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THE ROLE OF SENSORY EDUCATION IN THE COGNITIVE AND SPEECH DEVELOPMENT OF PRESCHOOL CHILDREN (BASED ON THE MONTESSORY APPROACH)

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Annotation. The article examines the role of sensory education in the cognitive and speech development of preschool children on the basis of Maria Montessori's pedagogical approach and didactic materials. It also provides a scientific analysis of the neuropsychological relationship between sensory-motor skills and the speech and thinking centers of the cerebral cortex, as well as of the guiding role of the educator.

Keywords: sensory education, cognitive development, speech activity, Montessori didactic materials, sensory-motor skills, prepared environment.

Improving the preschool education system in our country at its very foundations and creating conditions for children's intellectual, spiritual-moral and physical development is one of the priority areas of state policy. Resolution No. PQ-4456 of the President of the Republic of Uzbekistan, dated 8 September 2019, "On Approving the Concept for the Development of the Preschool Education System in the Republic of Uzbekistan until 2030," firmly sets the task of introducing advanced foreign experience and innovative pedagogical approaches into the educational process [1].

Preschool age is the most important period, when a child's intellectual, sensory and speech potential develops rapidly. Modern pedagogical and neuropsychological research shows that a child's thinking and speech rely directly on sensory-motor experience, that is, on perceiving the external environment through the sense organs [2, p. 112]. In the teaching of the Italian educator Maria Montessori, sensory development is regarded as the initial foundation of a child's knowledge of the world, and it plays an important role in developing independent thinking and cognitive activity in children [3, p. 90].

In the Montessori system, sensory education is not merely the exercising of the sense organs; it is the main mechanism for developing a child's cognitive processes (attention, memory, logical thinking) and speech. In Montessori's teaching, the hand is interpreted not simply as a means of physical movement but as an important factor in developing the child's mental activity and the processes of cognition and thinking [3, p. 95]. When a child works with special Montessori didactic materials, his or her intellectual potential is activated through practical actions. In particular, while working with materials such as the "Cylinder Blocks," "Rough and Smooth Boards" and "Geometric Cabinet," the receptors in the child's fingertips and palms are activated. From a neurobiological point of view, the area of the cerebral cortex where the motor and sensory zones meet is closely connected with the speech center (Broca's area), and the activation of hand motor skills ensures faster and higher-quality development of speech functions [4, p. 962].

In traditional education, the child is mainly given ready-made verbal information, whereas in the Montessori environment the child discovers concepts independently by acting on the materials. A

distinctive feature of the materials is that they contain a mechanism of "error control" (*self-correction*) [5, p. 104]. For example, if a child places a geometric shape in the wrong spot, the material itself reveals the mistake. This develops cognitive flexibility in the child, removes the fear of making mistakes, and creates a need to express and justify one's thoughts verbally. As a result, the rich sensory experience gained through the materials enlarges the child's active vocabulary and forms the skills of correct pronunciation and coherent thinking.

It should be noted here that in the Montessori education system the child's all-round development, including cognitive and speech development, relies directly on the "prepared environment" and on the educator's distinctive activity. Unlike in traditional educational institutions, the educator does not stand at the center of activity in the Montessori environment; he or she is not a subject who delivers knowledge but an observer and guide who serves as a bridge between the child and the specially designed environment [6, p. 110]. The educator's main task is not to give the child ready-made knowledge but to encourage the child to work with the materials, to create conditions for independent inquiry, and to stimulate the interaction that arises in the process.

Neuropsychological and pedagogical studies show that a specially equipped sensory environment gives rise to an active need for speech in children [7, p. 145]. In Montessori groups, the presence of children of different ages together and their joint activity rapidly develop their social and communicative skills. Younger children absorb what they observe of older children's actions and speech, while older children improve their monologic and dialogic speech as they explain and describe what they know. During practical work with the materials, the child feels a need to express his or her sensory experience consciously in words. For example, the practical perception of concepts such as "thicker – thinner," "smooth – rough" and "heavy – light" ensures a quick transfer of the child's passive vocabulary into active vocabulary [8, p. 122]. Thus, the educator's properly organized guiding approach and an enriched sensory environment serve as a decisive pedagogical factor in developing the child's speech activity alongside cognitive thinking.

Conclusion

In conclusion, sensory education based on Maria Montessori's approach is of great strategic importance in the formation of preschool children as well-rounded individuals, particularly in developing their cognitive potential and speech activity. The theoretical and neuropsychological analysis carried out shows that a child's thinking, memory and speech rely directly on his or her sensory-motor experience. The close connection of the motor and sensory zones of the cerebral cortex with the speech centers (in particular, Broca's area) ensures the rapid development of speech functions through the activation of hand motor skills. Special Montessori didactic materials form in children the skills of self-control (*self-correction*), cognitive flexibility and concentration of attention. This, in turn, removes children's fear of mistakes and creates a need to express and justify their thoughts verbally. In addition, the educator's role as a guide in the "prepared environment" and the interaction of children of different ages are decisive factors in transferring passive vocabulary into active vocabulary more quickly and in improving dialogic and monologic speech. In line with the requirements of state policy on introducing advanced foreign experience into the educational process in our country, applying sensory education based on the Montessori approach in practice serves as a solid foundation for preparing preschool children intellectually and linguistically to a high standard for future school education.

3. References

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