. A 15-point evaluation scale is used to single out the high, medium, low and zero levels, characterizing the reading skills of the children and the results of their completion of the tasks

aimed at analysis of the technical aspect of reading.

The experimental study was carried out during 2006-2010 on the base of the special boarding school № 4 of type V for children with severe speech disorders and on the base of the general education schools № 14 and № 40 of the city of Vladimir. In the course of observation, we formed the EG (n = 92) and the CG (n = 35) from the first formers aged 7. The CG is characterized by typical speech development. The EG of children with the diagnosis “dysarthria” was subdivided into two subgroups: ES-1 includes pupils with severe manifestations of dysarthria (of pseudobulbar nature) demonstrating general speech underdevelopment (n = 8); ES-2 (n = 84) comprises pupils with minimal manifestations

of dysarthria and logopedic conclusions of general speech underdevelopment (n = 48) and phonemic-phonetical underdevelopment (n = 36).

Research results. The study of the test results of the reading skills of children at the time of their enrollment in form 1 in comparison to the results of the CG shows that the reading skills of the children of ES-1 are formed well, because before school, they had taken a course of logopedic work including preparation to learning reading, according to the parents’ questionnaires. In ES-2, there is prevalence of children with a low level of development of the reading skills.

The results of development of the reading speed in the children of the CG and the EG are shown in table 1.

Table 1. Comparative results of dynamic observation of reading speed (number of characters per minute) in ES-1, ES-2 and CG.

Time of observation	Group	Average indicators	Standard deviation	Significance of differences according to the Mann–Whitney <i>U</i> test
End of form 1	CG	165.97	107.90	p = 0.1
	ES-1	107.62	31.46	
	ES-2	134.10	58.61	
Beginning of form 2	CG	255.91	23.83	p < 0.001
	ES -1	128.38	17.04	
	ES -2	155.73	53.95	
End of form 2	CG	412.77	123.45	p < 0.001
	ES -1	191,14	57,66	
	ES -2	155,73	51,63	

Table 2. Comparative indicators of dynamic changes in the method of reading in the children of ES-1, ES-2 and CG.

Time of observation	Group	Average indicators	Standard deviation	Statistical difference according to the Kruskal–Wallis test
End of form 1	CG	5.29	2.41	p = 0.37
	ES -1	3.75	3.54	
	ES -2	4.94	3.06	
Beginning of form 2	CG	5.00	3.43	p = 0.02
	ES -1	5.00	3.78	
	ES -2	6.73	3.15	
End of form 2	CG	10.71	2.47	p < 0.001
	ES -1	9.38	4.96	
	ES -2	6.73	3.90	

The results given in table 1 show that the reading speed in the groups under observation increases from the first form to the end of the second form.

In the second form, the schoolchildren of the groups under comparison demonstrate a marked increase in reading speed from the beginning of form 2 to the end of school year. The average reading speed of the CG pupils by the end of form 2 is 400 characters per minute, of the ES-2 children – 200 characters per minute, and of the ES-1 children – only 170 characters per minute. It should be noted that the reliable differences ($p = 0.001$) are observed between the two experimental groups which are revealed in the significant differences between the speed indicators. The process of reading of the children of ES-1 and ES-2 with low reading speed indicators is characterized by loss of line and using finger to track

the line during reading. This phenomenon is more frequent in the children of ES-2 who read slower than other children, though similar problems can be observed in the children of ES-1 who often look for the beginning of the next line or the beginning of the next sentence.

The results of the study of the next indicator of the technical aspect – method of reading – are shown for the CG, ES-1 and ES-2 children in table 2.

Table 2 shows that there are no reliable differences in acquisition of the methods of reading between the CG, ES-1 and ES-2 children at the end of form 1. The syllabic method of reading is the prevailing one in the majority of schoolchildren, which is revealed during observation of the pupils at the beginning of form 2. By the end of the second year of schooling, the children demonstrate certain changes. By this time, all pupils of the CG have

mastered a higher level of the skill formation – reading by whole words. The majority of the ES-1 and ES-2 children stay at the same level of the skill formation, and only some children pass on to the next level. At this time, the ES-2 children show significantly better results out of the two experimental subgroups. Here is an example of the method of reading of a pupil of ES-2: “Nash zna/ko/myy okhot/nik shel be/re/gom les/noy re/ki” (read-

ing of short words by whole words and by fusions). And here is an example of the method of reading of a pupil of ES-1: “Na/sh z/na/ko/my/y o/kho/t/ni/k she/l be/re/go/m le/s/no/y re/ki”. The given example shows that the pupil of ES-1 possesses the skill of reading by fusions.

The results of observation of the next indicator of the technical aspect – accuracy of reading – are shown in table 3.

Table 3. Comparative indicators of dynamic changes in reading accuracy in the children of ES-1, ES-2 and CG.

Time of observation	Group	Average indicators	Standard deviation	Statistical difference according to the Kruskal–Wallis test
End of form 1	CG	8.29	4.01	p = 0.75
	ES -1	7.80	5.62	p = 0.75
	ES -2	9.38	4.96	p = 0.75
Beginning of form 2	CG	13.86	2.45	p < 0.001
	ES -1	9.35	4.90	p < 0.001
	ES -2	11.25	3.54	p < 0.001
End of form 2	CG	14.00	2.66	p < 0.001
	ES -1	10.01	4.84	p < 0.001
	ES -2	11.25	5.18	p < 0.001

Table 3 shows that the children of all groups under observation make a large number of errors while reading aloud at the end of form 1 and do not differ in their results from each other (p = 0.75).

At the beginning of form 2, there appear significant differences between the subjects of the whole EG and the CG in the number of errors characterizing accuracy of reading. The number of errors in the

CG children decreases radically, and the errors in the ES-1 and ES-2 children remain to be stable. The comparison between the subgroups of pupils with various degree of dysarthria shows that the pupils of ES-2 make significantly more reading errors (10.6 on the average). All pupils of this subgroup make the following errors more often than others: mixing up letters that look similar; replacing voiceless conso-

nants by voiced ones; mixing up the vowels O — A (*Russian characters*); mixing up the sonorants Л — Н (*Russian characters*), replacing hard velar consonants by hard palatal ones. Insertion of letters and sounds in clusters of consonants is the most frequent error, for example: *golubka* — «*golubooka*», *zakhlopnut'* — «*zakholopnut'*», *vsporkhnula* — «*vosoporkhnula*», *brasila* — «*borosila*». Word accent errors are made quite often, too, for example: «*kholodnóy*», «*beregóm*», «*such'év*», «*dognála*» «*pryamíkom*». The number of such errors increases in ES-1 by the end of form 2.

Expressiveness of reading does not develop in the EG pupils with dysarthria by the end of the observation period due to the difficulty of transition from the syllabic method of reading to reading by whole words and the difficulties of intoning which are connected with disorders of the process of reproduction of sentence intonation contours. It is caused by the presence of non-coordinated, shallow and irregular breathing and, as a consequence, by the specificity of timbre, melody, intensity and pronunciation tempo while reading a syntagm.

In addition we have noticed that over the whole period of observation of the children with dysarthria (ES-1 and ES-2), in case of difficulties they needed stimulating, emotional-regulatory, orientational and sometimes organizational assistance

on the part of the adult, because the pupils with dysarthria demonstrate frustrating emotions and neurotic responses.

Thus, the comparison of the study results of the technical aspect of reading of primary school pupils with dysarthria of various degrees reveals significant differences from the CG pupils which are manifested in the reading speed, slower development of the productive method of reading by whole words, accuracy of reading aloud and absence of expressive reading.

The comparison of the subgroups of the pupils with various degrees of the disorder manifestation shows that they also have certain peculiarities and differences in all the characteristics of the technical aspect of reading aloud; and this fact demonstrates the need to use the differentiated approach in the rehabilitation work on the reading skills formation.

Conclusions.

- Analysis of the theoretical and methodological literature has shown that the technical aspect of reading is a complex psychophysical process based on the quality of activity of such higher psychological functions as oral speech and visual perception. Investigation of the issues of formation of the technical aspect of speech in children with dysarthria with the aim of designing special methods of rehabilitation intervention is especially urgent.

- We believe that the standardized method of O. B. Inshakova used in our research is the most suitable and informative one among a great number of the methods of investigation of the reading skills of primary pupils with dysarthria. The given method of observation of reading reveals the significant differences between the pupils of the CG and the EG during the period of learning reading in the first and second forms:
 - the reading speed of the EG pupils makes up only half of that of the CG pupils;
 - the process of development of fluent reading by syllables and transition to reading by whole words takes longer time in the EG children, whereas all CG pupils master reading by whole words by the end of form 2;
 - primary school EG pupils make twice as many reading errors as the CG pupils at the end of form 2. The errors have a stable and specific character;
 - in contrast to the CG pupils, the EG pupils do not develop expressive reading due to the prosodic specificity of their speech and difficulties in the formation of the method of reading by whole words;
- while learning reading, the EG pupils need stimulating, emotional-regulatory, orientational and sometimes organizational assistance on the part of the adult.
- The study of the indicators in the two subgroups of the pupils with various degree of manifestation of dysarthria (ES-1 and ES-2) has revealed the following variance and significant differences between the pupils:
 - ES-1 pupils with severe dysarthria begin schooling better prepared to learn reading and writing, which, for a time, has a favorable effect on the process of learning basic literacy and makes it possible to preserve certain stability in the reading skills acquisition. But very soon such pupils begin to experience difficulties in the development of the reading method, speed and especially expressiveness of reading;
 - the reading speed of the ES-2 pupils significantly differs from that of the ES-1 pupils: the ES-2 pupils read slower than other children, and the ES-1 pupils lose the beginning of the line and of the sentence more often than other children;

- the ES-2 pupils with minimal manifestations of dysarthria have significantly better results in the reading method. By the end of form 2, they master reading by fusions with transition to reading by whole words; the ES-1 pupils read by fusions only;
- By the end of form 2, the ES-2 pupils make significantly more specific errors in reading.
- The process of teaching reading to pupils with various degrees of manifestation of dysarthritic disorders is characterized by longer and more detailed training with the help of special techniques and forms of work to develop the speed, method and accuracy of reading. We have worked out the following lines of rehabilitation-educational intervention: formation of positive motivation towards the process of reading that allows keeping interest to learning reading; formation of the phonetical aspect of speech based on specification and differentiation of speech sounds; formation of psycho-pedagogical preconditions for learning reading as the basis of development of the reading skills; formation of the visual-spatial orientations for acquisition of text decoding as a condition for overcoming visual perception disorders; the process of teaching reading proper including design of a

variable individual program aimed at overcoming the problems of mastering the process of formation of the technical aspect of reading by the given child.

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