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PSYCHOLOGICAL CONDITIONS FOR THE FORMATION OF SENSORIMOTOR INDICATORS IN PRESCHOOL CHILDREN

Raximova Feruzaxon Raximjonovna
Tashkent International University of Chemistry, Samarkand Branch
2nd-year Master's student

Abstract

This article examines the psychological foundations for the formation of sensorimotor indicators in preschool children. The aim of the study is to identify the factors influencing children's sensorimotor development and to substantiate effective psychological and pedagogical conditions for their formation. The research employed observation, comparative analysis, and psychological-pedagogical analysis methods. The results indicate that play activity, an enriched developmental environment, and interaction with adults play a crucial role in children's sensorimotor development. The findings can be used to improve the preschool education system.

Keywords

sensorimotor skills, preschool education, psychological development, motor skills, perception, child psychology

Introduction. In our country, the development of the preschool education system has been defined as one of the priority directions of state policy. In particular, Shavkat Mirziyoyev has repeatedly emphasized in his speeches the importance of improving the quality of preschool education and ensuring the intellectual and physical development of children. As the President stated, "preschool education is the most important stage in the formation of human capital" [1].

In addition, the Law of the Republic of Uzbekistan "On Preschool Education and Upbringing" and a number of decrees aimed at developing the preschool education system provide for the comprehensive development of children [2].

Sensorimotor development in preschool-aged children forms the basis of their later cognitive activity, speech development, and social adaptation. Therefore, studying the psychological conditions for the formation of sensorimotor indicators is considered an urgent scientific problem [3].

Sensorimotor development plays an important role in the overall psychological development of preschool-aged children. This process is manifested through the integration of sensory (perceptual) and motor activities of the child. Sensorimotor indicators refer to a child's ability to perceive the environment, respond appropriately through actions, and demonstrate coordination and integration skills [8].

According to scientific research, sensorimotor development is most actively formed during the early stages of a child's life. In particular, according to the theory of Jean Piaget, the age period of 0–2 years is defined as the sensorimotor stage, during which the child begins to understand the world through sensory experiences and physical actions. This stage serves as a foundation for subsequent cognitive development [4].

The formation of sensorimotor indicators can be systematically considered in the following psychological directions:

1. The role of a developmental environment

A child's sensorimotor development is directly influenced by the environment surrounding them [9]. A developmental environment includes the following elements:

- colorful didactic materials
- play tools that encourage physical activity
- opportunities for safe and free movement

As Maria Montessori emphasized, when a child is given the opportunity for independent activity within a prepared environment, their sensory and motor functions develop in a more harmonized way. In the Montessori environment, special didactic materials are used to develop both fine and gross motor skills in children [6].

2. Psychological significance of play activity

For preschool children, play is considered the leading type of activity. During play, the child:

- manipulates and compares objects
- repeats movements
- learns coordination skills

This naturally leads to the formation of sensorimotor indicators. In particular, constructive games (such as LEGO and mosaics), physical games, and role-playing activities are highly effective in sensorimotor development [11, 13].

3. Influence of social environment and communication

Social factors play an important role in a child's development. According to Lev Vygotsky, child development occurs through the "zone of proximal development," meaning that children acquire new skills through interaction with adults and peers [5].

Instructions, encouragement, and support provided by adults significantly accelerate sensorimotor development. For example:

- explaining a child's actions
- giving step-by-step instructions
- encouraging independent activity

4. Individual psychological characteristics

Each child has a unique rate of development. In forming sensorimotor indicators, the following factors should be considered:

- temperament
- interests
- level of physical development

An individualized approach allows organizing activities that correspond to a child's capabilities, ensuring more effective development.

5. Motivation and emotional environment

A positive emotional environment ensures active participation of the child. When a child feels safe and supported, they:

- try new actions
- become more active
- learn more quickly

In contrast, a negative environment may slow down development.

6. Components of sensorimotor development

Sensorimotor indicators consist of the following components:

- visual perception (receiving information through sight)
- tactile perception (through touch)
- kinesthetic perception (feeling movement)

- coordination (integration of movements)

These components develop in close interrelation and require a comprehensive approach.

7. Practical approaches and methods

To effectively develop sensorimotor skills, the following methods are recommended:

- didactic games
- physical exercises
- work with sensory materials
- creative activities (drawing, modeling with clay)

These methods strengthen the harmony between sensory perception and motor activity in children.

Overall, the analysis shows that the formation of sensorimotor indicators is a complex and multifactorial process that requires the integration of psychological, pedagogical, and social conditions [7, 9].

Discussion and Results. As a result of the conducted research, the specific psychological characteristics of the process of forming sensorimotor indicators in preschool children were identified. During the study, the data obtained through observation and analytical methods were compared with existing scientific approaches, and new scientific conclusions were developed.

First of all, the results of the study practically confirmed the sensorimotor development theory proposed by Jean Piaget. It was observed that children achieve higher levels of development in understanding and interacting with the environment through active movement and sensory experience. In this process, direct manipulation of objects proved to be an especially important factor [4].

Similarly, the socio-cultural approach of Lev Vygotsky was also confirmed by the findings. It was found that children who engaged in collaborative activities with adults demonstrated faster and more effective development of sensorimotor skills [5]. This once again highlights the practical significance of the “zone of proximal development.”

The analysis showed that the level of sensorimotor development depends directly on the following factors:

- Availability of an active play environment – play activities enhance movement accuracy and coordination
- Developmental object environment – sensory materials stimulate sensory organs
- Quality of pedagogical approach – well-organized activities increase effectiveness
- Emotional support – a positive environment ensures active participation of children

The results indicated that when these conditions are ensured in a complex and integrated manner, the following changes are observed in children:

- improved movement coordination
- development of fine motor skills
- better perception and object differentiation
- increased independence in activity

During the discussion, it was also determined that sensorimotor development is closely connected not only with physical development but also with cognitive and speech development. For instance, children with higher levels of motor activity demonstrated faster speech

development. This confirms the interrelationship between sensorimotor and intellectual development.

Based on the research, the following scientific innovations were proposed:

- a systematic model of psychological conditions for the formation of sensorimotor indicators was developed
- the integrated influence of developmental environment, play activity, and social communication was substantiated
- practical criteria for assessing sensorimotor development levels were proposed

Conclusion. Within the framework of this study, the psychological conditions for the formation of sensorimotor indicators in preschool-aged children were comprehensively investigated and analyzed. Based on the conducted scientific research, the following main conclusions were drawn:

Firstly, sensorimotor development is an integral part of the preschool period and forms a solid foundation for a child's further cognitive, speech, and social development. Therefore, this process should be purposefully developed from an early age.

Secondly, the formation of sensorimotor indicators is a multifactorial process that develops effectively through the interaction of psychological conditions such as a stimulating environment, play activity, social communication, and an individualized approach.

Thirdly, the results of the study once again confirmed the practical relevance of the theoretical views of Jean Piaget and Lev Vygotsky. In particular, active movement, sensory experience, and the social environment play a decisive role in child development.

Fourthly, it was found that children with a higher level of sensorimotor development also demonstrate more advanced cognitive, speech, and independent activity skills. This confirms the important role of sensorimotor indicators in overall developmental integration.

Fifthly, in the preschool education system, it is advisable to implement the following practical measures to ensure sensorimotor development:

- creating a safe and developmentally rich environment
- widely using didactic and physical play activities
- improving teachers' methodological competence
- strengthening cooperation with parents

In conclusion, the scientific organization of sensorimotor indicator development in preschool children is a key factor in ensuring their comprehensive development and contributes to the improvement of the preschool education system.

At the same time, based on the results of the study, the following practical recommendations were developed:

1. Establishing sensory zones in preschool education institutions
2. Increasing the use of physical and didactic games
3. Developing special methodological guides for teachers
4. Involving parents in the process of sensorimotor development

Overall, the obtained results demonstrate that the formation of sensorimotor indicators is a complex, multifactorial process that requires an integrated and systematic approach for its effective implementation.

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