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GRAPHIC DEVIATIONS IN PRESCHOOL CHILDREN'S
WRITING

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Abstract

The purpose of the present study is to identify common patterns in mastering the Russian graphics by preschoolers. In the process of coding at the initial stage of mastering writing skills, all the children show deviations from the norms of written speech - graphic deviations. The experiment involves 100 children who can read and write, aged 5 to 7 years. The children are given with the different types of dictation: the basic dictation consisting of 80 words, syllable dictations, text dictations, and dictations using quasi-syllables were used, as well. In the course of the experiments, we have made the conclusions about the mastering of writing skills by a preschooler, as a special form of coding oral speech. At the stage of mastering the inscription of letters, there are distortions of a grapheme's descriptive form among them. The main difficulty in mastering the written form of speech is due to the fact that writing is a form of symbolic communication. In the initial children's writing, there appear graphic deviations at the level of the letter as a graphic sign. Typical and atypical graphic deviations are detected. It enables predicting typical deviations in the children's writing. Children's strategies in mastering the letter as a sign are of a special interest. In general, the process of ontogenetic development of written speech is considered by us as an integral part of the general process of understanding speech. The development of writing skills is analyzed in conjunction with the general linguistic maturation of the child.

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1. Introduction

The acquaintance graphics is one of the first stages in a practical learning of writing system by the child. This is a stage of a basic acquaintance with the system of writing. Unlike the rules of orthography, the rules of graphics are not even formulated at the initial stage of learning writing and are mastered by children purely empirically. Let us consider the initial theoretical points of our study.

1.1. Psychological Structure of Writing

The first and main component of writing process is the sound analysis of a word. It involves the ability to separate individual sounds from a sounding word and identify them with phonemes. The second component involved in the process of writing is the operation of associating each sound separated from the word with the corresponding letter. The third item is the re-encoding of the visual representation of the letter in its appropriate graphic images, carried out by a series of consecutive motions. For more details on this, please see A.R. Luria (1950), T.V. Akhutina et al (1997). Each of these three components mentioned above breaks down into a number of separate independent acts from the child who starts mastering reading and writing.

When translating phonemes into graphemes, there is no difficulty if the sound analysis is carried out quite clearly. The experience shows that in the course of this operation descriptive mistakes can appear: "mirror" writing, or replacement of letters that are similar optically or kinetically. During the translation of optical signs into kinetic ones, at the early stages of the mastering of writing skills, even writing a single letter involves a series of isolated actions. By writing out individual elements that make up letters, the child (who has just started learning how to read and write) takes care of the correct writing of each element individually. Only the combination of such individual conscious actions leads eventually to writing a whole letter.

As far as the skill develops, the psychological structure of writing changes. The child is accustomed to easily write the whole combinations of letters, and then whole words. The separation of individual sounds, finding the right graphic signs and writing letters – all of these cease to specifically take his attention. It automates and becomes the separate operations subordinated to a common whole. The child starts doing these operations automatically, and often he even ceases to realize them clearly. Gradually the elementary acts of writing combine and turn into more complex activities – written speech. Only in individual cases, for example, when checking a written text or a word that is complex in its sound composition, the child returns to the systematic decomposition of the word into sounds. Individual operations become conscious again.

1.2. Graphic Deviations

Deviations are отклонения differences in the norms of writing. In the Russian psycholinguistic tradition (for example, Vygotsky, 1935; Luria, 1950; Rozhdestvensky, 1960; Zinder, 1987; Korney, 1997), for a long time this phenomenon has been called mistakes. Given the early age of the children observed, it is more correct to call them deviations (Tseitlin, 1997). All the deviations from the norms of writing can be divided into three types: descriptive, letter-combining, and orthographic. We have been interested in the graphic (descriptive) violations of the rules of the Russian letters. "When learning to read and write, the

child learns letters correlating them with sounds (phonemes), but naturally, all his attention is focused on memorizing letters that are something new for him." (Zinder, 1987) Naturally, during the initial learning how to read and write, the child focuses his attention on the technical side of writing. Errors in writing can be caused by a variety of reasons. This can be the violation of basic hygienic requirements, overstrain of the hand, lack of necessary spatial orientation, imperfection of the regulation (and control) of movements, discontinuity in the development of motor and visual analyzers, insufficient interaction of the optical and oculomotor system, etc. Most graphic deviations are unstable, except for specific deviations from the norm. The latter is caused by the defective pronunciation of sounds, their acoustic and articulatory non-distinction.

2. Problem Statement

The present study considers the issues related to initial learning how to read and write for their further development and description in detail in both linguistic and methodological literature. However, some sections and materials have not been systematized yet. Hence a number of problems associated with mastering reading and writing, which have not been set yet, or have been set but not fully resolved. One of such problems is the problem of independent mastering letter symbolization skills without any special learning by the child of preschool age.

3. Research Questions

- 3.1.** What is the linguistic nature of children's graphic deviations?
- 3.2.** Which graphic deviations are typical of preschool children?
- 3.3.** How does the practical mastering of lettering of writing units – the letters – happen in case of different preschool children?

4. Purpose of the Study

The purpose of this study was to identify common patterns in mastering the Russian graphics by preschool children, in particular, in the writing of letters as symbolic signs.

5. Research Methods

The research was multifaceted. We used the following methods: the experimental method (special dictations in preschool institutions, analysis of spontaneous children's texts, analysis of mother's records on the child's learning of writing, analysis of parents' questionnaires) and longitudinal monitoring of two children for four years.

5.1. Subjects (cases)

The research subject is the written material of 100 preschool children (5-7 years old) able to read and write. This has allowed obtaining objective data on typical and atypical deviations from the graphic norms of writing.

Two children aged 3 to 7 years old are selected to study individual strategies during learning how to write.

5.2. Procedure

The children performed specially prepared dictations. 80 words dictated by a specially trained adult were written by each child for eight weeks.

The children's parents collected a large material, which included spontaneous children's texts (poems, tales, stories, drawings with captions, greeting cards, etc.).

The parents of the two children kept diary entries for four years, in which they fixed the highlights of the writing skills mastering by their child.

6. Findings

6.1. The Russian graphic system is difficult for the child, who starts learning how to read and write. The evolution in mastering letter graphics by children demonstrates clearly how our letters are arranged, and what sorts of varieties and types they have. Нас интересует лингвистический механизм графических девиаций, так как в них проявляются особенности графики как совокупности начертаний, с помощью которых устная речь передается на письме. We are interested in the linguistic mechanism of graphic deviations, since the features of a graphic (as a set of inscriptions which help transfer oral speech to writing) are shown in them. Let us consider them in detail. The modern Russian letters have different orientations:

- a) right: Б, В, Г, Е, Ё, К, Р, С, Ц, Щ, Ы, Ь, Ю (13);
- b) left: З, Л, У, Ч, Э, Я (6);
- c) double orientation: А, Д, Ж, И, Й, М, Н, О, П, Т, Ф, Х, Ш, Ъ (14).

In general, 19 out of 33 letters of the Russian alphabet have clear properties of mirroring. Therefore, it is quite natural that the child acquiring differences in letter writing is not able to immediately remember the specifics of letters that characterize the general appearance of the letter: ovals, semi-ovals, rectangles, and symmetry. This causes the children to mirror letters in writing. The letter has an "inverted" graphic image. For example, the letter Я is depicted as R. There are also psycholinguistic features in addition to purely linguistic. So, in the words ЖУК (a beetle), ЧУЖИЕ (alien), children often depict the letter Ж like a beetle. This is because in alphabets the letter Ж is often represented by an image with a beetle in it. With the transition to automatic writing, these deviations are eliminated.

6.2. In the course of our experiment it has been discovered that the non-normative inscriptions of letters (descriptive deviations) manifest in the preschool children's writing as follows:

6.2.1. mirror lettering in writing, both vowels and consonants, for example, the letter Я is depicted as R. That writing is recorded in 42 cases out of 70 (60%). Sometimes these errors designated by me as descriptive are called evolutionary or false dysgraphia. They can be explained by the difficulty of distributing attention between the technical and mental operations of writing. One can assume that the main reason for such disturbances is the lack (incorrectness) of differentiating the graphic arrangement of individual elements of a letter or a letter as a whole, which is connected with the notion "left-right". Psychologists note that most of the children with "mirror writing" are left-handers, true or hidden (retrained). Mirror images are more common among younger children. This is due to the fact that the lower

parietal cortex systems, which are responsible for spatial orientations, mature later than other systems. Therefore, the earlier learning how to write begins (at the early preschool age), the more often mistakes related to incorrect orientation of letters will occur. Over time, the spatial orientation improves, the concepts of "right-left" are mastered, and errors on mirroring letters disappear.

6.2.2. Lettering that Distorts Letter Shape:

- drawing unnecessary elements of grapheme, for example, an extra "stick" for the letter E (the letter becomes more like a tree). These deviations mainly concern the letters Ж, III, III. In this case, the features of optical perception of graphic signs by the children manifest. Having incorrectly acquired the number of homogeneous elements at letters III and III, and recollecting comparisons by means of which the child was taught to memorize the alphabet (in case of the letter E it is ЕЛБ – a spruce, and in case of Ж it is ЖУК – a beetle), the children have that spelling. With the transition to automatic writing, these errors are eliminated.
- The failure to finish writing of the grapheme elements, for example, instead of the letter Д, the letter Л is written. The letter Д in the Russian writing is diacritic; the diacritics are written in isolation from the main body (in this case the diacritics is a crossbeam at the bottom of the letter with serifs on the both sides); the children carried away by "drawing" the remaining elements of the letters in the word, omit the important part of the letter Д, passing to the remaining graphemes.
- weak links between the phoneme and the grapheme that transmits it are marked in the cases of using the letter Л: the letter А is written instead of it, apparently on the basis of the similarity of the letter А graphic elements: "ЧУАОК" instead of ЧУЛОК (a stocking), "АОШКА" instead of ЛОЖКА (a spoon).

These deviations are typical of the preschool children's writing. Some of the children have graphic deviations not only distorting the form of letters, but also making it difficult to recognize them. Unusual graphics of individual letters belongs to this type, such as the graphemes У and Я. A number of the children like to decorate letters, which results in a heap of elements more similar to children's drawings. The preschoolers combine two letters in a single graphic sign.

6.3. In order to understand the individual strategies for mastering writing, let us consider the primary skills of writing formation process in case of Valya P. The girl early acquired the desire to "draw": this was facilitated by early mosaic lessons (from seven months old) and grandmother's drawings, who helped her explanations of something with drawing the simplest objects – a house, a tree, a fish, a girl, a duck, etc. The first "drawings" of Valya were the dots and strokes obtained from the contact of the pencil with the paper, while the adults always watched the girl holding the pencil. At the age of one and a half years old, already managing her speech, Valya, explained that she was drawing, although on paper there were only strokes, broken lines, and spirals, often trembling.

The next stage in Valya's (aged 3.6-4.0) learning how to write was the writing of whole "texts", which are plain wavy lines – words separated by intervals. At the end of the "sentences", various punctuation marks were put. Apparently, during this period the child was already aware of the discrete nature of speech, which he or she tries to convey in writing.

It should be noted that mistakes on solid spelling of words were found in the children's writing very long. It was explained by the syncretic character of thinking, its non-dissociation, and non-separation of individual words from the speech stream. Therefore, it was so important that already in the specified age period the child was able to understand the discontinued nature of the utterance. Writing her first words Valya copied them from the sample suggested by the elders. This period of copying letters was experienced by many children. This technique was usually spontaneous. In combination with other techniques, the child began to form the correct visual image of the letter, i.e., more or less adequate representation of the form of the letter mark, which contributes to the further implementation of the graphomotor program. By the age of four years old, the observed girl knew the correct outline of all the letters of the Russian alphabet. This was facilitated by reading. Valya was glad to remember what she had heard and remember children's poems by heart. At the age of one year seven months, the girl learned the descriptive names of the letters, according to the pictures in the alphabet: the letter Б is БАРАН (a ram), and the letter Д is ДОМИК (a house). She was pleased to choose the words in which one or another letter "lived". This was a very important point, since the work on the sounds was not done with the child, i.e. no phoneme-graphic matches were specified. Therefore, avoiding wrong associations between the letter and only one word for this letter (for example, a picture of a house for the letter Д), other words with that or another letter were selected. Valya tried to draw letters herself, she could easily find letters in different texts and guess them in the outlines of objects. Seemingly, this was a very important point in the formation of writing skill: the analogy of forms was prompted by the learner's life experience. Hence the problem of perception and effective recognition of the graphic forms of signs (big and small letters, capital and block letters). The learning of letters was promoted by the lessons with a magnetic alphabet. When Valya was two years old, the elders began to play in "Railcars" with her. A drawn train and railcars with windows were used for this purpose. The girl was asked to load certain letters in this or that railcar. At stations, "passengers" changed places. At the request of the person playing with her, Valya replaced one letter with another. This also contributed to acquiring graphical images of letter signs.

Thus, despite different tactics, in the initial period of learning how to read and write, the child proceeds from memorizing a graphic appearance (image) of the letter (mostly block letters) to writing individual "frozen" forms (words like МАМА, ХАТА, БАБА), often by means of copying from the sample. These forms can be very different depending on the child's circle of interests, but, as a rule, there are words of the initial children's vocabulary.

7. Conclusion

The above-mentioned types of deviations from the norms of writing are graphic deviations at the level of the descriptive sign (grapheme in its broad sense). There are 3678 graphic deviations from the norm (which is 45.97% of all spelling) made in the dictation consisting of 80 words done by 100 children of the kindergarten. They do not practically distort the phonetic composition of the word, if they do not merge it with other (graphic or spelling) errors. However, considering the questions of preschoolers' writing, it is impossible to ignore the above-mentioned mistakes. At least, due to the fact that they force us on looking more closely at the graphic system of the Russian alphabet, and understanding why the formation of younger schoolchildren's graphic skills is delayed. Besides, graphomotor skills are the last item in the chain

of operations that make up writing; their non-formation can further influence not only calligraphy but disturb the whole process of writing in general.

Taking into account these features of preschoolers' writing, it is possible to choose the right method of teaching the initial writing skills in the future, avoiding any gap between the visual and motor shape of the grapheme. I.e. representation in memory of the child of a whole and relatively complete movement of the hand when writing a letter is carried out on the basis of a visual representation of its shape, knowledge of the sequence of lettering its motor elements. In addition, during learning how to write letters, one should take into account the degree of letters in their complexity. Experience shows that a child who knows the letters and with their help separates individual sounds in words, does not immediately succeed in the complete mastering of the writing mechanisms. According to L.S. Vygotsky, the child must come to the conclusion that one can "draw a speech" (Vygotsky, 1935). For this, a complex sensorimotor base must be formed. The image of each element of the graphic image of the word is a process within consciousness. Having learned to write letters, the child moves on to more complex activities. Only after the child can extract the sound (phoneme) from the word, designate it with the corresponding letter, memorize this letter, write it, and check the correctness of the writing, it is possible to say that a conscious skill of the initial writing begins to form. The working-out of the issue on mastering the Russian writing system by the children makes it possible to reveal some general rules used empirically, without any special instructions, by children during their learning how to write, including the mastering of the letter graphics.

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