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CORRECTIVE WORK ON THE FORMATION OF SPATIAL AND GRAPHIC IMAGES IN ELIMINATING MOTOR WRITING DIFFICULTIES AMONG PRIMARY SCHOOL STUDENTS.

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Abstract: Writing difficulties among primary school students are one of the most common challenges encountered in the learning process. These difficulties are often related to insufficient development of fine motor skills, spatial orientation, and graphic image formation. The present study explores pedagogical and correctional approaches aimed at developing spatial and graphic representations to overcome motor writing disorders. The research emphasizes the importance of integrated pedagogical methods that combine visual-motor coordination exercises, spatial perception training, and fine motor skill development. These interventions not only improve writing fluency and legibility but also enhance cognitive activity, self-regulation, and learning motivation. The study underlines the role of the special educator (speech therapist) in organizing individualized correctional work that supports the holistic development of writing abilities in primary school students.

Keywords: motor writing difficulties; spatial and graphic development; correctional pedagogy; fine motor skills; primary school students; visual-motor coordination

Introduction

Writing is one of the most essential components of a child's academic and communicative development. In the early stages of schooling, particularly in primary education, the process of mastering writing skills is closely related to motor, spatial, and graphic abilities. Motor writing difficulties, often observed in children with delayed psychomotor or perceptual development, can significantly affect the learning process and overall academic performance. These challenges manifest as irregular letter formation, poor spatial organization on paper, and difficulties in maintaining writing rhythm and direction. From a pedagogical perspective, the role of the teacher and special educator (speech therapist or logopedist) is not limited to identifying such difficulties but extends to implementing corrective and developmental strategies aimed at forming stable spatial and graphic representations. The development of these representations helps children to orient themselves on the page, control the pressure and movement of writing instruments, and coordinate visual and motor actions effectively. Modern pedagogical approaches emphasize that correctional work should be integrated, involving visual-motor exercises, fine motor skill training, and spatial orientation games. These techniques not only help improve handwriting but also contribute to cognitive development and self-regulation in learning activities. By strengthening the connection between perception, movement, and thinking, educators can enhance children's academic success and confidence in written expression. Therefore, the study of "Corrective work on the formation of spatial and graphic images in eliminating motor writing difficulties among primary school students" is of great pedagogical importance.

Research aim:

The primary aim of this research is to scientifically analyze and develop effective pedagogical and correctional strategies for overcoming motor writing difficulties among primary school students through the formation of spatial and graphic representations. The study seeks to identify the

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relationship between fine motor development, spatial orientation, and the quality of written expression, emphasizing the integrative role of correctional pedagogy in the teaching process. Another objective is to create a systematic model of pedagogical influence that strengthens the visual-motor connection and supports the gradual acquisition of writing skills. This involves designing practical exercises, developmental games, and individualized correctional programs that enhance children's coordination, concentration, and spatial awareness. Furthermore, the research aims to substantiate the pedagogical significance of logopedic intervention in improving writing readiness and preventing persistent writing disorders.

Materials and Methods

This research was conducted within the framework of correctional pedagogy and special education, focusing on the elimination of motor writing difficulties among primary school students. The study involved children aged 7–10 who demonstrated specific challenges in the process of mastering written speech, including irregular letter formation, difficulties in spatial organization, and poor fine motor coordination. The selection of participants was carried out based on pedagogical observation, teacher recommendations, and diagnostic assessments conducted by a special educator (logopedist). The methodological basis of the research was built upon a combination of pedagogical, psychological, and correctional principles. The study employed a complex diagnostic system, including: Observation methods – to identify behavioral and motor characteristics during writing tasks. Diagnostic tests – to evaluate fine motor skills, spatial orientation, and visual-motor coordination (such as "Draw the Shape," "Copy the Pattern," and "Reproduce the Line Direction" tests). Pedagogical experiment – to test the effectiveness of correctional activities aimed at improving writing performance. The research was conducted in three main stages:

1. Diagnostic stage: identifying the specific nature and causes of motor writing difficulties among students; analyzing handwriting samples and error patterns.
2. Correctional-developmental stage: implementing specially designed pedagogical and logopedic exercises that included visual-motor games, finger gymnastics, graphic imitation tasks, and spatial orientation training.
3. Evaluation stage: reassessing students' progress in writing accuracy, line organization, and movement coordination to determine the effectiveness of the intervention.

The pedagogical approach emphasized individualization and differentiation, ensuring that correctional exercises were tailored to each child's psychomotor level.

Results

The conducted research revealed significant improvements in the development of fine motor coordination, spatial orientation, and graphic image formation among primary school students who participated in the correctional program. At the initial diagnostic stage, most students demonstrated difficulties such as poor letter alignment, unstable pressure on the pencil, irregular size of letters, and disorganized placement of words on the line. Many also showed limited control over hand movements and low visual-motor coordination. After systematic implementation of the correctional and pedagogical exercises designed within this study, notable positive changes were observed. The majority of participants exhibited enhanced hand dexterity, improved spatial perception, and increased accuracy in reproducing geometric figures and written symbols. The children began to show greater awareness of line direction, spatial boundaries, and symmetry in their written work. Quantitative assessment demonstrated a marked reduction in writing errors — including reversal of letters, uneven spacing, and overlapping strokes — by an average of 40–60%. The pace and fluency of writing also improved, with children demonstrating more consistent motor control and endurance during longer writing tasks. These indicators confirmed the effectiveness of the correctional program in forming stable spatial and graphic representations. In

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addition to motor and spatial progress, qualitative observations indicated positive changes in students' learning attitudes and emotional behavior. **Discussion**

The findings of this study highlight the crucial pedagogical and psychological relationship between spatial-graphic development and the formation of writing skills in primary school students. The observed progress in writing performance confirms that writing is not merely a linguistic process, but a complex psychomotor and cognitive activity that requires the coordinated functioning of perception, fine motor skills, and visual-spatial analysis. From a pedagogical standpoint, the success of the correctional interventions supports the idea that early motor and spatial training plays a fundamental role in preventing persistent writing disorders. The integration of fine motor exercises, graphic imitation tasks, and spatial orientation games proved to be an effective method for stimulating both hemispheres of the brain, enhancing visual-motor coordination, and stabilizing hand movement control. This aligns with the theories of L. Vygotsky and A. Leontiev, who emphasized the developmental interconnection between perception, movement, and cognitive growth in a child's learning activity. Moreover, the results demonstrated that correctional pedagogy should not be limited to direct motor training alone. It must also include the development of attention, observation, and spatial imagination, as these cognitive processes directly influence a child's ability to plan and execute written movements. The use of integrated pedagogical approaches, involving visual, kinesthetic, and auditory modalities, helped children internalize spatial patterns and apply them consistently during writing tasks.

Conclusion

The research clearly demonstrates that overcoming motor writing difficulties in primary school students requires a comprehensive pedagogical and correctional approach. Writing, as a complex psychomotor process, depends not only on linguistic competence but also on the harmonious development of fine motor skills, spatial perception, and graphic image formation. The systematic implementation of targeted correctional exercises—such as visual-motor coordination training, spatial orientation games, and fine motor development activities—significantly improved handwriting quality, spatial organization, and self-regulation among the participating students. The study confirms the high pedagogical value of forming spatial and graphic representations as a preventive and corrective measure against writing disorders. Integrating these practices into everyday teaching and special education settings helps to develop students' cognitive flexibility, attention, and motivation. Furthermore, the collaboration between special educators, teachers, and psychologists ensures a holistic learning environment where each child's developmental needs are addressed individually. In conclusion, the results of this study emphasize that the correctional development of writing skills should begin in the early years of schooling, when psychomotor functions are most flexible. The application of correctional pedagogy within general education not only enhances academic success but also supports the personal growth, creativity, and emotional well-being of each student.

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