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STANDARDIZATION AND VALIDATION OF METHODS OF DETECTION OF DYSORTHOGRAPHY IN GENERAL PRIMARY SCHOOL PUPILS

Abstract. The article closely analyzes contemporary techniques of diagnosing dysorthography as well as revealing criteria allowing teachers to detect the inability to spell correctly in primary school pupils: quantitative criteria, stability, recurrence and variety of spelling mistakes in pupils' written works. It argues that "ungrammatical dysgraphia" distinguished by some specialists is actually dysorthography as mistakes made by students in weak positions in the word and violating the morphological spelling principle cannot be classified as dysgraphic. The author chose an optimal method to identify dysorthography and differentiate it from dysgraphia on the basis of mastery of phonemic and orthographic spelling principles. The method has been modified and validated. The author worked out the standards of acquisition of orthographic principles by students of 1-4 grades indicating that by the beginning of the fourth year of study the number of dysorthographic mistakes in different written works increases both in the group with typical development and in the group of children with dysorthography in comparison with the beginning of primary school education. The undertaken study proves that the process of validation of the modified method for identifying dysorthography was carried out successfully. Application of the diagnostic technique allows to identify persistent violations of acquisition of morphological, traditional, grammatical, lexicological, semantic and syllable-morphemic spelling principles by primary school pupils, and it also helps to accurately determine the degree of dysorthography: mild, moderate and severe.

Keywords: orthographic principles, ungrammatical dysgraphia, dysorthography, methods of dysorthography detection, standardization, validation of diagnostic techniques.

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Poor progress at school interests scholars in various fields at the present stage of development of society.

Underdevelopment of writing habits – dysorthography – is considered to be one of the most widespread reasons of poor academic achievements. The term "dysorthography" is used to denote a writing disorder which appears in primary school children as a result of poor acquisition of the orthographic writing habit [2; 4; 5; 7; 8; 9; 14; 16]. Dysorthography is diagnosed on the basis of assessment of mistakes made by children in certain kinds of written tasks: writing vocabulary words, dictation, transposition and composition.

Persistent recurrent mistakes violating the morphological and tradi-

tional spelling principles which incorporate uniform spelling of prefixes (*prasnulas'* instead of *prosnulas'*), roots (*snizhok* instead of *snezhok*, *skaska* instead of *skazka*, *robota* instead of *rabota*, *zhyvot* instead of *zhivot*), suffixes (*belachka* instead of *belochka*) and inflexions (*krasnami* instead of *krasnymi*) are considered to be the basic diagnostic criterion of dysorthography.

According to R. I. Lalaeva, I. V. Prishchepova [9; 15], O. I. Azova [1; 3], the number of mistakes in written works of schoolchildren may be correlated with levels of successful completion of the task: "high level", "upper middle level", "middle level", "lower middle level" and "low level".

Evaluation of results of a dictation is done using the following scale: "high level" – no mistakes; upper middle level – 2-3 orthographic mistakes which are found and corrected by the pupil himself; middle level – 2-3 orthographic mistakes, several blots and corrections; lower middle level – 4-6 orthographic mistakes, quite a number of blots and corrections; low level – written work contains more than 6 orthographic mistakes and a large number of blots and corrections" [1, p. 45; 3, pp. 27—28; 9, p. 5; 15, pp. 152—153].

But distinguishing levels and their correlation with the number of orthographic mistakes may have a formal character because observation of writing habits by the above mentioned authors is conducted on different samples and the average population indicator of the number of mistakes has not been calculated. The given techniques of dysorthography detection cannot be called valid procedures suitable for diagnosing dysorthography.

The purpose of this research is standardization and validation of the methods of dysorthography detection in general education primary school pupils.

The research hypothesis presupposes that a method with a standardized scale of evaluation of results would help optimize the process of detection of different levels of dysorthography in junior schoolchildren, and the method's validation would become a reliable instrument for diagnosing dysorthography in pupils of grades 1-4 with problems in orthographic habits acquisition.

The research was divided into two stages. The first stage included design and standardization of the method of dysorthography detection in junior schoolchildren. The second stage was devoted to validation, i.e. testing the ability of the worked-out method to diagnose dysorthography in primary school pupils.

We chose a general sample of 189 first grade pupils of the State Education Institution "Moscow Educational Center # 556" for our study. The method was created on the basis of continuous analysis of the writing habit development on the material of dictations and copying printed and handwritten text by the pupils during four years.

All dysorthographic mistakes made in weak positions in the word were divided into several groups and correlated with the principles of ortho-

graphically correct writing. Apart from morphological and traditional principles mistakes which are usually singled out by all scholars, we analyzed mistakes caused by violation of the grammatical spelling principle (use of the soft sign for expressing the categories of the imperative mood and the infinitive (*proch* instead of *proch'*), and use of the soft sign at the end of nouns with the final sibilant (*rozh* instead of *rozh'*); mistakes in syllabification caused by violation of the syllabic-morphemic spelling principle (*sp-ryatalsya*); mistakes of writing two notional words and a notional word with a functional element as one word caused by violation of the lexicological spelling principle (*ponebu* instead of *po nebu*, *onpozval* instead of *on pozval*, *o kraska* instead of *okraska*); and mistakes in using a capital letter in proper names caused by violation of the semantic spelling principle (*vasya* instead of *Vasya*).

We separately evaluated instances of breaking the rules which children had not learned yet (*utreniy* instead of *utrenniy*, *lakirovanoy* instead of *lakirovannoy*). The compiled nomenclature of mistakes did not only allow us to diagnose dysorthography but also made it possible to distinguish it from dysgraphia which is characterized by mistakes in strong positions in the word.

The given approach argues that "ungrammatical dysgraphia" distinguished by some specialists (E. A. Loginova [10], E. V. Mazanova [11], L. G. Paramonova [12, 13], S. B. Yakovlev [17]) is actually dysorthography as mistakes made by students in weak positions in the word and violating the morphological spelling principle cannot be classified as dysgraphic.

On the results of our experimental research, we included the following principles derived from the morphological spelling principle in the dysorthography detection procedure: morphological proper, traditional, grammatical, syllabic-morphemic, lexicological and semantic principles which, as preliminary investigation showed, were violated in pupils under observation. We added typical mistakes of "writing in the margin" connected with poor development of syllabification skill which results in writing outside the working space on the page to mistakes of syllabic-morphemic nature.

The mistakes violating the morphological, traditional, grammatical, syllabic-morphemic, lexicological and semantic spelling principles revealed in the process of experimental study were subjected to mathematical processing involving parametric (the Student's *t*-test) and nonparametric (the Mann – Whitney *U* test) methods and the methods of descriptive statistics.

All this made it possible to work out the normative indicators characterizing successful mastery of the orthographic writing habits as well as to determine the deviations in dispersion of mistakes the number of which reflects a certain difference of manifestation of disorder and thus to standardize the method.

The obtained data are presented in table 1. The table vividly demonstrates that for each age and for every kind of written work we defined average population indicators of mastery

of orthographic writing habits and revealed the degrees of manifestation of dysorthography: mild, medium and severe. By the beginning of the fourth year of learning the number of dysorthographic mistakes in different kinds of written works increases both in typical children and in children with dysorthography of different degree of manifestation in comparison with the beginning of primary school education. Table 1 shows that starting with grade 2 the average number of dysorthographic mistakes is higher than 5 points (which corresponds to 5 mistakes).

Such result may be attributed to the fact that the analysis includes additional spelling principles characterizing the success of acquisition of the orthographic writing habit. In the long run, the table allows the specialist to determine whether the revealed number of mistakes in a written work is a normative indicator of written speech mastery or indicates a certain degree of manifestation of dysorthography.

At the next stage of investigation, the created diagnostic method was validated [6]. In order to carry out this procedure we chose Moscow secondary general education schools #1215 and #197; on the basis of these schools, we accomplished a detailed observation of the orthographic writing habit in pupils of grades 1-4 at the beginning and at the end of school year with the help of the standardized method described above, and revealed dysorthography of different degrees of manifestation.

The obtained results were compared with the results of logopedic observation and the data revealed during interviews of the school teachers which corroborated the presence of dysorthography and poor academic achievements in Russian in all children under examination.

Table 1

Indicators of normative mastery of orthographic writing habit
by pupils of grades 1-4

Kinds of written works	Average population indicator	Degree of manifestation of dysorthography (number of mistakes)		
		mild	medium	severe
Grade 1 (end of study)				
Dictation	0—3	4	5	≥ 6
Copying printed text	0	1	2	≥ 3
Copying handwritten text	0	1	2	≥ 3
Grade 2 (beginning of study)				
Dictation	0—3	4	5	≥ 6
Copying printed text	0	1	2	≥ 3
Copying handwritten text	0	1	2	≥ 3
Grade 2 (end of study)				
Dictation	0—8	9—10	11—13	≥ 14

Copying printed text	0—2	3	4	≥ 5
Copying handwritten text	0—2	3	4	≥ 5
Grade 3 (beginning of study)				
Dictation	0—6	7	8—10	≥ 11
Copying printed text	0—1	2	3	≥ 4
Copying handwritten text	0—2	3	4	≥ 5
Grade 3 (end of study)				
Dictation	0—10	11	12—15	≥ 16
Copying printed text	0—3	4	5	≥ 6
Copying handwritten text	0—1	2	3	≥ 4
Grade 4 (beginning of study)				
Dictation	0—9	10	11—13	≥ 14
Copying printed text	0—1	2	3	≥ 4
Copying handwritten text	0—1	2	3	≥ 4

Thus, the undertaken research allowed us to formulate the following conclusions:

1. In addition to the analysis of the morphological and traditional spelling principles, dysorthography detection should also include the study of the grammatical, lexicological, semantic and syllabic-morphemic spelling principles.

2. Criterial features allowing pedagogues to diagnose dysorthography in primary school pupils include the property, persistence, recurrence and the presence of all above named dysgraphic mistakes in the written works of the pupils.

3. The method standardization makes it possible to distinguish mild, medium and severe degree of manifestation of dysorthography which is important for group formation taking into account the homogeneity and the level of manifestation of the given disorder, and for effective organization of remedial work.

4. The method was successfully validated due to which dysorthographia may be diagnosed both by logopedists working with primary school pupils and by teachers of general education schools.

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