

Play as the stimulation method of child's mental development

Activity is the most important factor in a child's development. Child's individual activity means active, biologically determined, participation in discovering and altering the world. A child is not a passive reflection of phenomena and objects that surround him. Just the opposite, he actively gains experience, first, in the course of actions undertaken on his own and with help of adults, then thanks to conscious interior psychic action¹.

While being active, a child learns about objects, finds out how to use symbols and signs, improves mental abilities, shapes space and time orientation, develops cause-and-result thinking, and modifies the picture of him as a person².

One of the crucial needs of a child in the kindergarten period is the cognitive need, which stimulates cognitive activity.

Investigative activity is visible through play or as an intentional investigation. Play is the most frequent way for a kindergarten child to reveal this type of activity. Therefore, investigative activity is of specific importance for the development of a kindergarten child.

Investigative actions, also known as exploratory actions, appear in the context of new stimuli and situations, and lead to fulfilling cognitive needs of a person. A child fixes receptors, gets closer to an object, manipulates it, asks questions, and makes hypotheses. The conditioned reflex is a basis for this type of activity.³

Exploratory activity is connected with concrete-motor thinking and develops in the course of life. The issue of exploratory activity, which is a part of cognitive activity, was thoroughly investigated by such psychologists as S. Szuman, J. Piaget, M. Kielar-Turska, and B. Muchacka. Moreover, such investigators as O. N. Saracho and J. Trawick-Smith show the connection between play and cognitive development. The influence of spontaneous play on cognitive and emotional activity of a child is also stressed by E. J. Hrnčir and J. A. Chafel.⁴ Long time ago, in Poland, S. Szuman stressed circumstantial way of acquiring knowledge through natural activity of a child.

Providing suitable conditions makes it easy to develop cognitive activity of a child. That's why educators pay attention to the role of a teacher as an organiser of educational process in kindergarten. In order to stimulate and inspire cognitive activity of children open tasks have been created. They are called educational situations and are of value in present pedagogy.

The author thinks that in order to stimulate cognitive activity of a child it is best to organise investigative plays. During investigative plays a child plays with objects, discovers previously unknown features of objects and phenomena, and relationships between them.

A child who lives in a technological society has an opportunity to fulfil his natural cognitive need. Educators stress the importance of facing the child with situations, which demand an independent problem solving, investigating, and discovering. Investigative plays can help to gain the aim.

Investigative plays, just like other sorts of plays, develop individual activity of a child. Children, who participate in investigative plays, think, learn about features and functions of particular objects, about various phenomena, and finally, about cause-and-result relationships among objects and phenomena under investigation. Driven by his inherent curiosity, a child aims at learning more and more about the world. It is the duty of a kindergarten teacher to take good care of a child's cognitive need because later it is the source of intellectual curiosity.

Only if a kindergarten provides children with proper conditions, which will make it easy to undertake independent investigation, can you expect spontaneous investigative plays to occur. For that, it is necessary to supply appropriate objects, and what is more, behaviour and attitude of adults have to match the conditions. If a teacher gives children a task with already planned conditions to solve it, then we talk about didactic plays with investigative content. The value of such plays can be analysed on two levels: pedagogical and psychological. On the pedagogical level we can distinguish two aspects: first is subconscious acquisition, second is conscious learning. Investigative plays are the basis of physical and psychological development of a child, they shape elementary concepts, teach noticing a close connection between cause and result, evoke intellectual and emotional feelings, and that is why they bring about happiness and feeling of success, rarely defeat.

In the conducted research the relationship between an investigative play organised by the teacher and cognitive activity was analysed. Modifying the scope of world orientation of a six-year-old child through investigative plays became the main topic of the research. A number of detailed questions were asked and needed to be answered. There were questions about the child. They concerned children's exploratory strategies, which appear under the influence of investigative plays and their influence on shaping children's investigative attitudes. There were also questions about sorts of stimulation, that is forms of organisation, didactic means, methods, teacher's attitudes, and the frequency with which investigative plays have been organised.

Other questions regarded the following issues:

1. Does the level of cognitive activity of six-year-olds change under the influence of didactic plays? If yes, how?
2. What are the determining factors that make children choose investigative plays?
3. Does gender of a child have an influence on what type of an investigative play he chooses?

Altogether 120 investigative plays were organised in eight groups of six-year-old children. In the experiment through investigative plays children were presented with inanimate nature and its phenomena. Such issues are usually raised during ordinary classes for the whole group of children. In the experiment children were divided into two groups: the 'e' group (experimental group) and the 'c' group (control group). In both groups researchers tested cognitive activity of the children.

Investigative plays covered the following phenomena: stopping of bodies, velocity in uniform motion, the falling down of objects, the behaviour of objects on the inclined plane, keeping balance, friction, the connection between forces and the movement of bodies, phenomenon of electricity and magnetism, liquefaction, the influence of temperature on the change in consistency of bodies, the functions of the wind, dissolving of some substances in water, crystallization, swimming and sinking, and the behaviour of bodies in the air.

The research was conducted in eight state kindergartens, in which there are children from various social backgrounds. Altogether 609 children were tested: 319 children in the 'e' group, and 290 in the 'c' group. What is more, the influence of teachers on children was analysed. 782 minutes of children's behaviour were taken to describe the educational impact on children in 'e' and 'c' groups. In the minutes researchers recorded the plays which had been spontaneously initiated by the children. The results of the research regarded the level of children's cognitive activity. They showed that stimulating surroundings increased cognitive activity of children from the 'e' group. It was two times higher than that of children from the 'c' group.

The majority of plays, which were initiated by the children themselves, were investigative plays. This type of plays occurred also in constructive, thematic, and other sorts of plays.

Table 1. The number of spontaneous investigative plays.

The circumstances of the occurrence of an investigative play	The number of observations	
	The 'e' group	The 'c' group
Investigative plays	214	149
Constructive plays	191	121
Thematic plays	80	20
Motor plays	7	-
Altogether:	492	290

Children who participated in didactic plays with investigative content (the 'e' group) were far more likely to undertake investigative activity than children from the 'c' group, in which such plays were not organised. Moreover, children from the 'e' group talked during or after the play about the phenomenon they investigated, discussing the features they discovered during the play. They did it more frequently than the children from the 'c' group.

What is more, the spontaneous plays undertaken by children showed that boys are more interested in the plays about mechanics, electricity, and magnetism, whereas girls tested properties of sand and clay. The only plays, which were equally captivating for both boys and girls, were plays connected with the phenomenon of gravitation. This observation is in agreement with what other psychologists- such as E. H. Erikson, M. S. Smart, R. C. Smart, A. Moir, D. Jessel, and B. Sutton-Smith- think: the gender of a child determines the sort of play he chooses.

In 782 minutes researchers noted all the spontaneous plays initiated by children. It turned out that children tested the phenomena with which they had previously been presented in plays organised by adults. Initiating such plays can be the proof of the increasing interest of six-year-old children in previously learnt investigative issues. Also the results presented by American scientists: E. P. Torrence, R. White, C. Kamii, T. De Vries, and B. Biber, prove the correctness of the statement.

In the conducted experiment the kindergarten teacher was to organise educational situations stimulating spontaneous investigative plays. Teachers created educational situations and children discovered various phenomena, besides helped children and provided them with didactic means stimulating their investigative activity. The inspiring role revealed itself in accepting children's activity, being friendly to what they were doing, giving freedom and safety, and recognising children's investigative activity.

The analysis of the investigative material made it possible to conclude that organised educational situations are crucial for the psychic development of children and awaken their cognitive activity. Furthermore, they develop children's natural tendency to watch the world and to ask 'investigative' questions, which- after thorough analysis- turn out to be scientific and philosophical questions.

Footnotes

¹ M. Kielar-Turska, *Jak pomagać dziecku w poznawaniu świata (How to Help a Child to Discover the World)*, Warsaw, 1992.

² M. Przetacznikowa, *Świat dziecka (Child's World)*, Cracow, 1995, p.17

³ ibid

⁴ A. Brzezińska, T. Czub, G. Lutomski, B. Smykowski, *Dziecko w zabawie i świecie języka (A Child in Play and the World of Language)*, Warsaw, 1995.