

Bożena Muchacka

educational aspects of children's plays



Wydawnictwo Naukowe Akademii Pedagogicznej - Kraków

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of children's plays**

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prof. dr hab. Sabina Guz

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Wydawnictwo Naukowe AP

30-084 Kraków, ul. Podchorążych 2

tel./fax (012) 662-63-83, tel. 662-67-56

e-mail: wydawnictwo@ap.krakow.pl

Zapraszamy na stronę internetową:

<http://www.wydawnictwoap.pl>

łamanie Janusz Schneider

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Introduction

While trying to explain the idea of play, the philosophers and pedagogues supported their deliberations with the opinion that play constitutes a certain form of relaxation, in that way emphasizing its appeal (the 18th century), physical exercise (the 19th century), or a form of cleansing, reduction of energy surplus and tension release (the beginning of the 20th century). Contemporary pedagogues express no doubt that play is the most effective method of learning, which should be appreciated as such and implemented in order to help a child become self-sufficient.

It is most unfortunate that the role of play is generally underestimated. Its importance is diminished and it usually constitutes an element occupying the leisure time. In the light of social and emotional development of the child, the phenomenon of seclusion and loneliness caused by restricting and weakening of forms of social interaction becomes dangerous. Children more often lack partners to play with. Along with the rapid development, the playing human is confronted with fierce commercialization of life. Forces of the market are trying to change the cultural life into material elements of commercial entertainment, and the moments experienced into a paid-for pleasure. Studies indicate that traditional games, especially in the well-developed countries, have been superseded by receptive games (mainly television and computer). Activities shaping personality, which manifest themselves during and through play, such as an exchange, understanding, being together, thoughtfulness, caring for the weaker ones, listening, helping, or team work are superseded and replaced with rejection, lying, cunning and dishonesty. Nowadays, we are concerned with the comprehensive development of a creative human as well as with creating a culture of innovation, which utilizes the power of the human. This may become possible due to the genuine qualities of play. It is important, from the pedagogical and psychological standpoint, to pose a question to what extent creativity is affected, restricted or even manipulated by computer games. How relevant are Plato's words contained in his seventh book: "He who grows up playing indecent games can not become a decent man, he who is spoilt with soft

toys will later lack courage, he who is fickle and inconsistent in his childhood plays, always looking for a novelty will be the same later, moody, changeable, a bad citizen."

All these aspects of play are reflected in my works (books, collective works, and articles published in pedagogical journals in Poland and abroad). For this collection, I selected those of my texts which are devoted to child's play and demonstrate the relation between this vital form of activity and the child's education and development.

The text *About play and toys* presents play as an essential part of the human culture. Selected examples show the place of play in the history of humanity. Educational function of play comes from its cultural character and I write about it in the text *Play in the hierarchy of educational activity*.

For many years I have been conducting research concerning the play of kindergarten children. In my works *Exploratory play as amusement and cognitive activities*, *Exploratory play as the stimulator of child's cognitive activity* and *Play as the source of child's cognitive inspiration* I indicated the possibilities and the manners in which child's cognitive needs can be developed. The results of my studies mainly concern the selection of the subject matter of exploratory games, the stimulation of child's playful activity, and also the pedagogical interpretation of children's playful activities. Unlike most researchers who reason how the reality affects the essence and the quality of the child's play, I try to show how the play helps to create cognitive representation, as well as how a teacher can develop child's cognitive patterns through play. Moreover, in my theoretical deliberations *Play and child's creation* I point to the links and interdependence between play and creation. In my other work *Receptive games played by contemporary children at home and in the kindergarten* I write about children's preferences concerning various types of play. The article *What do adults know about toys?* also constitutes an interesting source of knowledge.

1. About play and toys*

The subject of play and toys is undertaken by many scientists, especially by educators and psychologists. Moreover, the representatives of such disciplines as: cultural anthropology, social anthropology, sociology of culture and ethnography are interested in the issue of play and toys. It is useful to mention the names of a few historians that made a significant input to the whole knowledge of play and toys. First of all, it is essential to recall a great historian of culture Johan Huizinga [1967] and his considerable work *Homo ludens. A study of the play element in Culture* (*Homo ludens. Zabawa jako źródło kultury*).

Huizinga proves that play has existed in the human timeframe since always. It is not only a mean of spending free time, not only a "socialising exercise" but also – and first of all – the way to culture, as Daniel B. Elkonin [1984] noticed.

In his book *Homo ludens*, J. Huizinga created the concept of "the playing human" and a theory that revolutionized the ideas popular in those times.

The theory propagated that the play gave rise to the whole culture and that every sign of that culture was modelled on play: "The great archetypal activities of human society are permeated with play from the start [...] Now in myth and ritual the great instinctive forces of civilized life have their origin: law and order, commerce and profit, craft and art, poetry, wisdom and science. All are rooted in the primeval soil of play"¹.

The input of psychology and pedagogy into the research of play theory was enormous. It should be emphasized that some authors paid attention to such subjects as the genesis and history of play and their relations with cults, religions, traditions, ceremonies, customs, folklore

* *O zabawie i zabawkach*, „Annales Academiae Paedagogicae Cracoviensis. Folia 29. Studia ad Institutionem et Educationem Pertinentia I”, pod red. J. Krukowskiego, Kraków 2005, s. 162–168.

¹ *Homo Ludens. A Study of the Play Element in Culture*. 1955. Beacon: Boston.

etc. They also attached importance to the role of tradition which, apart from the forms, passed down the names of the plays, dialogs connected with names, dances, and the ability to create their material accessories from generation to generation [J. Bujak 1988, p. 18].

The importance of a play in the human history and in the history of humanity seems to be more important than the importance of literature, art, science, country, law or even wars.

We know that the troubadours' poetry could be heard at the royal court. In the Middle Ages the literary works could be read by scientists or by the rich, in other words, by all those who were able to buy a book, because in those times a book was an expensive purchase. Only men had the possibility to study in academies, while women had no right to do that. Men took active part in wars, too. On the contrary, both a scientist and a townsman, a peasant and even a beggar had the right to play. A man as well as a woman, and especially children had the right to play, and they often took advantage of that right.

There were two attitudes towards the topic of play: the *psychological attitude* – treating play, first of all, as a factor influencing, or even deciding in man's, and especially child's, psychophysical development, and the *cultural attitude* – which did not reject the psychological attitude and considered play as an important part of human culture, fulfilling significant and diverse functions.

J. Piaget wrote that children's observation in Geneva, Paris, Moscow, New York, in the mountains in Iran or in the central Africa, or on the Pacific ocean's islands showed the existence of social transformations which were common for children and adults. Those transformations functioned regardless of the kind or content of the information transferred by educators" [after J. Bujak 1988, p. 15].

Play and toys were known in the antiquity. In ancient Greece small children had "platage" – "instrumentum quoddam crepitum edens" to play – commonly known as a rattle. It was mentioned in Aristotle's and Archytas of Tarentum's letters. In many cases animals (dogs, cats, mice, rats, birds) were used to play with children as "living" toys. Those animals were harnessed to wagons that looked like wooden boxes. There were also antique "military" toys: boomerangs, slings, bows and arrows. In archaic ancient Greece boys often played with dolls. Some of those dolls even had flexible limbs. It is certain that adults also played with dolls. The Olympic Games were a kind of a play.

The subject of play is often mentioned in the Old and New Testament [1971]. Job recalls the fact that girls sometimes played with young ani-

mals (as in the ancient Greece), emphasizing that leviathans – young crocodiles – did not take part in girls' plays. Girls played with dolls, too. The priest and prophet of Israel, the author of the Book of St. Zechariah in the Old Testament, presented the picture of Jerusalem living up with children's play in his prophetic vision of the country's good future: "The city streets will be filled with boys and girls playing there"². Jesus also used children's play as a metaphoric figure. Comparing Pharisees and the experts in the Scripture to capricious children rejecting every play – happy or sad – which was offered them by their peers, Jesus said: "They (Pharisees and the experts in the law) are like children sitting in the market place and calling out to each other: we played the flute for you, and you did not dance, we sang a dirge, and you did not cry"³.

In excavations in Israel, ceramic animal figures, especially birds, were found, resembling those into which Jesus breathed life, according to one of the apocryphal gospels about Jesus' childhood. The rattles and dice were also found. Dice remind us of the Roman soldiers playing to gain Jesus' garments after His crucifixion.

Another fact worth emphasizing is that some ancient children's play were accepted for ages. "Basilinda" was one of those plays. It has been well known and popular in Poland up to now. In Renaissance Italy "basilinda" was called "giuoco del re", while in the 19th and 20th century in Poland it was known as "zabawa w króla" (king's play) – the point of the game was to become the king. Another famous game that has been known for ages is swinging. A swing, as many sources confirm (for example antique paintings), was known both in ancient Greece and in ancient India.

Polish historians have not done many systematic researches concerning the history of play and toys in Poland. Nevertheless, it is worth mentioning that "najstarsze wzmianki o zabawkach, ogólne i nie zawsze jasne, pochodzą z «Kroniki Polskiej» mistrza Wincentego" (the oldest remarks about toys, general and not very clear, come from "the Polish chronicle" written by master Vincent). The "Chronicle" mentions: clay dolls, a ball, dice, or a stick that was mounted astride [cit. after J. Bujak 1988, p. 127]. There is a medieval painting of little Jesus playing a wooden wheel in the collection of paintings in the National Museum in Warsaw.

John Amos Komensky in *Orbis sensualium pictus* presented a few popular plays that were famous in Europe in the 17th century. "Chłopcy

² Zechariah 8:4, after the New International Version.

³ Luke 7:31–33

grać zwykli abo bikami (gałkami), abo kulając kule do kręgli, abo krąg pałką bijąc przez pierścień, abo cygę biczykiem pędząc (goniąc, obracając), abo z rurej i z kusze strzelając, abo na kulach (= szczudłach), abo na kołysce kołysając się i huśtając” [J.A. Komensky 1667, p. 536] (The names of the plays are written in the local dialect).

After 100 years the names of the plays changed considerably.

Here is the above – mentioned part of Komensky’s book, but edited in the 18th century: “Chłopcy zwykli grać albo w kule gliniane, albo rzucając kule do kręglów, albo kule pałką wytną przez kółko, albo krąglice biczem obracają, albo fistułą i strzałą (łukiem) strzelają, albo chodzą na drążkach, albo na hustacze się kołysają i huśtają” [J.A. Komensky 1770, p. 536]. (The citation is written in the local dialect).

Diaries, inventories, and fiction are precious sources of Polish play and toys’ history.

In *Dworzanin (The Courtier)* Łukasz Górnicki [1961, p. 94] described playing ball. Sebastian Petrycy [1956, p. 467] mentioned playing ball, playing “cyga”, “knobs” and sling. Priest Jędrzej Kitowicz [1999 p. 295–296] characterized many toys and plays in *Opis obyczajów za panowania Augusta III* (The description of customs during the reign of August III).

It is worth recalling the original, pedagogical book *Gry nauk dla dzieci służące* (Plays for children) written by Dymitr Michał Krajewski. He described a variety of toys “treating them as a didactic help”. Krajewski mentioned boxes, blocks, cutouts, lotteries etc. He presented wooden horses and sticks that were mounted astride [cit. after J. Łosowska 1980, p. 94–108].

Plays were often pictured by painters (especially by masters from Italy, Netherlands, and Belgium) both in medieval, Renaissance and in baroque Europe. Giovanni Bellini often painted children playing musical instruments. Peter Bruegel the Elder created the remarkable masterpiece *Zabawy dziecięce* (1569) (*Children’s plays*) showing playing children. Artists from Venice painted mythological gods’ plays; masters from northern Europe were likely to show peasants’ and townsmen’s plays.

Play seems to be a kind of phenomenon that is specific for a particular culture or civilisation. Historic play’s influence on human personality, history of particular societies and history of humanity is unquestionable.

Play has always had enormous meaning in the human timeframe. It existed among Greeks from ancient Greece, Romans, Jews, and also among medieval princes and clerics. Play was known (and is known now) among Hinduism’s, Buddhism’s and Christianity’s believers.

Since the 19th century a lot of museums of dolls, tin and lead soldiers and toys have been established.

Some of special meaning for researchers interested in the history of toys are the collections of toys in German Museums of Toys in Sonnenberg, in Seiffen and in Neustadt, near Coburg. An interesting collection of toys can also be seen in the Museum of Toys in Zagorsk. Other precious toys' mysteries and collections are gathered in France and Italy.

Play and toys fulfil two main functions: social and educational. Thanks to those two functions child's psychological and psychical evolution is being formed.

Prof. Szuman [1930] wrote "bawić się znaczy to spędzać czas przyjemnie, [...] znaczy bezwiednie uczyć się bez nauki, bez nauczyciela i w przyjemny sposób. [...] Twórczość zabawowa dziecka polega na wydobywaniu [...] tego co jest zabawne, czyli interesujące dla umysłu [...], a przez to przyjemne" („to play means to spend time nicely. Moreover, it means to learn without learning, without a teacher, in a pleasant way. During play, child brings out those things from play that are interesting and nice for its mind”).

For ages, the cultural role of toys has been to transfer a particular store of knowledge to a playing child.

In the antiquity, those toys were popular that were similar to letters and figures.

In many Greek and Roman children's tombs necklaces with stringed small letters were found, that were used to teach children alphabet.

Famous writers – such as: Horace (65–8 B.C.), Quintillion (35–95 A.C.) [citation after M. Brożek 1951, p. 23] and other highly valued authors mentioned in their works Roman confectioners, who baked letter – shaped cookies – “by młodzi Rzymianie mogli zdobywać znajomość liter przez żołądek” (“so that young Romans have the possibility to learn while eating”).

In the modern times chocolate, marzipan and sugar figures and letters were commonly known. Also cakes, gingerbreads, candies (or in Italy even pasta) were formed in the shape of letters. Board games, lotteries, cards with a wide range of topics belong to another group of pedagogical toys for children of different ages, especially popular from the second half of the 19th century, but commonly known earlier (in France from the 18th century).

The aim of those games was to teach children the alphabet, grammar, languages, literature, history, geography, mythology, religion, astronomy, physics, arithmetic, music, economy, technique, agriculture or even philosophy or war strategy. Naturally, fairy tales, legends, and literary works formed their content. Those toys – both long ago and nowadays – took into consideration the actual political and economic situation.

Toys that transferred knowledge by means of the fixed sounds that were to be repeated later on, belong to pedagogical toys. In 1903, for example, one of the French toy factories worked out a sound recording method on a chocolate record. That record was played on a small phonograph. The toy became a great sensation and invention on the toy market. It was produced in three versions: with hand and spring drive and in luxury version. Chocolate records concerned different topics. The most popular were those with fairy tales and songs for children. After learning a song or absorbing particular information, the record was eaten up, as a reward. It is worth adding that for that reason that toy was one of the most rare (as a set – phonograph and records) and one of the most wanted by collectors.

In the next decades, besides even more improved sound records, toys started to record an image. Currently the next, but undoubtedly not the last, link of the long chain of that kind of toy inventions is a computer. There are interesting examples of toys connected with technology. The famous historian of technology, M. Mumford stated in one of his books that many toys created for fun, that were supposedly useless, contributed to some enormous inventions. The phenomenon of this toys category depended on the fact that in many cases they gave rise to the “important” inventions and useful things. Later on they accompanied them in the further development, in the minimized form. In that way they brought technology closer to the new generations.

It was the most basic technological knowledge, but without that knowledge it would be hard for a child to exist, especially in the contemporary civilisation. A similar role in the Middle Ages was played by adults' toys, which later on became toys for children. But at the beginning they were propagators of the new inventions and technological solutions. [cit. after J. Bujak 1988, p. 28–29].

In the human history and history of humanity play was a means of expression of human emotional condition. Play has existed in the human timeframe for ages, simultaneously with work, which was a form of human “to be”, a form of human existence. For ages there have been relations between play and culture, play and art, play and human thinking basis. Time (particular historical epochs) as well as space (different geographical regions) have significant influence on the play's development or inhibition. Play existed, exists and will exist.

Play is present in the new century and in the new millennium, but it has experience from the past centuries. Play will also exist in the new

epoch, with the dreams and needs adapted to the 21st century and the third millennium at the same time.

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2. Play in the hierarchy of educational activity*

There is no doubt that we are approaching a society in which the role of play is going to gain significance. The growing importance of knowledge in processes of creation leads to the decrease in the significance of physical activity in favour of mental activity. The work efficiency is constantly increasing, and so is the availability of free time, which leaves more room for play. This situation encourages an increased participation and engagement in various types of play, which according to J. Huizinga stem from different areas of culture. Despite the fact that cultural creation undergoes constant professional development (sport, theater, literature, film), none of its domains has been deprived of play elements. Play can and should accompany people throughout their lives; that also applies to adult individuals: it can be magic by choice, that means magic which is contemporary, realized, post-modernist, and the one that constitutes the element of lifestyle of all members of pluralistic societies [M. Buchowski 1993, p. 56].

Many scientific works consider the essence, differences, connections, and interdependence between work and play. In various types of work the growing number of play elements can be observed. Therefore the boundaries between play and work are diminishing. The advancements in science and technology created the new idea of play consistent with the needs of our civilization.

Psychologists and sociologists perceive play as the power which creates the culture. In this respect, play serves two functions: of social integration and differentiation. It aids in assimilation of members of a social group, in conforming to the rules and standards of the society, in preparing children to participate in the life of adults. It also helps to tighten the bonds between generations and to enhance the sense

* *Zabawa w hierarchii działalności edukacyjnej*, [w:] *Play and Education* (edited by B. Muchacka, K. Kraszewski), CD ROM – dokument elektroniczny, Drukarnia Cyfrowa DIMIKOR, Kraków 2005.

of belonging to a social group. Traditional games reveal distinctions between each social group according to age, gender, region, social class or generation. By playing them, society members prove their cultural uniqueness and the newly-formed groups strengthen the sense of common origin. A contemporary man, fearing unification imposed by the mass media, feels the need to return to his origin and authenticity. The return to folk culture, and specifically to traditional games played by the previous generations, can satisfy this need [M. Kielar-Turska 1999, p. 84]. When regarding education in terms of culture, we should consider the former twofold: (1) it's subject matter is always the selected culture, (2) this subject matter as the subject of training-absorption undergoes the symbolic cultural regulation. A. Pluta, who claims her interest in kindergarten education, presents regulatory-cultural requirements of education in context. Education interpreted this way is composed of all opinions regulating educational activity. The structure of those opinions has a form of an educational circle, and sets the boundaries of an individual participation of their subjects, labeled teachers-educators.

Contemporary educational ideologies versus play

From the cultural character of play derives the multitude of it's functions, among those the educational function. Depending on which educational ideology is adopted, the process of teaching – learning can be portrayed as romantic (emphasizing the power of personal accomplishment, natural curiosity about the world, the urge to know more and the competence in new areas), cultural transmission (passing down the knowledge, skills, standards and values accumulated in the past – the transition of cultural achievements from the “more knowledgeable” mind to the “less knowledgeable” one), or progressive (the process in which the rhythm of educational influence is coordinated with the rhythm of an individual who is reaching higher levels of cognitive, moral, social and esthetic development [L. Kohlberg, R. Mayer 1993]).

A. Brzezińska [2000] presented as fundamental the argument that education is an interaction between two people: the one who is a student, and the other who functions as a teacher. The way both people behave depends mainly on the conditions in which they interact and also on the measures and resources available. Therefore the commitment and

resources of the student and the teacher are not the only factors influencing the effectiveness of a teaching process. There is also the quality of an external context – material and social; that is the quality of learning context. An adult plays an important role in supporting the new potential in a child and creating favorable circumstances for the development. L.N. Vygotski observed that the “support” method could be realized through playing, which is the key activity in assisting the child’s development. The author compares the relation between play and development to the one between teaching and development.

Teacher and the subjective participation of a child in a play as the method of learning

The question of what mental qualities of an educator support the subjective role of students in the process of teaching and upbringing seems rather plausible at this moment.

There are many learning techniques, some of them simple, other more complex. There are things one can learn without teacher’s help; however, his assistance quite often turns out to be indispensable. Some theorists portray someone who is learning as a lonely explorer; others consider him/her a passive recipient of stimulation and experiment. Still, many of them think that in the process of teaching and learning there occurs an active reaction between the student and the environment.

The purpose of play in establishing the contact with an adult is to engage the partner as:

- The one who plays the role of an assistant who guides, instructs, and explains when it is impossible for the child to act without the actual help.
- The one who plays the role of an advisor in the process of establishing the conditions of the child’s activity.
- The one who plays the role of an observer during the course of the activity.

M. Kielar-Turska [1992, p. 28–36] points to those characteristics of the teacher that enable him/her to stimulate the child’s development properly; she emphasizes that effective communication between the teacher and the children is the initial requirement in the process of education. Verbal expression is as important as the non-verbal one. The

author indicates a vital component of teacher's personality while communicating with children. It is empathy that allows him/her to adopt a positive attitude towards children and teaching when suggesting, encouraging and sustaining children's eagerness to learn. The teacher should be active, dynamic and innovative. He/she should also let children be themselves and avoid giving orders. Moreover, teachers should be curious about the world and be creative in order to preoccupy children. Those qualities should be properly implemented while working with children in such a way that in the process of learning children have a chance to play and through playing have the opportunity to reveal their abilities and potential.

Acknowledging the importance of stimulating the individual's spontaneous and inspired activity through playing, it is crucial to recognize the strategies teachers implement while working with children.

It should be the teacher's task to evoke children's curiosity, encourage them to search spontaneously and prompt them to be more active in their explorations [B. Muchacka 2000].

In many scientific notions and attempted research concerning stimulation of the child's activity through playing, emphasis is placed on optimum conditions in which the child could form its own idea of the world around him/her. The development of this particular type of the child's activity can occur when children are given attention, their needs are recognized, when there is favorable material context that prompts them to act and explore, and finally when they find themselves in situations that include the play component in which they can organize and systematize their knowledge of the world in accordance with their abilities.

Therefore adults should make it possible for the children to experience the social and physical world through those forms that include play. In the process of education and upbringing, they ought to consider various directions of social interactions (adult-child, child-adult, child-child). Modification of child's development requires that teachers take into consideration child's area of activity and that they structure the methods of working with children. They can adopt two types of educational approach:

1. They can allow children to show initiative, play the way they like and explore on their own, provided that children have the capacity to take advantage of that fact.
2. They can support, "build scaffolding" in the case when children lack motivation, curiosity, experience and initiative [see B. Wilgocka-Okon].

The role of play in the process of child's education and upbringing

In light of psychological theory of upbringing, activity indicates a spontaneous act of an individual, which provokes the development of his/her personality. It means that the educator should withhold from imposing on students the goals, the essence and the means of upbringing. The theory implies that everything that is imposed inhibits the natural behavior of children and the youth and consequently their individual growth. According to the sociological concept of upbringing, activity means that the young play an active role in the lives and work of adults. Evoking the activity means that their social instincts are activated and their activity is not separated from the social life [S. Nalaskowski 2004].

Through playing, which is fairly typical of the kindergarten age group, the child expresses and develops various forms of activity – perceptive, inquiring, symbolic, imaginative and creative.

D.E. Berlyne [1960, 1966] identifies the phenomenon of play with different types of exploration, and he states that it lasts until the child reaches the optimum stage of excitement, which means that excitement is reduced as a result of stimulation. G.G. Fein [1981] and T.R. Shultz [1979] believe that play serves the purpose of altering child's excitement because there is always something new happening in the course of play. B. Sutton-Smith expresses an idea that play has an accommodating function and makes it possible for the child to explore. According to Bruner [1974], while playing the child focuses on the activity itself, not on its potential consequences. H.G. Voss, on the other hand, notices elements of exploration in the play, and compares it to a scientific experiment. J. Trawick-Smith [1989] stresses the relationship between play and cognitive development. The influence that children's playful activities have on their cognitive and emotional development has been also observed by J.A. Chafel [1991].

The behavior discussed is characteristic of exploratory games [B. Muchacka 1992]. When playing such games the child ignores the world and everything that is beyond the area of exploration. He/she is completely preoccupied with what attracted his/her attention at that particular moment. During the exploratory play, the child discovers "the world's mechanism"; it behaves like an explorer in order to answer the question posed to the world. The child gains mental experience actively and independently. While acting, the child is thinking, learning how

objects and certain phenomena function, discovering their features and characteristics. It also finds out about the dependence of an effect upon the cause between the objects of its interest. The information obtained in the course of study leaves the child with the feeling of pleasure and worth. Moreover, it inspires imagination and develops the thinking processes. All exploratory activities constitute the integral part of the play, and they help the child become familiar with new items and phenomena. The objective here is for the child to recognize the object, which is specific or nonspecific, or to experience something new that has not been noticed before [M. Przetacznikowa 1993, p. 157].

For the child at kindergarten age, the spontaneous play is as important as the one that is guided or inspired. At that particular age the process of learning is mainly spontaneous and incidental. It complements the proper and systematic process of learning and teaching. The true value of this type of learning, its essence and effectiveness was appreciated in the 40-ties by S. Szuman, who pointed to the fact that the very characteristic and crucial feature in the mental development of the child in its infancy, after the infancy stage and at kindergarten age is that it happens spontaneously and automatically [1946, p. 3–9]. Each time Szuman names learning “incidental” since it had not been planned beforehand, and it became valid when the opportunity to communicate something to the child occurred. What the educator communicated using specific examples was to broaden the knowledge, and had an explanatory character, which influenced the child’s mental development. Although the incidental learning experience had not been planned in advance, it was still intentional since it regarded child’s knowledge and was aimed at helping the child understand something that had been confusing.

Szuman named incidental learning ‘temporary’ (or casual) since it takes place sporadically and each time concerns a different issue, which is dictated by the current external circumstances or unexpected questions posed by the child. In this respect the incidental learning differs from the systematized academic learning, which is perpetual and consistently graded. Incidental learning can also be called ‘casual’ because information and explanations that the child is presented with are neither defined scientifically nor comprehensive. They are often expressed in colloquial manner and carry as much content as the child manages to grasp, understand and remember. According to Szuman, at the kindergarten age, the child develops its psyche automatically and spontaneously due to three types of activities in which it learns about the reality and gains experience. These are: play, imitation, and questions.

Szuman indicates two types of favorable circumstances, which aid the process of learning: internal and external. External circumstances include various occurrences the child perceives or those that interest him/her at a given moment and cause adults to come up with information and explanation. Internal circumstances are all those processes and states of mind through which the child realizes its lack of knowledge in certain areas, or the lack of ability to find answers to certain questions [1965, p. 220]. Such circumstances usually provoke the child to ask questions which he/she expects adults to answer.

Problem solving as the manifestation of cognitive activity

Solving problems requires the engagement of many mental processes such as understanding, reasoning, drawing conclusions, and finding the links between the cause and the result. While playing, the child encounters certain obstacles, which are difficult for him/her to overcome when it is trying to utilize **the information** and the methods of **acting** he/she is familiar with. In the process of problem solving something new is discovered and the resources of experience and knowledge are created. Children at the kindergarten age use **practical** mechanisms to solve problems, and the process is connected with the inner form of thinking (based on fact and motion), or the mechanisms that are purely intellectual, implementing the way of thinking based on fact and picture.

The first type of thinking mentioned shows the connection between mental processes and practical application.

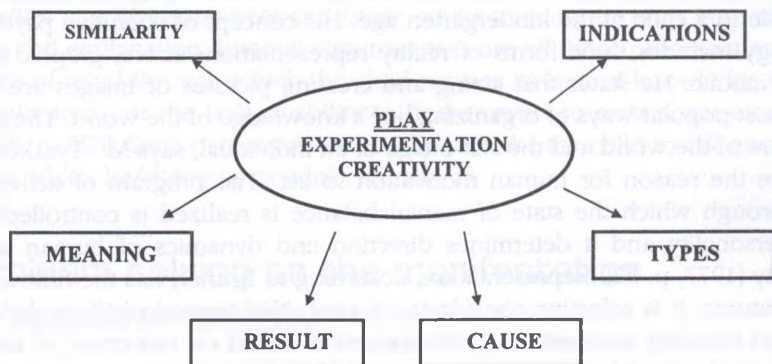
When playing with objects, the child alters them, which enables him/her to discover certain qualities of those objects that cannot be immediately noticed. While solving problems the child should not be aided in recognizing the existence of various hidden qualities and associations; later he/she should make the distinction between the crucial and the insignificant ones. Teachers should be familiar with the principles governing the development of cognitive processes and with the stages of the problem solving process. That knowledge would be useful for designing activities in such a way that the children could learn to recognize the links between the objectives and the conditions of the task. The process of thinking at the time of problem solving takes place in the area of imagination and it is based on the picture of the problematic situation stored in memory.

The results of the child's cognitive activity

J.S. Bruner [1978] indicates that representations play an important role in a child at the kindergarten age. His concept of cognitive psychology includes three forms of reality representation: active, graphic and symbolic. He states that acting and creating pictures or images are the most popular ways of organizing one's knowledge of the world. The picture of the world and the self-image of an individual, says M. Tyszkowa, are the reason for human motivation to act. The program of activities through which the state of mental balance is realized is controlled by personality and it determines direction and dynamics of human activity [1977, p. 42]. Representation, according to Bruner, has the following features: it is selective considering a goal, it is created on three levels, and learning successive representations is based on induction of more general principles in order to create representations that are more economical. Attempting to define the nature of intellectual development, Bruner emphasized the role of representation. He claimed that as the child develops, it learns the methods of representing the norms recurring in the environment around it, and later the child links them with the past and the future. According to Bruner, child's intellectual development happens when it learns the three main forms of representation previously mentioned, and when it is able to integrate them. In the course of an educational process, the kindergarten teacher should concentrate on activating child's cognitive abilities in a way that it can create representations **on three levels**, and move from one level to another easily. It also indicates the ability **to establish correspondence between acting, graphic representation of things and occurrences and their symbolic depiction**.

Child's cognitive activity manifests itself in different forms of play and it results in building the cognitive representation.

AN OUTLINE OF PLAY



CAUSE

- cognitive needs
-establishing the subject, experimentation
- cognitive curiosity

SIMILARITY

- testing, exploration
- discovering
- problem solving
- creation
- constructing

INDICATIONS

- cognitive plane (mental activity and interaction with objects and occurrences in the surrounding world)
- physical plane
- emotional plane (expression of feelings)
- social plane (activity among people)

TYPES

- exploratory games
- structural games
- creative games
- manipulative games
- receptive games

RESULT

- acquiring materials for creating imagination and ideas

MEANING

- development of creative cause-effect, logical thinking, conclusion drawing, reasoning
- stimulation of imagination
- shaping the precision of performance
- team work, cooperation in a group

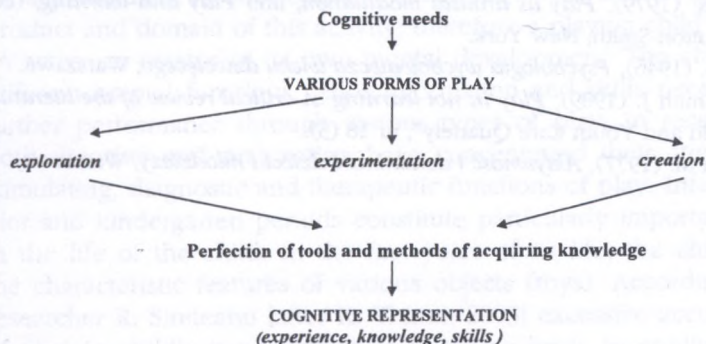
"...exploratory play is one of the types of spontaneous playful activity in which objects are used. The content of the play is constituted by cognitive activities in course of which new objects and concepts are discovered as well as the relationships between them." (11, p.21).

By playing exploratory games the child:

1. acquires sufficient material for creating images and concepts;
2. prepares itself for problem solving;
3. interested and motivated by its own experimentation, remembers more and is eager to learn;
4. masters independence by establishing its own subjects of exploration, and coming up with solutions on its own.

During the exploratory play, the child discovers "the world's mechanism"; it behaves like an explorer in order to answer the question posed to the world. The child gains mental experience actively and independently. While acting, the child is thinking, learning how objects and certain phenomena function, discovering their features and characteristics. It also finds out about the dependence of an effect upon the cause between the objects of its interest. The information obtained in the course of study leaves the child with the feeling of pleasure and worth. Moreover, it inspires imagination and develops the thinking processes.

Cognitive activity, which has its source in cognitive needs takes on different forms, and it results in building the cognitive representation.



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3. Play as the source of child's cognitive inspiration*

The subject of play has been investigated by many pedagogues, psychologists, cultural anthropologists, sociologists as well as ethnographers. Play as one of the forms in which a child can experience and learn about the world serves a crucial role in his/her overall development (physical, mental, emotional and social) since this form is defined by researchers as a versatile activity which acts as a substitute for activities performed by adults, i.e. learning, work and social activity [W. Okoń 1987, p. 5].

Cognitive development of a child depends on both his/her own activity (e.g. J. Piaget's theory) and the external – environmental factors (e.g. cultural-historical theory of development by L.S. Wygotski). S. Szuman points to the role of child's own activity as a specific type of self-stimulant to development. According to the author, play is the product and domain of this activity; therefore a playing child becomes an active co-creator of its own mental development. The child forms different mental functions, gains information and skills necessary for further performance through various types of play. In recent years, both theorists and pragmatists have concentrated their attention on stimulating, diagnostic and therapeutic functions of play. Infancy, toddler and kindergarten periods constitute particularly important stages in the life of the child. In the first years of its life, the child learns the characteristic features of various objects (toys). According to the researcher R. Sireteanu [after K. Thimm 2003] excessive accumulation of toys in child's surroundings at this time leads to annihilation of the sense of discovery and invention. Furthermore, too many stimuli affecting the child disturb the formation of neural networks, which prove indispensable for thinking processes of an adult. According to a neurologist Wolf Singer [after K. Thimm 2003] it is not the genes that

* *Zabawa jako źródło inspiracji poznawczej dziecka*, [w:] *Edukacja – szkoła – nauczyciele. Promowanie rozwoju dziecka*, red. J. Kuźma, J. Morbitzer, Kraków 2005, s. 467–471.

directly influence the child's mental development, but the proper education in the early stages of its life. Over the past thousands of years, the human genotype has undergone little change, and only carefully selected signals from the surrounding environment affect the way genetic information develops.

For many years, scientists have been making attempts to prove that play mainly serves the developing function. It helps to create and strengthen certain patterns of activity; promotes their integration and transformation, which, in turn, leads to the creation of operating networks that constitute the basis for child's activity and understanding of the surrounding environment. This operating network allows not only to gather, systematize knowledge and experiences, but also to develop child's creative thinking.

There are two crucial aspects of knowledge at each stage of child's development: declarative and procedural. Declarative knowledge means the knowledge of facts; however, procedural one refers to the manners in which someone acts. Nevertheless, no knowledge is declarative or procedural itself. Its record in the relational system of the mind can be procedural or declarative [K. Stemplewska-Żakowicz 1996, p. 67]. As the author states, the procedural knowledge can sometimes be the source of the declarative knowledge. While seeking the procedure, person distinguishes the declarative knowledge. On the other hand, the declarative knowledge can be made into procedures. However, if the procedures become automatic enough, the child loses the awareness of this knowledge and sometimes he/she is unable to decode and make it into declarative knowledge. While playing various types of games, the child both acquires and uses the knowledge coming from an external source or from experience. For instance, the reality, i.e. the occurrence observed or experienced by the child and recreated through his/her activities, in which the child imitates the activities of adults and assumes their roles is the source of thematic games [W. Dwyer 1971, p. 1]. An important correlate of acquiring knowledge representation is metamemory, i.e. the knowledge of one's memory (declarative aspect) and the knowledge of mental strategies (procedural aspect) [L. Wrona 1999]. As a pedagogue dealing with the kindergarten stage of child's education, I analyzed the mechanisms of stimulating children's playful activities. Empirical studies concerned the connection between playful methods of conducting classes and the structure of children's knowledge as well as the process of acquiring the skills of classification according to certain categories of the structure of knowledge, i.e. the essence, quality, place, cause, result

and meaning [B. Muchacka 1999]. As a result of educational interactions, the children created or modified their internal mental structures. The research results corresponded with the theory of the closest zone of development by L.S. Wygotski. They included the area of competence within which the subject expresses readiness for going beyond active capabilities and it is growing readiness for accepting help. Child's cooperation with an adult during experimental play led to his/her acquiring the cognitive tools (cognitive network) and constructing the knowledge with the help of those tools. According to the theory by Wygotski, adults, i.e. people possessing greater competence, have the ready-made tools and they know the procedures for using them in given situations and educational circumstances. Under the influence of didactic plays used in the experiment, the children developed inquiring attitudes, interest in the subject and formed the knowledge concerning looking for and finding answers to the questions: *why?*, *what for?*, *what is the purpose?*, *what else?* While playing, the children discovered the links between various phenomena and gathered them within one group. That was the beginning of forming the cognitive representation based on concepts. Therefore, there is a need for the pedagogical practice to create circumstances in which child's individual development can be stimulated in order to provide him/her with situations supporting its cognitive development.

In the 1980's, M. Kielar-Turska conducted an experiment concerning the development of children's speech and thinking. Her studies are contained within the procedural knowledge, where the procedure constitutes the cognitive tool with a specialized structure and the stages of creating dialog. In playful situations designed specifically to serve this purpose, the main emphasis was placed on the formation of dialog.

The need to support children's development through play in Polish kindergarten pedagogy promotes E. Gruszczyk-Kolczyńska [2002]. She concentrates on the ways in which children's memory functions and is developed. These ways are studied in the environment of task completion.

The above mentioned examples of Polish applications of various kinds for stimulating the cognitive development of the child assume declaration (structure) of knowledge: "that" and "how?" Even though in previous theoretical deliberations by Karmiloff-Smith [1985] and Nelson [1981] on the structure of knowledge the authors did not use terms: "procedural" and "declarative", they, in fact, described such manners of recording knowledge and they helped to isolate the stages in the procedures mentioned. The latest studies among German linguists, e.g. J. Weissenborn [after K. Thimm 2003] prove that during unrestrained plays and occasional

contacts with adults, children as early as in the post-infancy period begin to discover the most crucial linguistic principles. They acquire the main grammatical rules long before verbal expression. Following the rule of likelihood leads to proper classification of auditory, visual and tactile impulses by the child's mind; in a way, the child works then as a scrupulous statistician. The development of cognitive structures can be defined as the transition from procedural to declarative forms of knowledge representation. According to Mandler [1983], some forms of declarative knowledge can be observed with the newborns (e.g. a simple outline of a human face); however, its proper development overlaps with the beginning of speech development. Verbal communication constitutes an essential source of declarative knowledge. The external stimulation of child's cognitive activity is equally important [M. Materska and T. Tyszka 1992]. In this respect, during the first stages of child's development various types of play gain significance, especially those which are initiated by children themselves. Children at the age of 3 to 7 enjoy structural plays, which involve making various objects-structures from given elements, i.e.: building blocks, stones, sticks, sand [M. Tyszkowa 1997, p. 68]. Motivation for undertaking such plays derives from the desire to construct, explore one unit made of larger parts or elements, and the willingness to create something. The need of being active, which is so characteristic of the child, is satisfied with the need for being creative. Such type of activity as structural plays became the subject of extensive research, which helped to define the moment in which the child begins to express interest in those plays, the stages of their development and their cognitive value. Even though structural plays appear when the child reaches the age of two, still their number increases during the kindergarten period. J. Popiel conducted research concerning the ability of children aged 2-7 to recreate increasingly difficult structures according to a certain pattern. The author stated that at the end of the kindergarten period children demonstrate firm grasp when it comes to both the structure of the pattern and the building material intended for play. The child's activity is devoid of trials and mistakes and it becomes cautious and rational [after M. Przetacznikowa 1975, p. 433]. S. Szuman emphasizes developmental significance of structural play stating that constructing (building) develops child's spatial imagination, teaches to plan and arrange child's activities in his/her mind [1946, p. 83].

Like structural plays, exploratory plays stem from manipulative games and they constitute a specific type of play for the kindergarten children. Referring to them, Polish psychologists use the term exploratory activities [M. Przetacznikowa 1992; M. Kielar-Turska 1987]. American psychologists

[H.G. Voss 1987], however, differentiate between play and exploration. When exploratory activities are undertaken only for the purpose of play, then they clearly derive from the need for play and fill the exploratory game, i.e. handling items in order to learn about and discover the unknown objects and phenomena, and to find the relationships between them. In the early stages of development, children solve problems by trying and making mistakes. Later, as they gain more experience, the children put their imagination to work before making an attempt to act. They bring up the familiar images in their mind and try to implement rational actions in new situations. In exploratory plays, the child discovers connections between objects and phenomena, and he/she defines their interdependence while recalling the familiar images at the same time and trying to put them to work in new circumstances [B. Muchacka 1999]. The results of the research conducted by German and Swiss psychologists A. Trick and F. Wilkening [after K. Thimm] support my previous observations – through exploratory plays children are able to discover some principles of physics [B. Muchacka 1999]. As M. Tyszkowa stated, the play has the quality of a specific cognitive activity: while playing the child uses symbolization and self-communication. According to the author, these processes constitute the prototype of mental activity and promote its formation. “When the child discovers that it can pretend certain activities, he/she introduces them into the world of symbolic activities, in which symbols and their meanings are the subjects of reception, elaboration, transformation and communication” [1988, p. 53]. The implementation of symbols during play enables the child to acquire various cognitive experiences. The theory of play is presented by M. Tyszkowa from the point of view of thematic games, which deal with children’s experiences in the real world. The child communicates these experiences and knowledge to itself and then chooses the proper interpretation. Therefore, play is the form of self-communication. Moreover, the theory presented above shows the fundamental role of play in the genesis and self-organization of the child’s psyche. It also points to the function of adults in molding the child’s playful activities and to the necessity of providing the children with proper conditions for further unrestrained play. In psychology and pedagogy, the problem of motives and needs is considered to be one of the most important factors in understanding how the role-play originates. To be able to participate in the life of adults, the child has to become ready to perform different types of roles, which he/she can do through playing [A.N. Leontiev 1962]. These types of creation lead the child, according to D.B. Elkonin [1985] to transforming in his/her mind

the motives which have the form of subconscious, highly emotional desires into the motives in the form of generalized intentions. The child makes the transformation within the so called "cognitive egocentrism" and begins to think and look from other people's perspective, then goes on to mental activities based on speech, and learns various patterns of behavior suitable for given situations. Moreover, thematic plays, according to J.W. Dyer [1983], include many different themes and the thematic circle builds up with age. Initially, everyday life becomes an inspiration for the child's play. Later, in their performance they gradually implement the contents derived from stories, poems, songs, to eventually include some broader social issues.

Tracking games identified by Z. Topińska [1961] are, in E. Claparede's classification, the games that exercise special functions – the "hunting" game. While following the tracks, children naturally become familiar with symbolism and learn to read each sign. Children's emotional engagement in play makes them demonstrate willingness to perform various tasks (they measure, count, read, sing, solve riddles). Besides, tracking games possess educational value since they organize, to a different degree, the physical, emotional, social as well as moral and intellectual spheres. They can be particularly useful in the preparatory period of learning basic reading skills in kindergarten, when reading the symbols by the children plays an important role [B. Muchacka 2000].

Didactic games, with the element of rivalry as the essence, while trying to win, teach children new skills or strengthen previously acquired knowledge, habits and the sense of the world. Plays and didactic games improve mental skills: perceptiveness, attention, memory, the skills of synthesis and analysis and logical thinking. They teach rivalry, discipline and proper reaction to failure [N.N. Poddjakow 1976; E. Gruszczyk-Kolczyńska 1996].

Receptive plays constitute the basic group of plays in the life of the contemporary child. Everyday reality favors them. As a result of changes within the society and those of civilization, the contemporary children spend their leisure time watching television, reading comic books or playing computer games [B. Muchacka in print]. M. Kielar-Turska (in print) observed that watching television has a formative influence on perceptive skills and concentration. Referring to the research by G. Salomon, she emphasizes that specific codes used on television can evoke certain processes of attention, teach specific skills and become internalized as a pattern of thinking, which can then be utilized in new conditions. Studies carried out by M. Kielar-Turska on the kindergarten children's

receptiveness to literature concerned various literary genres such as fairy tales and other. In fairy tales, children perceive the values which refer to interactions with others – moral values. Therefore, fairy tales can play a vital role in social education of the new generation. The author also points to the stimulating value of the comic books, lyrical poetry and humor contained in literary works. Receptive plays stimulate mainly the development of perception and attention of the child. They also provide children with patterns for linking events and creating a story.

This paper presents the tendency to recognize the play as an exercise and refinement of already learnt activities, but above all as the way to experience the world. The play occupies a crucial role in the psychophysical development of the child. It is an activity which satisfies child's most crucial needs for development, evolves cause and effect thinking and other psychomotor functions, stimulates the aspiration to gain knowledge and learn about the world of nature, various items and social life. The play also shapes the psychological structure of complex forms of activity, and develops cognitive and functional patterns in reference to different areas of life. All these patterns create the operational network. Thanks to play the child develops creative skills and emotional relations. Therefore, play as a form of child's activity not only provides the child with an opportunity to acquire the comprehensive knowledge of the world and itself, but it also stimulates all areas of child's development.

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4. Play and child's creation*

“Children's play is not mere sport. It is full of meaning and import. [...] The plays of childhood are the germinal leaves of all later life. For the whole man is developed and shown in those, in his tenderest dispositions, in his innermost tendencies. [...] A child who plays and works thoroughly, with perseverance, until physical fatigue forbids will surely be a thorough, determined person, capable of self-sacrifice”. With these words F. Froebel formulated, with classic clarity, the attitude of pedagogy of his time towards play [S. Hessen 1931]. I believe these words still remain true. Studies show that the environment, and adults' attitude towards play in particular, constitute important factors determining the development of activity of children and teenagers. A number of scientists emphasized how important is the influence of play on child's development and the experience it gains. Some of them considered play as “the sign” of creation or imagination.

The purpose of this presentation is an attempt to consider relations, interdependence, analogies, and similarities between play and creation.

In technical literature on the subject, the creation is understood as the result (product, work), process and activity. Therefore, there are various explanations depending on the adopted standpoint and models of study in reference to the idea of creation. E. Nęcka [1994] criticizes the classic concepts of creation (associative, figural, behavioral, cognitive and psychoanalytical), in which she detects many simplifications that manifest themselves in understanding the process of creation as the return to spontaneous forms of thinking characteristic of the early childhood period. Among non-classic theories of creation, there are those formulated by J.P. Guilford (divergent creation), R.W. Weisberg (problem solving), T.M. Amabile, E. Nęcka, R.J. Sternberg (integrated or interactive). D. Kubicka [2003, p. 43–61] based her interpretation of creation development on the classification of models of individual

* „Zabawa i twórczość” – referat wygłoszony na konferencji naukowej w Uniwersytecie Opolskim w 2005 r.

development by A. Brzezińska [2000, p. 237]. The author points out that studies in which creation is identified with divergent or associative skills provide information concerning the development of creation in its linear sense [e.g. Guilford 1978; Torrance 1962; Limont 1994]. Models of study emphasize quality changes, which take place in the process of development of creation: at each level of development these are different structures, and the final pattern is always the creation of adults [e.g. Wygotski 1931/2000; Urban 1991]. There does not exist the continuation of processes of development of creation in cyclical models since at each stage of development there is a different quality [e.g. L. Cohen 1989].

In this presentation, I base my deliberations of the development of play and creation on the cyclical model. They concern the play and creation of the kindergarten period. Both creation and play are treated as activity.

From the beginning of time, a human has always been an active being, not a passive subject of outside influence. Different forms of child's activity, which he/she undertakes in the process of learning and transformation of the world begin to appear, organize and perfect themselves as early as in the infancy period. One of the forms of activity, typical of the kindergarten period is play. In order to explain the idea of play, some of its fundamental features need to be distinguished, such as: pleasure, distinctiveness, time and space limitations (J. Huizinga, Ch. Bühler, E. Hurlock, S. Szuman, W. Okoń, M. Tyszkowa). Happiness and satisfaction that one derives from play, and not the idea of achieving certain aim, constitute the motive of play. On the other hand, the creation possesses a clear structure and it is oriented towards achieving a final result, which can adopt material or transitory form [D. Kubicka 2003, p. 94]. Both play and creation are the demonstration of child's own activity as a factor of development. The child makes an independent decision to play and create.

Science presents various standpoints justifying mutual relation between play and creation. Some claim that creation is realized through play, others state that play is the source of creation. D. Kubicka [2003, p. 103] indicates the contradiction between the ideas mentioned above. Dialectical relation between play and creation demonstrates itself in a way that the child who is playing uses his/her creative resources and at the same time through play develops divergent thinking.

The relation between exploratory play and creation

Through a play, as a form of activity typical of kindergarten age, the child expresses and develops various forms of activity: perceptive, exploratory, symbolic, imaginative, and creative. D.E. Berlyne [1966] identifies the phenomenon of play with different types of exploration, and concludes that it lasts until the child reaches the point of optimum state of excitement, which means that it reduces the excitement as a result of stimulation. G.G. Fein [1981] and T.R. Shultz [1979] believe that the role of play is to modulate the child's excitement because within the course of play there is always something new happening. B. Sutton-Smith expresses an opinion that play has an adaptable function and enables the child to explore. According to Bruner [1974], while playing the child concentrates on the activity itself and not on its consequences. H.G. Voss [1987] detects the elements of exploration in play, and compares it to a scientific study.

The behavior which these authors mention is characteristic of exploratory plays [B. Muchacka 1992, 1999]. During the exploratory play the child expresses no interest in the world beyond the area of exploration. The child seems oblivious of what is happening around him/her, being totally engaged in the activity that absorbs its attention at a given moment. While playing the exploratory game, the child discovers the world's mechanism, behaves as an explorer in order to answer the question posed to the "world". The child gains mental experience actively and independently. While acting, the child is thinking, learning how the objects and phenomena function, recognizing their features, qualities and cause and result connections between the objects and phenomena being explored. The acquired information leaves the child with the feeling of worth, pleasure, broadens imagination, and brings thinking processes to a higher level; therefore it has a developmental function in the area of psyche. D.E. Berlyne [1963] distinguishes two types of exploration: external (seeking information from the outside world, experimentation with objects, observation), and internal (creating information in mind, mental questions). Scientific research provides justification for the connections between exploratory processes and creation. It is also the source of data concerning the behavior of creative people, who can establish specific cognitive order, which causes that they feel comfortable in situations of uncertainty, unknown, dis-

orderly, and they tend to seek such situations. In the literature on the subject, this phenomenon is defined as the preference for new experiences, which means that the individual actively seeks new and various experiences, problems, or situations. There is also evidence suggesting the existence of relation between children's exploratory nature and proto-creativity [after D. Kubicka 2003, p. 90].

The relation between constructing play and creation

One of many types of play undertaken by kindergarten children is constructing play, which means creating various products – structures, using elements such as: building blocks, sticks, stones or sand [M. Tyszkowa 1977, p. 68]. The motivation for undertaking such plays is the desire to construct, study the unit made of the pieces already put together or the unit made of separate elements, or create something. Being active, which is so typical of children, is satisfied with the need for creative activity. S. Szuman emphasized the developmental significance of constructing plays. He claimed that the activity of building something develops child's spatial imagination, teaches the child to plan and arrange its activities in his/her mind [1946, p. 83]. E. Franus [1975] pointed out that practical tasks undertaken by children during constructing play constitute the base for the future creative activity.

The relation between thematic play and creation

According to M. Tyszkowa, play has the quality of a specific cognitive activity: the child uses symbolism in play and communicates by acting. The author claims that these processes constitute the prototype of the mental activity and promote its formation; “when the child discovers that it can pretend certain activities, he/she introduces them into the world of symbolic activities, by which we understand this category of human activity in which symbols and the meanings they carry are the subjects of reception, elaboration, transformation and communication” [1988, p. 53]. The implementation of symbols into play provides the child with the opportunity to acquire various experiences in the real world. W. Okoń [1987, p. 18] states that the very specific feature of the

play is the existence of two categories of reality. The real one, which the child always respects, as well as the imaginary one, which meets the condition necessary for the child to play a certain role. When the child observes the activities of adults and feels the need to act like them, he/she encounters the obstacles difficult to overcome. Then the child creates its own reality, its own "imaginary" world. This fiction plays an important role in thematic games, and some authors call them fictitious plays. While playing, the child substitutes one activity with another, the same as one thing with something else. The child performs its creative activities in the world of imagination. As a consequence, thematic plays are often referred to as imaginary, illusory, creative or symbolic.

Play versus linguistic, literary, artistic, and musical creation

Language, as an activity, undergoes constant evolution under the influence of human psyche, which aspires for change, as well as under the influence of the situations, which favor innovation. The creative character of language is defined as the ability to create and understand an infinite number of sentences. According to M. Kielar-Turska, the basis for creative activity (in the area of language) is the theory of combinations, i.e. the free arrangement of elements, which can adopt the form of processing the old and creating new structures. At the kindergarten age, the child is familiar with the basic principles of language. Using the linguistic material, it can create new terms, stories, songs and nursery rhymes. The child enjoys playing with words: rhymes, riddles, etc. The process of creation itself (e.g. making up fairy tales) is what fascinates them the most. The child exhibits its creative attitude towards language with the ability to adjust the manner of speaking to the specific situation and the listener [M. Kielar-Turska 1988].

Linguistic creation is closely related to literary creation. However, as S. Popek states, the child's true literary creation begins when he/she is able to write its own literary piece. At the kindergarten age, the child shows the tendency to imitate rather than to write something on its own. The children who reached the age of five are capable of creating their own stories; the younger ones make the statements concerning their own experiences. In educational practice, drama techniques have a considerable influence on the development of free poetic, artistic and musical creation.

The artistic creation is the most common form of playful activity among the children at the kindergarten age. It can not be, as R. Gloton and C. Clero [1976, p. 189] state, reduced just to a fact of recreation of objects on a piece of paper. There needs to be a position adopted on various forms of child's creation: imagination, ornamentation, decoration, observation, normalization, techniques. In reference to H. Read's words, it is important to say that the work of art is not only an ornament: it is an expression of the deepest human instinct, the instinct which leads him to broaden the area of his mental perception.

Child's creative activity demonstrates itself in musical plays. The child adopts an attitude towards them, not only as a creator, but also as an active recipient. While playing, children create their own melodies; many children can write the lyrics if the music is provided or a melody if they have the lyrics ready. The contact with the works of music enables the child to develop its own creativity.

The forms of playful activity mentioned above demonstrate themselves in the creation of works (new quality) which are of value to children themselves; they are created for pleasure, they become an area of getting to know the world and aid in the formation of personality. Therefore there is a message for those adults responsible for children's education. First, they should be able to recognize and then properly stimulate children's creative potential so that in the future children can make attempts towards their own creations. L. Cohen considers being aware of one's own style of thinking and maintaining cognitive control over it to be the prerequisite of mature creation. Its results will mainly depend on children's experiences, talents, interests and the support of adults creating favorable conditions for self-development of the child. Finally, it is worth asking a question of what is the idea of child's creative development from the "kindergarten" and "school" standpoints. Unfortunately, in Polish kindergartens (that follow the example of America, Western Europe, and Japan) there are more and more classes conducted by adults and addressed to children – "intellectual training", which does not allow the child's full development of personality and individualism. They take away its physical and mental freedom and thus inhibit the creative potential. According to D. Kubicka [2003, p. 57], the moment of starting school is the most critical for the development of child's creation. The "school" standpoint discriminates all children except those who possess academic skills. The school appreciates talents for reading, writing, mathematics, art, music and sport. The scientific types, humorists, play organizers and group leaders are overlooked. Even though children have

different talents, the school puts the emphasis on teaching all children the same things. There are too many obligatory classes the children have to attend, and no one is interested in helping them to develop the unusual skills. If the child's creative development is to be promoted, he/she has to be good at something and like doing it; otherwise, its creative potential will be destroyed.

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5. Exploratory play as amusement and cognitive activities*

The analysis of the concept of “exploratory play”

According to J. Huizinga [1967, p. 28],

The play is a free activity, which is felt as “thought not in this way” and remaining outside of the usual life. However, it can completely absorb the playing child; it is an activity that is not connected with any material interest, by which no benefit can be gained, that is taking place in the sphere of its own time and space; the activity is going on in certain order, according to specific rules. It brings into being social relationships, which try to remain a mystery or, with the help of disguise, show up their dissidence towards the world....

In another place J. Huizinga [1967, p. 48] writes:

The play is a spontaneous action or activity, taking place in some fixed time and space limits, according to voluntarily accepted but unconditional rules and it is the aim itself. It is accompanied by tension as well as joy and awareness of “distinctness” from “common life”.

Basing on the presented definitions, we can distinguish five elements and on their basis interpret particular kinds of play, among them the exploratory games.

Each play – according to J. Huizinga – is firstly and mainly a free activity. A child is playing, because it finds pleasure in it, and that is its freedom.

The child undertakes the play, not because of obligation or compulsion, but of its own free will. This feature of play has been pointed out by K. Uszyński, who expresses his opinion that games invented by adults

* *Istota i właściwości zabawy badawczej*, [w:] B. Muchacka, *Zabawy badawcze w edukacji przedszkolnej*, Kraków 1999, s. 11–44.

have the character of something artificial. The play loses its sense when it is not a free activity of a child.

The feature of pleasure is also presented by Ch. Buhler in his definition [1993, p. 91]. He writes: "we define the play as the movement intentionally heading towards the pleasure".

The feature of pleasure is even more distinctly exposed in the definition of play by E. Hurlock [1985, p. 41] who relates this term to "each activity undertaken for pleasure, but regardless of the final result. The individual plays spontaneously with no compulsion from the outside, and the only aim of play is entertainment".

S. Szuman [1946, p. 11], analyzing the play from various points of view, characterizes this kind of child's activity as the activity colored by a nice experience: "The child is playing, devoting itself to the pleasure of playing. The enjoyment of playing gives a child an important motive, which induces the child to undertake this activity and support it".

The feature of pleasure can also be found in the definition of play by W. Okoń [1987, p. 44]: "play is the activity performed for pleasure, based on the participation of imagination, creating a new reality".

J. Grad [1997], analyzing the ideas and concepts of play, writes: "Participation in the play is connected with various experiences, feelings, mental states, defined as: easiness, fun, joy, humor, enjoyment, sense of freedom and spontaneity".

All the authors determine play as a free activity and as the main motive for undertaking it, and they acknowledge the pleasure it gives to each child. This voluntary character of play is expressed by choosing optional exploratory kind of playing activities by the child.

The child also undertakes the play on its own accord. The indirect cause of raising this type of play is one of the most important mental needs of a child of kindergarten period – the need of getting to know the surroundings.

During the exploratory play, the child finds out unknown features of objects and the phenomena as well as the connections between them.

Didactic, or motive plays are generally undertaken by children as the result of the teacher's suggestions and they are usually entirely organized by him.

In the case of exploratory plays, which are originally spontaneous activities by their nature, the situation should be different. The initiative in undertaking the play should be left to children, but if they are not active – the teachers should encourage them to free explorative playing actions. The adults should stimulate their imagination and curiosity,

suggest the explorative aim, make it interesting for a child, but always in such a way as to provide the child with a free choice of activities.

Play should be also accompanied by the joy coming from the individual, independent exploring of the world.

The play, according to J. Huizinga [1967], is disinterested, as the aims it serves themselves are outside the borders of directly material interests.

The criterion of disinterest is connected with the autotelic character of plays, which has been emphasized by many psychologists. According to J. Piaget:

Each play has autotelic character, as it is the activity mainly aimed at itself, and lasting in this character as long as the person playing it contemplates its own causative power, and enjoys treating himself as the reason of his own activity [after: B. Sulkowski 1984, p. 12].

The autotelic character of play is also emphasized by H. Wallon, who writes: "by play we can define each activity, that has no other aim apart from its own" [cf. R. Gloton and C. Clero 1985, p. 69].

Disinterest is a very important feature of play. The child does not undertake a play with the thought of any material advantages, but wants to spend its free time in a nice way. M. Tyszkowa [1977, p. 43] also pays attention to the feature of disinterest. She writes: "the motive of play is neither gaining the important results, nor the action itself (functional pleasure), but experiencing some aspects of reality important for a child".

Each kind of play provides the child with internal advantages, although, in the eyes of the observer, the playing activity may seem needless and useless.

For example, the child does not erect the construction, assuming that by this play it will improve the precision of its hands, or develop thinking or imagination. The only motive for the child is the pleasure coming from constructing, leading to some defined creation.

The explorative play is also a type of disinterested activity. In this kind of play neither the result nor possible material interest is important for a child, but the action itself, which results in this, not the other effect. We can only speak here about the internal advantage, which for a child is, in this case, merely satisfying the cognitive need as well as the pleasure resulted from controlling the unknown.

Another feature also connected with autotelic motivation is, distinguished in the definition of play by J. Huizinga, the tension: "The element of tension plays a role important above all in it" [1967, p. 25].

The tension accompanies the child in almost all types of plays, for example in motion plays, with elements of throwing, aiming at something, balance, plays in the water, in the snow etc; in tracking plays, when the child, emotionally engaged, is looking for traces leading to the aim; in plays and didactic games including the element of competition, inducing especially strong emotions. It can also be observed in exploratory plays, which provide the child with countless new experiences, connected with discovering the features of things and phenomena. When, in an exploratory play, the child for the first time meets unknown phenomena, the tension accompanying the examination and observing the effects of action is even higher than in other kinds of play.

S. Gerstman [1986, p. 100–101] wrote about the essence of cognitive activity, characteristic for a child of the kindergarten age:

Pleasant feelings have also their source in cognitive activity undertaken by a child of kindergarten age, when it is satisfying its curiosity [...]. The behavior of a child towards the object it is interested in is most often not vigorous or spontaneous any more. Among the fundamental features of cognitive behavior of a child, the most frequently observed are slow, as if careful approaching the object, and, depending on the possibility, the trials of manipulating it, or examining. It is to lead to new experiences, and thereby to getting to know yet unfamiliar features of the object.

The tension which accompanies the child during the exploratory play makes the child experience various intellectual feelings such as pleasure, enjoyment, triumph, satisfaction with meeting or achieving something new, and coming to some conclusions.

Another feature taken into consideration by J. Huizinga in his definition of play is its autonomy and limitation in time and space. Huizinga associates limitation in time with the feature of recurrence, which he considers the most important feature of play. "Nearly in all above-mentioned forms of play the elements of repetition, refrain and the change of sequence create some kind of plot and canvas" [1967, p. 23].

The child can transfer the action in time in thematic and tracking games, taking place in the room or kindergarten yard, (for example playing a princess, or tracking Indians of the hostile tribe). However, in explorative plays the time is strictly conditioned by the phenomenon, examined by the child at a given moment. When the child gets to know some new phenomenon, let's say in the field of mechanics (it examines how many blocks must be used to outweigh the crane), and when it discovers the rule of the phenomenon, it immediately does it again in

the same way, to confirm the performed discovery. But if the child repeats the same play at some other time, then it is rather improved – as the child explores further links, relationships and features of the same phenomenon.

The play, as J. Huizinga [1967, p. 23] writes “when it has taken place once, it remains in the memory as the spiritual creature or spiritual treasure, it is transferred and can be repeated any time”.

The feature of recurrence, noticed in all kind of plays, is especially visible in exploratory plays, which are not only repeated and remembered, but some of their elements are incorporated by the children in other playing and not playing situations. For example, while removing the blocks, when the constructive play is over, the child collects the blocks with the help of a toy – crane – instead of using hands.

The space within which the play is taking place is treated by J. Huizinga [1967, p. 2] as “a temporary world within the ordinary world”. In thematic play the space is usually fictitious.

This temporary world consists of, for example, a house for dolls, in the corner of the kindergarten room, usually representing the world of tales or zoological garden. The child chooses the playing ground first and then starts playing. Exploratory play determines the place itself, where the play originates. For instance, when the child accidentally finds out the phenomenon of soap-bubbles, the play is going on in the bathroom.

When the child wants to throw stones in the water, as it is interested in the phenomenon of sinking objects, the play takes place by the lake or in the bathtub – then the stones are replaced by artificial toys. When the child makes “sand-cakes” and gets to know their features, the play takes place in the sand-pit. So the real world, at the time of exploration, becomes the child’s world, the exclusive enclave, where the child discovers interesting things.

“The play creates order and it is the order itself. It brings – limited in time – perfection into imperfect world and the complexity of life”. In this way J. Huizinga describes another feature of play [1967, p. 24]. In each play there are some rules creating this order. In didactic play, and other plays invented by adults, there are principles children have to follow, if the play is to be a success.

In thematic play, the rules are the roles chosen by the children, an appointed space where the play is going on, as well as some objects and toys fulfilling an important role in the game. That internal order is noticeable in explorative plays. It is characterized by three basic elements:

noticing the problem, looking for the solution and perceiving the effect of activity – the result. If any of these rules is violated, the play is not successful. If the child does not notice the problem, it will not undertake the exploratory play. If the way of solving the problem encountered by the child is “suggested” by an adult, the play will be spoilt – the child will not reach the goal on its own.

According to the author, the play “is surrounded by mystery, known only by a child”.

During the exploratory play, the child is neither interested in the world beyond the area of exploration, nor in anything that is going on around, because it is completely absorbed by the activity.

In exploratory play the child discovers “the mechanism of the world”, it behaves like the explorer, to answer the question directed to the “world”.

Unconsciously, with the help of intuition, the child finds the scheme of action, which leads to a discovery.

It can find the right way, eliminating some activities, and it does not do it accidentally, when it repeats the play, but is guided by thinking, known only to itself. So we can say that in the exploratory play the child defines the sequence itself, makes it while playing, and all activities are chosen from probable and improbable alternatives. Admittedly, R. Caillos [1973, p. 306] adds to the definition of J. Huizinga that the rules are not a necessary factor of each play, so all the same, exploratory play can do without them. However, the elements of order, as it has already been mentioned, are clearly visible in it. We can notice that the sequence of performing the individual explorative activities is sometimes imposed by a child on its mates because it is convinced (being assured by the results it had achieved) that the methods it used are the best.

S. Szuman [1960, p. 143–144] wrote:

The child undertakes and realizes playing activities, just because one of its basic needs is to be active, to experience everything that surrounds it, to get to know new things and to meet people being within its grasp – to act [...] The child does not discover the things and phenomena looking at them at close quarters, but it takes various actions and operates on them or with their help.

Exploratory play, like the other kinds of play, is the way of developing the child’s own activity. Depending on the type of play the child undertakes it improves various developmental functions.

For example, in constructive play imagination and the precision of hands is developed, in motive play the child improves general physical

efficiency and space orientation, in didactic plays – the ability of cooperation and accepting the rules, etc.

The character of exploratory play is determined by its contents. The child, thanks to playing, gains intellectual experience in an active and independent way. While acting, the child thinks, meets new objects and phenomena and discovers their features and characteristics. It can also observe various cause-and-effect relationships between the examined objects as well as the phenomena.

In psychology we encounter the term “explorative activities”, which to some degree reflects the essence of explorative plays, and is defined as follows: „The explorative activities rely on examining new phenomena and objects, which are to serve either recognizing the subject – specific or not specific – or getting to know something that has never been spotted before [after M. Przetacznikowa 1992].

Maria Kielar [1987, p. 503] also names the explorative activities – the exploration ones, saying that „they appear in a context of new stimuli and situations and they lead to satisfying cognitive needs of the individual, they take place in a form of receptors (approaching the object, manipulating it, asking the questions and advancing the hypotheses)”. By exploring, the child obtains material for creating imagination and ideas, as well as learns how to solve problems by combination of different ways of action. The child is willing to get to know things which are interesting for him, when it has the chance of experimenting and choosing the subjects of exploration. The child wants to follow its own way while investigating and search for its own solutions.

Nowadays, scientists, analyzing differences between play and exploration, quite often refer to the views of American psychologists. However, this problem is still controversial.

When a child undertakes the explorative activities, just for fun, they result clearly from its need, thus they have amusement character. Therefore we can say that explorative activities are the contents of the explorative play and we can accept such a definition: Exploratory play is a kind of spontaneous amusement activity, connected with handling the objects, which consists of cognitive activities, relying on discovering unknown objects and phenomena, and the relationships between them. Particular elements of the definition will be characterized in the next part of the chapter.

The issue of the activity's importance as well as the practice in the development of experience and intellect of a child was analyzed by S. Szuman. Treating the act of activity as solving a task, he specified eight important factors: the subject of activity, the object of activity, the aim

and conditions of acting, the ways and instruments of acting, results of the activity and its plan [1985, p. 87–93].

Basing on observations of exploratory games of children in the kindergarten, we can characterize this kind of play, in the context of structure of act activity. A similar approach was adopted by W. Dyner [1983], analyzing thematic plays.

The subject of acting in the explorative play is the child, together with its cognitive needs, and with the need of gaining orientation in the world.

S. Szuman considered the objects of senso-motor activity, as the material objects of outer reality, possessing defined, objective features, which stimulate the subject to receive impressions and reflect objects, as well as affect them in a specific way. In exploratory play the object of activity for a child is the surrounding reality, which is the whole world of objects and phenomena, with their structure, outlook, function, features, mutual dependences, and also the circumstances in which the game is taking place.

The objects which appear in exploratory plays are most often the materials which can be found in the natural environment, for example: sand, leaves, snow, water, little stones, shells, flowers, fruit, seeds as well as the tools used in technical and artistic activities, and also the works of technique available in the kindergarten, for instance: magnet, compass, thermometer, batteries, loupe, windmill, unit "Little electrician", reels, tapes, different kinds of paper, puncher, musical instruments, etc.

Explorative games, in which all these objects are used, induce and develop a child's intellectual emotions.

According to S. Szuman, the aim of activity is achieving the intended results.

In exploratory play, the aim of activity for a child is not only the result, although it is quite important, but collecting experience and obtaining general knowledge about the world. Improving skills of using new objects as well as experiencing pleasant intellectual and esthetic feelings is also essential.

The process and the results of activity are influenced by different conditions. S. Szuman distinguished internal and external conditions. In exploratory plays, the external conditions will include all the objects and phenomena of interaction with the environment they exist in. These conditions can be analyzed from a viewpoint of material possibilities of using various objects by the children, as well as from the teacher's point of view – as the person who organizes the child's stay in the kindergarten and who understands the child's needs. Among internal conditions

S. Szuman listed: the state of child's health, and the level of physical, emotional and intellectual development.

According to Szuman, the methods of action have their individual, specified character. They also play a very important role in creating child's thinking and consolidating different experiences in his mind. The means of these activities are either organs or tools. The rightness of the observation of the quoted author can also be related to explorative plays being the subject of interest of the author's present work, since:

- the plays are undertaken by children in different situations, coercing in some way, by attempts and mistakes, the right methods of activity;
- for „discovering” the phenomena, the child is coming through manipulating with hands (organs) and objects (tools);
- during the exploratory activities new cognitive experiences consolidate in the child's mind and causative – consecutive thinking develops, which allows to take up next, better organized exploratory actions.

The most important moment in the process of acting, also in exploratory play are the results.

S. Szuman mentioned the external results, i.e. changes going on in the structure and features of organism, especially in the brain. In exploratory play, the child aims at receiving information.

Finding this information, so reaching the goal, is the external result, the appearance of which not only makes the child happy, but also develops its imagination, understanding, and moves thinking into the higher stage, so it fulfills the developmental role in the sphere of psyche. The external result in a natural way implies the internal result.

The genesis of exploratory play and its connection with manipulatory and constructive play

Because of their essence and characteristic features, the manipulatory, constructive and explorative plays can be compared in the context of differences and similarities as well as mutual relations.

Ch. Buhler and H. Hetzer included in constructive plays:

these activities during which the child consciously and intentionally tries to make some creation and perceives the result of its activity; and that is what makes them different from simpler manipulatory activities. Manipulatory activities can also lead to obtaining a specific product, made of some material, with the help of hands or tools, but the product comes into being acci-

dentally, the child doesn't pay attention to it; it is interested in the activity, manipulation, but not the „ masterpiece”, which is the result of this activity [after: M. Żebrowska 1986, p. 367].

The quoted authors treated constructive plays very widely, as they included into them both making constructions of blocks, building the sandcastles and drawing, sewing on buttons, telling stories and singing songs. Among the constructive plays Ch. Buhler mentioned blowing bubbles, putting the shadows, i.e. the plays which should be included into exploratory plays.

S. Szuman's understanding of constructive plays was much narrower as he divided them into manipulating plays and plays with tools, saying that both types of plays provide the child with developmental achievements and this is what differentiates them. For example, in manipulating plays, the child gets to know the features of mind and learns how the objects function. In constructive plays, it has the possibility of making the whole of the elements and the opposite, dividing a whole into particular elements. According to S. Szuman [1960], it is the prototype of manipulative analysis; while in plays with tools, the subject of relation between the function of the tool and its construction is examined.

The play with a tool, in S. Szuman's terminology, partly corresponds to the essence of exploratory play, consisting in examining relations between objects and phenomena. For Z. Topińska [1961], the essence of exploratory plays is the dominant need of getting to know, experiencing different intellectual and esthetic feelings, without the intention of making anything, and according to the quoted author, this feature differs them from constructive plays.

M. Tyszkowa [1977, s. 68] describes constructive plays in a similar way. She writes that: “they rest on making various creations – constructions of elements such as blocks, sticks, little stones or sand”.

Manipulatory plays include: “functional plays, in which the child practices its motive and sensory activities” [Z. Topińska 1961, p. 68]. In all above-mentioned definitions, we can observe accordance regarding the interpretation of the essence of the discussed kinds of plays.

On the basis of theoretical deliberations concerning manipulatory, constructive and explorative plays as well as the results of observations, concerning kids' behavior during free plays in the kindergarten, we can analyze three types of games, from the point of view of the differences, similarities and mutual relationship.

The mutual element observed in the children while engaged in all the mentioned kinds of plays is a natural desire to satisfy the cognitive need. A child's interest is sometimes so great that in each play it analyses, with the same intensity but on a different level, the intellect and senses, and by acting, it activates thinking, which allows it to transform and order the collected information.

The main feature of each game is pleasure the child is provided with while playing. In a constructive play, the child is fully satisfied when the result of its activity is the product, when it achieves the intended goal. In the manipulatory play the result is less important. The child is pleased with the activity itself, manipulating, touching and throwing. In exploratory play, the child can be fully satisfied, if it has the possibility of discovering something new – the pleasure is just the process of exploration.

The child's desire to achieve the intended result in constructive play is connected with making the plan of the activity by the child.

H. Jankowska [1992, p. 59] writes that:

The plan determines the sequence of the undertaken activities – it concerns the strategy and tactics of acting, it is subjected to the aim, which the subject is to reach [...]. And then she stresses that constructive plays of the two- or three-year old children are not preceded by the plan of acting. The children want to succeed and they try to do it by the process of trial and error. It is the activity directed to an aim, but without a conscious planning of the action methods, which would lead them to the intended goal.

The method of trial and error, mentioned by H. Jankowska is also characteristic of exploratory plays of the younger children.

In explorative play, the small child quite often succeeds by chance, so neither the result nor the methods of action are planned before. However, if something is discovered in this accidental way, the child tries to confirm it, so it repeats the play, recreating the whole process in certain order, which led to the "discovery". Repeating particular activities in the remembered order in some measure replaces the plan of action, whereas we can not find the elements of planning in manipulatory plays.

Each kind of play mentioned above is accompanied by a different type of motivation, which makes the child take it up. In the constructive play, the motivation is the desire to construct, make the whole of elements, create something. Activity, typical for a child, serves its need of creative activity. On the other hand, the motivation for undertaking the manipulatory and explorative play is the need to explore the surround-

ings. A little child, as K. Obuchowski [1985] emphasizes, has got very limited "cognitive capacity". That's why in the manipulatory play it is not able to discover as much as older children do, who prefer exploratory plays, as their cognitive needs are already developed. So the range of realizing the cognitive need is different in both kinds of plays. In exploratory plays, the child spots something that it has not seen before, looks for the reasons of the noticed phenomena as well as an answer to the question: why it happens in this way, what caused that the results of the actions are just like that. The child tries to implement different methods, and performs more and more complicated activities. Exploratory and constructive plays are connected with the rise of psychomotor abilities. Manipulatory play is connected with senso-motor thinking, when the child gets to know external features of objects and toys. Exploratory play starts when the child perceives the internal conditions, relationships between the objects and phenomena, so the play is accompanied by causative thinking.

Manipulatory, constructive and exploratory plays can be analyzed with respect to the toys and materials which children use while playing and whose role is different in these plays.

Both in constructive and manipulatory plays the material is vital, as the child not only uses it but with its help achieves the result it aims at – this result is the transformed initial material. If manipulatory play is to be a success, the playing material has to be rich and multifarious, as it is the subject of manipulation, which serves getting to know the effects, which are the result of using it. In turn, in exploratory play the material only helps to "reach" the phenomena.

The three kinds of play mentioned above are free plays, so they are taken up by children, on their own initiative and, most of all, individually. However, constructive and exploratory plays, especially these in which older children take part, can be continued in groups, which enables mutual exchange of experience and conclusions. Thus the relations between children are different in manipulatory, constructive and exploratory plays.

Summarizing the previous deliberations, concerning exploratory plays presented in the context of manipulatory and constructive plays, we can expose their features.

A. Brzezińska [1984] mentions two groups of play features in general approach: the first group are the features concerning a child as the subject of activity, and the second one includes the features of activity as well as the situation in which the play is to occur.

Analyzing the exploratory plays, we can make an analogical division. Features of the first group are comprised in the intellectual sphere – the child improves its orientation in the world, it develops causative – consecutive thinking – and in the senso-emotional sphere, when it experiences new esthetic sensations and intellectual feelings, and satisfies its basic emotions connected with the need of action. Features of the second group concern the situations when the exploratory play takes place, so non-interpersonal situations, in the contact of a child with a toy, phenomenon, or an object, and the interpersonal situations when the child talks about his feelings, informs about making a “discovery”, and encourages a teacher or a friend to make a “discovery”.

Both kinds of situation are connected with the features of activity relating to exploratory play, for example: pleasure, disinterest, emotional tension, limitation in time and space as well as the defined internal order.

Defining the genesis of exploratory plays, we can say that similarly to constructive plays, they derive from manipulatory plays. Their source is the reality which surrounds the child and which in a natural way affects, activates and develops its need of exploring the world, vividly manifested in the kindergarten period.

Evolution of exploratory plays in the activities of 3–7-year-old children

The aim of this chapter is confirming the assumption that in the kindergarten period, parallel to development of thinking, child's interest in exploratory plays appears. Such assumption was influenced by arguments of contemporary psychology, concerning the development of thinking while acting.

One of its authors, J. Piaget [1966] emphasizes the role of acting, especially in senso-motor, intuitional phases of intelligence and in concrete intellectual operations, and presents the development of child's thinking in following stages of development, in a more integral way than the other authors. Russian psychologists' point of view on this matter was similar. L.S. Wygotski [1966, p. 62–76], S.L. Rubinstein [1962], D.B. Elkonin [1985], N.N. Poddjakow [1983], basing on the conducted examinations, stated that development includes complex means of cognitive activity and it

is formed through practical activity. S. Szuman paid much attention to this problem in his examinations, whose basic aim was observing kids' behavior while reacting to reality and affecting it.

One kind of practical activity in the infantile and post-infantile period is manipulatory play. Developing the thought of M. Tyszkowa [1977], that basic kinds of play arise from manipulatory plays, a similar argument can be carried out in relation to exploratory plays.

During the exploratory plays the child learns the orientation in the surroundings. According to J. Ekel and T. Tomaszewski [1997, p. 197], "orientation in the surrounding is, generally speaking, receiving information with the help of sensory instruments, converting it in the central nervous system and using it in action".

D.E. Berlyne [1969, p. 59–62] presents the ways of achieving information in three stages. The first method is acting by trial and error, the second one is explorative behavior, which the author divides according to the method of acting into: reactions to reception adjustment, motive exploration and exploratory reactions (mainly manipulatory activities). The third stage of achieving information is cognitive behavior. This stage includes three categories: cognitive observation, construction and directed thinking to the right course, which leads to solving the problem. D.E. Berlyne considers collecting and rejecting information as directed functions of thinking, which can't be separated.

According to this author, "information means the choice from alternative possibilities. But the selection of information which should be rejected means choosing from some set of these elements of information which could be rejected" [1969, p. 68].

The knowledge concerning external features of an object is achieved by a child while playing manipulatory games, which are the first way of gathering information independently. In free and spontaneous action, the child gets to know the appearance, function and structure of an object with the help of different senses.

Activities performed during manipulatory plays are simpler, which is connected with poor general efficiency, awkward manual activities and little knowledge concerning both functions and structure of examined objects.

According to D.E. Berlyne, the post-infantile period is the first and the second stage of obtaining information, acting by trial and error and exploratory behavior. In the kindergarten period, the manipulatory play becomes exploratory. Younger children still act by trial and error, whereas older children show cognitive behavior; familiarity with objects and

phenomena is always connected with explorative behavior. More complex kinds of child's activity form two basic types of its way of thinking in the kindergarten period: senso-motor and concrete-graphical way of thinking.

In development of child's activity and in exploratory play two types of thinking coexist. Therefore we should single out the stages of development of exploratory plays, analogical to the already-mentioned types of child's way of thinking.

The first stage would include explorative plays pointed out by senso-motor thinking, in which the children gain the skills of determining global, non-differential relations between the objects and phenomena, and they get to know the features of objects. Two kinds of play can be distinguished at this stage. The first one includes exploratory play, in which the children discover the hidden features of objects and phenomena (for example, the features of wet and dry sand, the sounds of objects hitting other objects, etc.), but they are unable to see essential and inessential objects. Children perform chaotic activities by trial and error. During these trials the child makes discoveries, but they are still random.

The second group consists of exploratory plays in which the children use trial and error methods too, but discovering the new phenomenon or the features of an object is connected with the analysis of the previous mistakes, and the results of this analysis are used in further activities, with some changes being the result of earlier experiences and observations.

Generally, it can be said that in the first stage of development of exploratory plays the child knows how to gain information in its activity. This way of gaining information is characteristic of younger children but sometimes also of older ones because the transition to the higher stage is very smooth.

According to J. Piaget's [1966, p. 222], the second year of child's life is the period of senso-motor intelligence appearing in action. The author does not analyze its forms in other periods. However, he mentions the so-called circuitous-derivative reactions, taking place in the next stages of development.

The clear connection with Piaget's theory is visible in N.N. Poddjakow's views, who similarly to Piaget makes the transition from senso-motor to concrete-graphical thinking dependent on the level of orientation-explorative activity. However, according to N.N. Poddjakow the senso-motor thinking means concrete-motive thinking.

The author writes:

The close connection of concrete-motive thinking with practical transformations of situation points out both its qualities and faults. The possibilities of transforming the real objects by children are limited, and some features can be noticed by operating with ideas of these objects. This appears as concrete-graphical thinking with relative freedom of creating and changing the ideas [1983, p. 265].

Therefore, we can talk about the second stage of development of explorative play, pointed out by concrete-graphical thinking. The child is able to solve the problems and make discoveries in ideas.

It is visible in some moments of the play, when the child, without performing practical activities, discovers the essential features of objects and more complex relations.

The examples of exploratory plays with the sand, presented below, show visible differences between thinking of four- and six-year-old children.

Anetka J. 4,1; time of play: 10 min

The group of children is playing with the moulds in a sandpit. Anetka pours dry sand into the moulds and turns them upside-down to make a "mud pie". "Mud pies" scatter. After shoveling the sand a few times, Anetka digs up wet sand. "Mud pies" start to take form, but some part still scatters. Anetka looks at the "pie", as if she was thinking. She touches gently the dry side of the pie. The sand scatters. She tries to stop it by her hand. It does not work. She gently claps the wet side of the pie. She stares at the hole from which she has already taken out some sand. She takes away dry sand and puts only wet sand into the mould. She touches the mould, turns it around, and smiles. She says to Marzenka: "Look, a mud pie!" She puts some wet sand into the moulds again and creates the row of "mud pies".

Robert Sz.; time of play: 30 min.

Robert digs a hole in the sand and forms a mould. He looks at the big hole he has made. He puts his hand inside. He makes the hole deeper, looks at it, then he takes out some sand again.

The hole is already 30 cm deep. He says: "Grzegorz! Look, I have got a well". He runs with two little buckets for water.

He pours one bucket of water into the well. Water sinks in very quickly. He quickly pours the second bucket of water. He looks at the water

sinking in. He refills two buckets with water. He runs. He immediately pours two buckets of water into the well. Water "runs away" again. Robert looks round. He comes up to the caretaker, who is planting flowers on the flowerbed. He tears off some paper, which is under the flowers. He goes back to the sandpit. He carefully covers the bottom of the hole with the paper. He goes again for water. He pours it into the hole. He observes. Water has stopped for a moment. Robert jumps and calls: "a well, a well, a well!", but after a while the paper has softened and water sinks in the sand again. The boy looks into the well, leans forward, adjusts the paper, and watches the last drops disappearing. He leaves the sandpit. He goes towards the flowerbeds. He asks the caretaker for a little plastic bag. He gets it. He runs towards water again. He comes back to the sandpit. He crouches, removes the wet paper, puts the plastic bag in, takes it out again and tears both sides. He covers the bottom and the walls of the hole with the foil. He calls: "Grzesiek! Bring me two stones!". Grzegorz brings the stones. Robert puts the stones on sticking corners of the plastic bag. He gets up, pours the bucket of water into the well. He sits on the board and looks at the well. Water still remains in the hole. The boy smiles. He says to Grzegorz, who is watching him: "Do you see? It is not running away".

In these two kinds of play, the mental process is qualitatively different. In the play of the younger child, the current of thoughts relied on successive situations in the play. First attempts of forming a "mud pie" were ineffective, but later, when the girl accidentally dug up some wet sand by the trial and error method, she "discovered" new features of wet and dry sand. In the moment of discovery, she became attentive, a mental process – formulating particular elements of acting, distinguishing essential features – was activated, which caused many attempts of making mud pies of wet sand.

The child saw a relation: wet sand – stiff "mud pie". This discovery caused feeling of joy and the reaction: "Look, a mud pie!"

In the second play, the mental process was occurring on a higher level. The boy, observing water sinking in (capillarity phenomenon), made attempts by performing various actions, which can show that different operations were occurring in his mind. He made hypotheses and then verified them in many ways: at first he put a thick piece of paper at the bottom, then he covered it with the foil. He discovered causative-consecutive relations.

The presented examples of plays show that if the child faces some problem in the earlier period of its growth, it tries to solve it by the trial

and error method, whereas, when it gets older and older, and gains more experience, before it uses its imagination before doing something, it calls back the already known scenes and tries to use rational actions in the new situation.

According to J. Piaget's [1966, p. 27–38] concrete-vivid way of thinking is connected with preoperative ideas period, which starts when the child is 2 and finishes when it is 7 or 8 years old. Logical operations appear later. By adjusting Piaget's theory to the theory of explorative plays, we can notice that in such plays the child discovers relations between objects, phenomena, sees their mutual relationships, quite often recalls already known mental pictures and tries to make them into concrete actions in new situations.

Stimulative, diagnostic and therapeutic functions of exploratory plays

The problem of exploratory plays was connected with the arguments of theory of function presented by Tomaszewski. In one of previous works the author said how the growth of a child is formed in exploratory play.

The relation between a play and psychotherapy was presented by D.W. Winnicot [1971] and E.H. Ericson [1987]. Their statements contributed to acknowledging the therapeutic function of exploratory plays.

S. Szuman treats individual activity as auto-stimulator of child's growth. The play is the result and domain of this activity. Thanks to the play the child becomes an active co-creator of its own psychic development. The child develops different psychic functions and acquires skills necessary to further activity in various plays. Recently, much attention has been paid to stimulatory, diagnostic and therapeutic functions of play. It was considered by both practitioners and theoreticians of such scientific disciplines as: philosophy, psychology, linguistics, sociology, ethnography, or pedagogy. Exploratory play should be treated as the element of psychic and physical development of a child, because it has got specific stimulative features: it causes the development of intellectual feelings – curiosity, interest, pleasure, satisfaction, feeling of success after making a discovery, it satisfies the cognitive needs, broadens the knowledge about the world. Spontaneous, unlimited explorative activity of the child helps to regulate the intensity and the rate of cognitive processes progress and causes senso-motor development and concrete-vivid way

of thinking. Apart from thinking, exploratory play intensifies perception, observation, develops imagination, creativity, and attention while exploring.

It teaches patience and persistence, as the child, while exploring, does not pay any attention to discomforts caused by play conditions: the child does not care if the ground is rough or if it is cold or wet.

During active manipulation in perceiving the objects and the phenomena in exploratory play, the child acts more or less precisely, for example, it arranges the blocks not letting them to collapse, tries to carry as many blocks as possible, balances the objects on a weight etc.

Many explorative plays take place outside. The child has possibilities of undertaking such plays in the kindergarten playground, in the grassland, by the river, in the forest. Additional advantage of games taking place outside, especially when children can exercise during the play, is positive impact on the child's physical development and its health. Exploratory play can also have diagnostic value. A basic and very important teacher's obligation is getting to know his pupils all the time. Each teacher realizes that proper organization of the educational process bases on broad familiarity with children. In kindergarten this problem becomes especially important, as from the psychological point of view, the kindergarten age is an important period of man's life, in which the frames of personality are formed, and distinct individual differences between children in intellectual, emotional, social and physical development become noticeable. So, creating the basis of further development of all spheres of child's personality and balancing noticeable deficiency requires precise familiarity with a child and creating optimal conditions for its development.

The results of upbringing are related with acquaintance of a child. M. Przetacznikowa [1993] states that a teacher should estimate his work according to progress in pupils' development. Therefore, when he makes a diagnosis of changes in a child's personality, he observes the results of his own educational influences at the same time. This double diagnosis lets him draw the conclusions about the method and direction of stimulating the child's development and improve previous methods and techniques. Exploratory plays serve both functions.

Acquaintance with the children was considered in many works. The words of A. Janowski are particularly accurate:

Acquainting with the children is [...] collecting information to educational work, based on rational basis. So, it is an activity which serves the educa-

tional process, which can be in different place in its framing, as the aims of diagnosis can be different [1985, p. 8].

Later we read:

We must [...] realize that acquainting with the children depends on our educational aims and it is undertaken to increase the effectiveness of these interactions. Otherwise, it would be very difficult to find some justification for it.

Acquainting with the child is not easy – it requires using various methods and, what is the most important, observing it in different situations. One of them is a play. Depending on the kind of play the child likes we can acquire valuable information about its psycho-physical development by observation. The subject of cognition can be, for example, the child's knowledge concerning social, natural and technical surroundings, using logical sequence in particular parts of play and its development, creativity, way of thinking, imagination, memory, perceptivity, attention, ability of projecting, imitating, physical efficiency, hands efficiency, tempo of working, the ability to submit to rules while making social contacts, cooperating with peers, initiative, etc.

The subject of child's observation in exploratory play can be both its verbal and non-verbal activity.

A child's language system can be examined during verbal activity but only to some extent, as in exploratory play, the child does not speak much, but it acts. More observation of the child's development can be made by non-verbal activity. In exploratory play, when the child sees the object or phenomenon for the first time, faces a new situation and notices the results of its activity, it often smiles, repeats some activities to make sure about the success, it informs a friend or a teacher about it, and encourages the others to make the same "discovery". Then the child experiences complex feelings. Exploratory play enables watching a child's different reactions to something new so it allows to estimate its emotional level. Exploratory plays show the child's ability to improve its activities, stages, the level of child's manual skills in comparison with peers' skills, and its physical condition.

Analyzing child's behavior and his words during the play, we can estimate the development of cognitive processes, ability to see the problems, concentrating during exploration, and also the way of thinking.

Exploratory play has both stimulating and diagnostic value. It helps not only perceive psychophysical qualities of children but also control their further development and form basic concepts about animated and

inanimate world. The child with satisfied cognitive needs is easier to teach, more sociable, more efficient, his individual activity increases and, quoting S. Szuman – it promotes “active learning about the world of people and objects, developing its own, investigative and creative activity” [1960, p. 150]. Let's notice that exploratory play fulfills all these conditions which are very important in broad development of child activity. Contemporary theories and views about the importance of a play for child's development treat this problem globally. All authors agree that the play does not play one isolated role, but serves a complex realization of integrated processes of development. Many authors emphasize the educating function of play. But there are also trials, based on experimental studies, of defining the influence of play on psychic development of a child more precisely. Recently there has been the return of the conception explaining the role of play by its projecting and therapeutic features.

M. Marchewka-Pichlińska emphasizes the problem of therapeutic values of play. She describes two groups of therapy by play techniques: directed and non-directed. In directed techniques the therapist “plays an active, educational role, directing the child's impulses to new tracks and regulating its life. He participates in the child's new ideas about the play, directing the play and offering objects and materials necessary to discover the child's hidden feelings” [1987, p. 42]. Didactic exploratory play can serve these aims. Free therapeutic play has another therapeutic value in the non-directed technique. Then, the child “can do everything it likes [...], therapist does not suggest anything [...] the child is the leader” [1987, p. 42].

M. Marchewka-Pichlińska emphasizes the role of materials and toys, the children are provided with, in directed and non-directed playing therapy. Taking into consideration the importance of exploratory play in the therapy of children, the list of therapeutic materials and toys made by G.L. Landreth and placed in the work of the mentioned author can be completed with materials typical of natural environment and the objects exploring it, presented by the author of this book in didactic propositions of exploratory plays.

M. Marchewka-Pichlińska states that therapy by play (which can be used in exploratory play), is often more effective than other forms of psychological check and stimulates development of intellectual and motor activities, contributes to reduction of tension and satisfying emotional needs, enables cooperation and communication between children, and between children and adults. However, we must emphasize the issue of

play eliminating the tension, which was already noted by S. Freud in his psycho-analytical theory [1976]. It can be assumed that when the above-mentioned author wrote about the role of play in reducing tension, she meant the tension in its negative meaning, because the feature of each play, which has already been discussed while analyzing the concept of "play", is, among others, the element of tension, but in positive meaning. Thanks to the tension that exists during the play, the child can experience various emotional and intellectual sensations.

Spontaneity and educational directing of the exploratory play

In the kindergarten education, the process of child's learning is involuntary and accidental. The value of this type of learning, its point and effectiveness was presented by S. Szuman in the forties. He stated that a characteristic and very important feature of child's psychological development in infantile, post-infantile and kindergarten periods is its spontaneity and self-action.

Some years later, S. Szuman [1985, p. 128–129] confirmed some continuity and regularity of occasional learning:

Child's knowledge increases not only occasionally, but it is organized constantly and united on the basis of its previous experience. Casual pieces of information and explanations are not completely separated, but are elements of knowledge and origins of concepts, coming from previous experience – in the right place, so they appear on one of many branches of knowledge and there, vividly speaking, they develop, breed, bloom, fruit, transforming into concepts defined by type and class.

Nowadays, all round the world, it is emphasized, that unintended learning is very important for mental development of a child of kindergarten age. Active methods promote occasional learning. Among active methods M. Kwiatkowska distinguished: the method of individual experience, the method of directing child's activity, and the method of tasks the child has to face.

In unintended learning, exploratory play serves the method of individual experience, but children must be provided with good conditions to undertake such plays (materials – for example the box of treasure, teacher's proper attitude during the play – the children must solve the problems on their own).

M. Kielar [1987, p. 504] states that in childhood the child should be provided with many opportunities of using exploratory plays. She presents the factors which promote undertaking this type of plays:

- newness of object or situation;
- possibility of modifying objects;
- adults' appropriate behavior (friendly presence, attitude of exploration, as the model of behavior in a new play).

Exploratory play is a specific, hidden form of directing a child's activity – the teacher, instead of giving information, helps to organize the child's own exploratory activity, creates situations, suggests practical solutions, gets involved into the child's acting – but as a partner, and together with the child draws conclusions from the experience. W. Puślecki [1991] paid much attention to learning by exploring.

Explorative play, which serves the method of directing a child's individual activity, should be treated as unintended learning. The teacher suggests the idea and also creates the situation to find a solution of many other problems, coming from the original idea.

In intended learning, exploratory play serves the method of tasks the child has to face. This method must be preceded by planning appropriate conditions to solve the task. The teacher can set up such conditions, initiating for example exploratory play while working with the whole group of children. Initiated and directed exploratory plays combined with other activities can provide each child with a possibility of direct action, experiencing, and, thanks to it, better understanding causative-consecutive dependences. They stimulate verbal interpretation of experiences and following individual, common explorations.

Despite many values exploratory plays, treated as both intended and unintended activities, are underestimated in kindergarten practice.

6. Exploratory play as the stimulator of child's cognitive activity*

Activity is the most important factor in child's growth. It is biologically determined active participation in exploring the world and transforming it. The child does not reflect objects and phenomena of surroundings in a passive way, but it actively gains experience, first by acting on its own and with the help of adults, then thanks to conscious and interiorized psychical activity [M. Przetacznikowa 1993, p. 17].

While acting, the child gets to know the features of objects, learns how to use symbols and signs, improves mental activities, creates orientation in time and space, develops causatively-consecutive reasoning, and modifies its self-image [M. Kielar-Turska 1992].

In the kindergarten period, one of the most essential child's needs is cognitive need being the motor of cognitive activity.

Explorative activity can occur as a play or intended, direct examination. The most frequent way of performing this kind of activity by children at kindergarten age is a play. This form of activity has a specific significance in the growth of a child of kindergarten age.

Research activities, also called exploratory, appear in the context of new stimuli and situations, they lead to satisfying cognitive needs of individual, occur in the form of receptors' disposition, approaching the object, manipulating it, asking questions and raising hypothesis. The basis of this kind of activities is anticipatory impulse [M. Kielar-Turska 1992].

Exploratory activity is connected with specific concrete-motor way of thinking and develops during the whole life. The problem of explorative behaviors being the part of cognitive activity was the subject of many psychological researches, e.g. carried out by S. Szuman, J. Piaget, M. Kielar-Turska, B. Muchacka. Connection of play with child's cognitive development is also indicated by O.N. Saracho and J. Trawick-Smith. The influence of spontaneous play on the development of cognitive and

* *Zabawa badawcza stimulatorem poznawczej aktywności dziecka*, [w:] B. Muchacka, *Zabawy badawcze w edukacji przedszkolnej*, Kraków 1999, s. 44–54.

emotional activity of a child is also pointed by E.J. Hrcir and J.A. Chafel [after: A. Brzezińska 1995].

The value of occasional way of acquiring knowledge occurring thanks to natural activity of a child in a play had been accentuated in Poland by S. Szuman much earlier.

Providing adequate conditions promotes the development of child's cognitive activity. That's why many pedagogues pay attention to the importance of teacher's function as the organizer of educational process in kindergarten. A way of stimulating and inspiring cognitive activity of children, appreciated in contemporary pedagogy, is creating so-called educative situations, or open tasks.

According to the author, organization of exploratory plays is the best method of stimulating cognitive activity of children. Exploratory play is the kind of entertainment activity connected with handling objects, which consists of cognitive activities relying upon discovering new objects and phenomena and relations between them.

This chapter, being the result of conducted examinations, takes up the analysis of relations between exploratory play (organized by a teacher) and cognitive activity of six-year-old children.

The main problem of study was modifying knowledge about the world of six-year-old children through exploratory plays. A problem formulated in this way demands the answer to many detailed questions. One group could consist of questions concerning the subject – the child, occurring for example during exploratory plays, ways and strategies of explorative activities of children, or the influence of these plays on creating their explorative behavior towards the world. The second group could concern the kinds of stimulatory interactions, such as organizing forms, didactic methods, teacher's attitude, or frequency of organizing exploratory plays.

One of the questions which will be considered in this work is:

1. How much does knowledge of six-year-old children change under the influence of organized exploratory plays?
2. The other questions concern the following aspects:
3. Whether and how the level of cognitive activity performed by six-year-old children changes under the influence of organized exploratory plays?
4. What factors cause that children choose the kind of exploratory plays?
5. Does the child's sex have essential influence on choosing the type of explanatory play?

Basing on previous psychological and pedagogical knowledge and individual observations, the following hypothetical answers to these questions can be presented:

1. Under the influence of organized exploratory plays, knowledge of 6-year-old children changes considerably.
2. Under the influence of organized exploratory plays the level of cognitive activity of 6-year-old children increases.
3. The choice of exploratory plays by six-year-old children is determined for example by material conditions of the kindergarten and the teacher's attitude.
4. Sex is not an essential factor influencing the choice of certain type of play.

In connection with the choice of problems, the research procedure had the character of a three-phase experiment (tab. 1).

The aim of the first phase of experiment was making a preliminary diagnosis, concerning the level of children's knowledge about phenomena of inanimate nature and technology and also the level of teachers' methodical knowledge about the possibility of developing children's cognitive activity and the amount of provision of kindergarten rooms with necessary objects and materials.

In the second phase, 120 exploratory plays in 8 groups of six-year-old children were conducted.

Table 1. Phases of the experiment

Phases of experiment	Methods and instruments
Diagnostic part	Testing the level of understanding phenomena of inanimate nature by children, observation of children activity. Interview with kindergarten teachers concerning their knowledge about the ways of developing children cognitive activity
Experimental part	Organization of pedagogical work relying on stimulating cognitive activity of children, through introducing exploratory plays to educational process in eight groups of six- year – old children for the period of 5 months. Observation of children activity
Control part	Testing the level of understanding phenomena of inanimate nature by children. Analysis of documentation.

Programmatic contents, which concern getting to know the phenomena of inanimate nature, which are usually realized during regular classes, in the experiment were realized during exploratory plays. In the experiment, cognitive activity of children in experimental group "e" and control group "k" was studied.

In the last phase of the experiment, the final diagnosis was made. It concerned the level of children's knowledge about the phenomena of inanimate nature and technology. Both in the first and the second part of the experiment the same test checking the level of knowledge was used.

Because of the lack in pedagogical literature of a test concerning such phenomena, an individual attempt at constructing such test was undertaken. The test had a checking nature. Its aim was to analyze children's knowledge about selected phenomena of inanimate nature and technology, and to check the level of understanding the analyzed phenomena. While constructing the test, program requirements of technical and mental education for six-year-old children were taken into consideration [Program of Education in Kindergarten 1992]. The test included: the phenomenon of objects' breaking, the speed in uniform motion, free falling of objects, movement of objects on slanted level, the phenomena of balance and friction, connection between forces and the movement of objects, the phenomenon of electricity, magnetism, liquefaction of steam, changes in consistency of substance caused by temperature, wind function, dissolution of some substances in water, the phenomenon of crystallization, floating and sinking of objects in water, behavior of objects in water and air.

In the test, the following types of questions were used: reminding (giving the right answer basing on questions); selection; identification; free answers to asked question. The constructed test included 20 open and closed questions. To estimate the increase in children' knowledge, the scale of marks was prepared, in which a definite number of points corresponds with qualitative marks (very high, high, moderate, low) divided into two levels: level A (very high and high rate) and level B (moderate and low rate). Table 2 presents the applied scale.

The increase in the level of children's knowledge in groups "e" and "k" was determined, comparing the number of points achieved in the first and the third phase of experiment.

The study was carried out by the author and the team in eight public kindergartens with children from different social environments. 319 children in group "e" and 290 children in group "k" and ten teachers from 8 public kindergartens were examined altogether. 120 drafts of exploratory plays, 8 annual plans and the same number of register

books were analyzed according to teachers' influence. 782 protocols of observation, concerning behavior of children were made up. They are the recording of educational influence on children in groups "e" and "k". This number refers to plays spontaneously undertaken by children.

Table 2. Mark scale to test the level of children's knowledge

Level of children knowledge	Number of achieved points	Levels
Very high	38-30	A
High	29-25	
Moderate	24-20	B
Low	19-0	

The results of examinations concerned the level of children's knowledge and a degree of their cognitive activity as well as the level of knowledge of kindergarten teachers regarding the ways of developing cognitive activity of children.

Examinations concerning children's knowledge, carried in the first phase of experiment proved that between the two groups "e" and "k" there are not any essential differences in the level of knowledge, and they can be treated similarly (tab. 3).

Table 3. Level of children's knowledge in group "e" and "k" in the first phase of experiment

Qualitative estimation	Group "e"		Group "k"	
	L	%	L	%
Very high	10	3,1	8	2,8
High	11	3,5	10	3,5
Moderate	185	57,9	179	61,7
Low	113	35,5	93	32,0
Together	319	100,0	290	100,0

Comparison of the results from the first and the third phase of experiment showed significant changes, mainly in the level of knowledge.

In the first phase of experiment the majority of children – both from group “e” and “k” – were qualified to moderate and low levels or B. Few children from both groups were included in level A.

When the experiment had been carried out, this structure changed; distinct differences in levels of children from group “e” and “k” appeared. Knowledge of children from group “k” was still low in comparison with children from group “e”. The number of children from group “e” who reached level A in the initial stage was 15 times higher. 20% of children from group “k” were on A level, while in group “e” – almost all. The level of children’s knowledge about the phenomena of inanimate nature and technology increased in group “e” more than 15 times on A level, during the experiment, while in group “k” in the same time children’s knowledge increased 5 times.

Data presented above prove that the level of children’s knowledge concerning certain domain, after conducted exploratory plays decidedly increases. The presented results let us state that the results achieved by children in group „e” are connected with stimulating work.

Observation of free plays of children from groups “e” and “k” proved essential differences in frequency of voluntarily undertaken exploratory plays and exploratory activities based on knowledge acquired during plays organized by the teacher (tab. 4).

Table 4. Number of children undertaking exploratory plays

Number of children	Group “e”		Group “k”	
	L	%	L	%
Undertaking exploratory plays	300	94	125	43
Not undertaking exploratory plays	19	6	165	57
Together	319	100	290	100

We can state that the experiment proved high growth in cognitive activity of children from group “e”, with the effect of stimulating work, and was more than two times higher than in group “k”.

Exploratory plays undertaken by children on their own initiative were the most frequently observed as a kind, but their elements also appeared in constructive, motor and thematic plays (tab. 5).

Table 5. Number of voluntary exploratory plays observed in various circumstances

Circumstances of exploratory play's occurrence	Number of observations	
	"e"	"k"
Exploratory plays	214	149
Constructive plays	191	121
Thematic plays	80	20
Motive plays	7	-
Together	492	290
Altogether	782	

Children who were taking part in didactic – exploratory plays (group "e") more willingly and more frequently took up explorative activities in comparison with children from group "k", in which such plays were not organized. Moreover, children from group "e" more often talked while or after a play about the phenomenon which was the subject of their exploration and its features, discovered during the play. Conversations generally concerned solving the problem by the trial and error method.

Observation of children's free plays proved that boys more frequently undertake voluntary explorative plays, connected with abilities and knowledge concerning mechanics, electricity, magnetism, and girls choose the plays connected with exploring the features of clay and sand. Only plays connected with the law of gravity are the subject of interest of both sexes. These conclusions generally correspond with the views of psychologists (for example E.H. Ericson; M.S. Smart and R.C. Smart; A. Moir and D. Jessel; B. Sutton-Smith) concerning the fact that the child's sex is an essential factor determining the choice of certain type of play. The fourth hypothesis has not been confirmed in the conducted examinations.

During these examinations 782 protocols, concerning plays voluntarily undertaken by children were collected. It proves that children, while playing, mainly examined these phenomena which they had already met

during organized plays. Undertaking such plays by six-year-old children confirms the increase of their interest in the already familiar "explorative problem".

It is worth noticing, that similar results had already been presented in the works of American scholars: E.P. Torrence, R. White, C. Kamii, R. De Vries and B. Biber.

In the conducted experiment, the role of kindergarten teachers was to organize pedagogical situations promoting free explorative plays. They were to create playing situations in which children could spontaneously discover various phenomena, and to provide children with materials necessary to raise their explorative activity. Their inspiring role consisted in accepting the activity performed by children, making children feel free and safe, appreciating the child's "explorative" activities, and adopting teacher's exploratory attitude as the standard of behavior.

It seems that kindergarten material conditions and teacher's attitude influence children's cognitive creativity.

The analysis of the so-far gained exploratory material shows that organized, educational playing situations are significant for children's psychical development and, what is the most important, they effectively contribute to stimulating their cognitive activity. Additionally, they develop children's natural tendency to observe the world intensely and to ask "exploratory" questions, which after careful analysis prove to be scientific questions or even philosophical ones, relating to the sense of existence of the universe and the sense of man's being in the Cosmos.

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7. Receptive games played by contemporary children at home and in the kindergarten*

Many theorists of play define this form of playful activity as an unrestrained activity taken up for pleasure [Ch. Bühler 1993; J. Huizinga 1967; E. Hurlock 1960; S. Szuman 1985]. Others emphasize the criterion of unselfishness because the purposes it serves are outside the boundaries of direct material interests [J. Huizinga 1967; J. Piaget 1966; M. Tyszkowa 1988]. Tension, space and time restrictions, a temporary world within the ordinary one, are considered by Huizinga [1967] to be other important features of play.

The form of child's activity that Ch. Bühler [1933, p. 161] called receptive games also possesses crucial features characteristic of play that were mentioned above. Within the group of such games she then distinguished: looking at pictures, watching the adults draw, build and mould, listening to someone reading fairy tales, poems, songs, going to the cinema or theater. In the subsequent classifications this type of play was not distinguished.

Technological advances led to the appearance of mass entertainment for children. It is based on the reception of stories, fiction, events, and information via the electronic media. The form of receptive plays has changed. Children spend most of their leisure time watching television or playing computer games. The research conducted by M. Braun-Galkowska [1995, 2001] indicates that an average Pole watches television every day for about four hours, but kindergarten and school children – even longer. A few percent of children watch television for over six hours a day on weekdays, and even longer on Saturdays and Sundays. Because of children's high flexibility and growth rate, television may have a considerable influence on strengthening of the behavior, both positive and negative

* „Zabawy receptywne podejmowane przez współczesne dzieci w domu i w przedszkolu” – referat wygłoszony na międzynarodowej konferencji w Akademii Pedagogicznej w Krakowie w 1998 r.

[U. Parnicka 2001]. As for the positive effects of watching television programs, D. Kołodziejska (2002) stated that they have an impact on broadening the knowledge, acquiring the cognitive skills, enriching active and passive vocabulary, forming pro-social behavior (empathy), and finally, on the reduction of fear [M. Braun-Gałkowska 1995]. Television programs in particular can support children's development in many other areas. The pejorative influence of television is the fact that this form of spending free time superseded other ways of occupying children in their leisure time. Children quite often resign from such activities as e.g. reading books, playing outdoor games, tinkering, or contact with peers [M. Braun-Gałkowska 2001]. Moreover, television obliterates differences between the imagination of the viewer and the reality; therefore it does not leave any room for the child's imagination to work. The picture is often unsuitable for the child's cognitive and emotional development. Children are not ready to receive the elements of terror, or accept the idea that the characters and their behavior are already agreed upon (fictitious). High concentration of impulses that affect different senses leads to anxiety, strains the nervous system, but most of all, it is the source of aggression [J. Grochulska 1993; H.M. Dembo 1997; D. Kołodziejska, 2002]. Many studies also reveal the influence of individual and social factors on modification of children's behavior.

Playing with the computer is yet another form of receptive play. As scientific studies suggest, the purpose, the way and the motives for using it, place and time, material and the content of the message, all determine whether the influence of the computer will be positive or negative (as it is with television reception). Researchers claim that the computer constitutes an attractive tool for working, learning, communication, play and relaxation, which positively influences the child's cognitive development; however, if used inappropriately, it can pose a serious threat [M. Ledzińska 2000].

Computer games are one of the forms of interaction with the computer. Most of the time, these are strategic games played at a cracking pace. Their essential feature is that the player imitates his/her characters – heroes [M. Janukowicz 1999].

Looking at book illustrations or listening to musical compositions intended for children constitute further examples of receptive plays. Research conducted by Polish scientists M. Kielar-Turska and M. Przetacznik-Gierowska [1992] indicates that regular contact with a book stimulates and forms child's communication skills; while listening to someone reading, the child performs a role of a stimulated recipient. Besides, the child asks questions, demands explanations and repetitions, expresses the desire to look

at pictures. Listening to someone reading fairy tales, as a form of receptive play, is one of the most pleasant activities performed by children since personification, the world of wonder, and the anthropomorphism contained in fairy tales cause that the reality depicted is close to child's perception of the world. The experiences the child enjoys in contact with the fairy tale help him/her become mature enough to receive other literary forms [M. Tyszkowa 1978]. The previous studies on the subject were conducted by S. Szuman [M. Kielar-Turska and M. Przetacznik-Gierowska 1992].

Personal research

The subject of the research

The aim of the conducted research was to gather and demonstrate the knowledge of what place the receptive plays hold among other games played by children at home and in the kindergarten. Therefore the following exploratory questions were formulated:

- What are the games that children most often play at home, and which do they play in the kindergarten? A special attempt was made to answer the question of what are the forms of receptive games that children play at home and those they play in the kindergarten.
- What is children's motivation for playing various types of games, and receptive plays in particular?

People participating in the research

The group of individuals who participated in the research consisted of 120 children at the age of 3-6 attending kindergartens in the Malopolskie province, among them 48 of those living in big cities, 18 coming from small towns, and 54 from villages. 18% of the parents of the children studied were those with higher education, 19% – with secondary school education, 42% graduated from vocational schools, and 21% had primary education.

The procedure and organization of the research

The research was being conducted¹ from January to March 2003 in the kindergartens of the Malopolskie province. The observation focused

¹ The research was conducted by M. Kusiak, R. Cichon, B. Lukasik, M. Kulig, and B. Jaskiewicz as part of their Master's theses written under my supervision.

on games the children played on their own initiative within the period of one week. Our attention concentrated on:

- What games the children at the age of three, four, five and six play in the kindergarten; we were especially interested in the forms of receptive plays.
- The forms of receptive plays that were suggested by the teachers.

Another method applied to the research process was the survey conducted among the parents of the children in question. They provided us with the answers to the question of what types of games the children play at home.

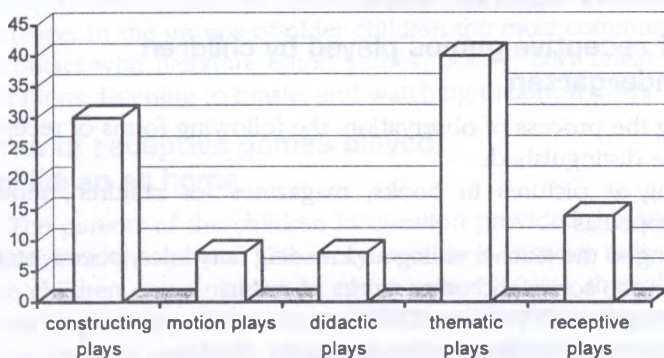
The conversations were held with the children at the age of six in order to provide data concerning the types of plays favored by the children. The preferences for receptive games most often played by the six-year olds at home were of particular interest to us.

Results

Types of games played by children in kindergarten

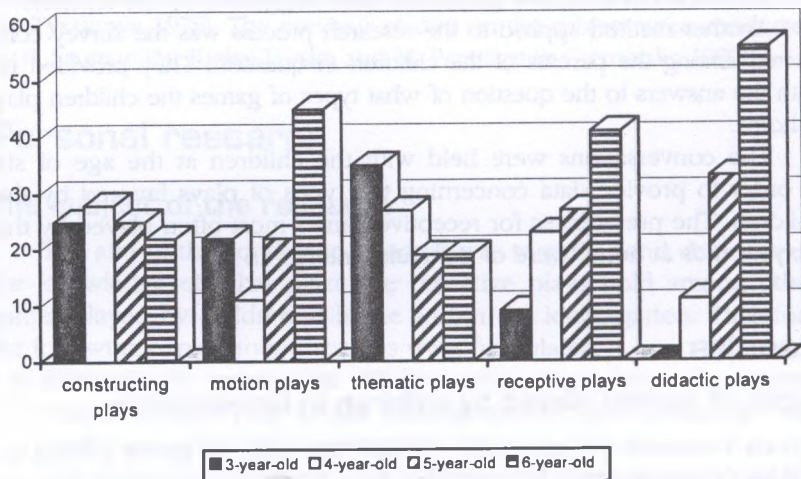
As a result of the research, 1458 different types of games played on children's own initiative were observed.

The number and types of plays observed altogether among the children at the age 3-6 (%)



Among the children of three and six, the most common were thematic plays (40%), then constructing plays (30%), receptive plays (14%), didactic (8%), and motion plays (8%).

Form of receptives games played by children in the kindergarten (%)



Among the children of three and four, the most common were thematic, constructing and motion plays. Older children, however, favored didactic, receptive and motion plays.

Forms of receptive games played by children in the kindergarten

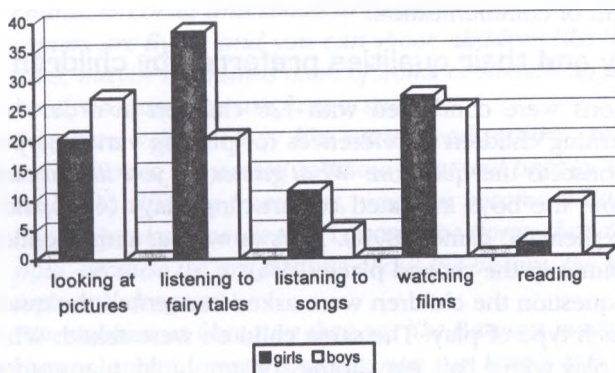
During the process of observation, the following forms of receptive games were distinguished:

- Looking at pictures in books, magazines for children, albums, encyclopedias
- Listening to the teacher telling and reading fairy tales, poems, stories
- Listening to songs and other works of music
- Watching films (TV, video, DVD)
- Reading comic books, spelling-books for children

The most common form of receptive games was listening to someone reading fairy tales, then looking at pictures in books, albums, or magazines, and listening to songs. Girls more often than boys acted on their own initiative when it came to listening to fairy tales being read

(38%); almost as many girls (27%) as boys (28%) expressed their preference for watching video cassettes with cartoons. More boys (9%) than girls (2%) read comic books. Listening to songs was the least popular form of receptive plays among boys (4%).

Form of receptive games played by children in the kindergarten (%)



The forms of receptive games suggested by the teachers were also the subject of observation. Within one week, the most common suggestions observed in the groups of younger children were looking at illustrations and listening to music, whereas activities such as watching films, listening to literary texts, or watching theatrical plays for children did not take place. In the groups of older children the most common form was the contact with literature (short stories, poetry, fairy tales) looking at illustrations, listening to music, and watching theatrical plays.

Forms of receptive games played by children at home

The parents of the children in question provided the necessary information on the subject. The analysis of their answers indicates that at home children enjoy playing receptive games (100%); they also express interest in playing with building blocks and other toys. Among all forms of receptive plays, the parents most often mentioned: watching television, video and DVD (100%), computer games (23%), looking at book illustrations (84%), listening to fairy tales being read (77%), reading comic books (19%), watching the adults work (23%). The analysis of the survey conducted among the parents shows that parents with higher education

read to their children quite often (75%), parents with secondary school education also spend some of their free time reading to children (70%). However, film is the most common form chosen by the parents with primary or vocational school education (100%), and those with secondary school education (87%). Audio recordings are used by 25% of parents with higher education and 13% of the parents with secondary education. The parents who graduated either from primary or vocational school do not use this form of communication.

Types of play and their qualities preferred by children

Conversations were conducted with 120 children in order to obtain data concerning children's preferences for playing various types of games. In response to the question: *What games do you like to play in the kindergarten?*, the boys indicated constructing plays (49%), and the girls pointed to thematic games (89%). Boys as well as girls mentioned the receptive games in the second place (75%).

The other question the children were asked concerned the qualities they value in each type of play. The same children were asked: *Why do children like to play with a ball, play home, theater, build, play computer games, watch television?* On the basis of how the children responded, the classification was made concerning the qualities they take into consideration when choosing the game. Younger children usually found it difficult to justify their preference. They either responded *just because*, *I do not know* or *because I like it*. Rarely did they mention the cognitive qualities *because it can be used for counting*.

When choosing constructing games, the older children used the following criteria:

- Time filler (*they are bored in the kindergarten, so they'd rather build*)
- Creativity (*because something new can always be built, you can build anything you want using building blocks, you can build military bases, ships, robots, all kinds of things*)

When choosing the didactic plays the older children took into consideration:

- Cognitive qualities (*because you can learn, you can find out something interesting*)
- Relationships with others (*because they play with the teacher, they play together, whereas at home they are alone and bored*)

The children justified playing thematic games with the following:

- Playing the role (*because you can be a princess, you can be a mother*)

- Relationships with others (*I like to play with dolls with my friends, I like to play family with other children*)
 - Motion games were chosen basing on the following:
 - Skill and competence acquisition (*you can exercise your hand, you can learn to aim, you can straighten your legs, it is fun to run and catch*)
- The choice of receptive games is usually based on:
- Strong emotions, often negative (*the characters are moving, one character comes and shoots at the other, then they fall and die, helicopters are flying and you can shoot, children like listening to fairy tales, maybe it reminds them of home or something from their childhood, because they are funny, sad*)
 - Cognitive values (*they like various adventures, they get to know many heroes, they want to know what will happen next, fairy tales' reality is different from ours, you can become a little smarter, they like fairy tales because they contain the stories that do not take place now, because we are curious about the history, the kings' lives, wizards and dragons*)
 - Favorite heroes (*because they are like Batman movie*)
 - Humor, entertainment (*because you can laugh, it is fun, theaters for children are always fun, there is always a happy ending, then I do not have nightmares but cool dreams, because comic books contain cool and funny things*)

On the basis of the material gathered, the conclusion can be drawn that the receptive games occupy a prominent place as they are frequently chosen by the contemporary children to play at home and in the kindergarten. The observation conducted with the children in the kindergartens confirmed that going through books, albums, magazines, listening to fairy tales were the most popular forms of the receptive play. Moreover, it turned out that it was the girls who chose to play receptive games more often. The results of the survey conducted among the parents led to the conclusion that the most common form of receptive games played by the children at home was watching television programs, cartoons, and videos. This is the type of play the children undertake every day. The material collected as a result of the study allowed to highlight the difference between various forms of the receptive games played by the children nowadays and the forms preferred by the children whom Ch. Bühler studied in the 1930's of the past century. The contemporary children most often choose to watch television programs, films, videos, and play computer games. The more and more advanced technology also brought about changes in the forms

of children's play. Nevertheless, there is also analogy in the forms of the receptive games played by the children nowadays and in the past. These are such forms as: looking at illustrations in books, albums, listening to stories, fairy tales, music, songs, or watching adults work or creating something.

An important purpose of the receptive games is to form child's esthetic sensitivity and appreciation for the beauty of colors, shapes, music and words, to prepare him/her to understand and appreciate the works of art: their emotional, social and moral values. Therefore, it seems crucial to create in children the competence to understand and experience the works of artists, painters, sculptors, architects, musicians, writers, poets, filmmakers, and programmers.

As a consequence, adults are faced with an important task of not only making careful selections of the receptive games for their children, but also teaching their offspring the skills of choosing an appropriate form of play, by making stricter the criteria adopted by science for their evaluation.

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8. Interaction with the computer as a form of receptive play*

At the end of 1970's, an American scientist, S. Papert observed that computers can radically change the way in which school children think, work, learn and communicate.

Papert adopted J. Piaget's model of children as the builders of their own intellectual structures. According to this theory, children seem to have an inborn talent for learning and, as Papert claims, they gain knowledge by "learning without being taught" long before they start attending school. In response to the question why learning certain things happens early and spontaneously, whereas learning others is delayed and does not occur without formal questions being deliberately posed, Papert writes that it is the matter of material supplied by surrounding cultures. In some cases, instead of supplying material, the culture obstructs its use. He demonstrates the example of "an endemic math phobia", as a result of which it is difficult for some people to learn anything they recognize as mathematics, whereas they may not have problems with the mathematical knowledge that they do not associate with math. The scientist assumed that the computer can break down the phobia, aversion to learning in general, and math in particular. The following quotation reflects well the intention of the author of the book mentioned above: *Nowadays, in many schools the concept of "computer aided teaching" means that the computer is used to teach children. It could be presumed that **the computer is used to program children**. I believe that it is **a child who programs the computer**, and by doing this he/she both acquires the sense of having control over a piece of the newest and the most powerful technology and establishes a close relationship with some of the deepest notions of natural science, mathematics and the art of creating intellectual models.*

* *Television as an area of the world of technology and the world pedagogy*, [w:] „Informatologia” 2003, nr 36, red. J. Plenkovc, Zagreb Croatian Communication Association, s. 58–61.

The main thoughts that Papert shares with the readers of his book are as follows: the significant change in the patterns of intellectual development will occur through cultural changes, and the most probable medium of potentially significant cultural change in the nearest future is the constantly increasing presence of the computer.

These are the main statements by Papert, the advocate of the idea "student as a teacher of the computer", which refer to the manner in which children learn and to the method of aiding the process of learning by the use of the computer:

- in favorable circumstances and environment, all children are able to learn programming,
- children can develop a great deal of competence in using the computer, which, in turn, can help them change the way they learn anything else,
- there should exist a harmonious relation between the child and the computer so that the child can easily program the computer, without the danger of computer controlling the child's behavior.

In order for the child to establish a proper relation with the computer, he/she needs to be provided with an unrestricted access to the computer and friendly environment, appropriate for the child. Being aware of that, Papert, together with some of his colleagues and the students of the Massachusetts Institute of Technology and working with the eleven-year olds, created programming environment for children, which was named LOGO language. It made it possible to treat the computer as a toy that would control a turtle. Simple commands such as FORWARD, RIGHT, LEFT, LIFT, PUT DOWN caused that operating the turtle became as simple as e.g. operating a remote-controlled car or ship.

The history of LOGO goes back to 1968–1969 when a group of twelve eleven-year olds from Muzzy Junior High School in Lexington used LOGO throughout the school year instead of learning mathematics. The students wrote programs which could e.g. control strategic games. One of the students of MIT, R. Perlman soon demonstrated that a four-year-old child can learn to operate the turtle, proving at the same time that computer-aided method of teaching can be used at all stages of education.

A child, being by its very nature inquisitive and curious about the world, doesn't even notice that the original play gradually changes into the skill of programming, which, as we know, is based on strict mathematical principles. It should be noted that the computer teaches to act in a logical, consistent and systematic way. Therefore Papert treats the

computer not only as the instrument to explain methods of learning and thinking, but also as the tool that helps change and master the way of thinking and learning.

Creative thinking techniques aided by computer technology appeared when it turned out that computers can employ abstract concepts and use models and analogies to solve problems. This is when computer science heuristics, the concept in between heuristics and “artificial intelligence” taking advantage of the accomplishments and methods of computer science, began to develop. Computer science heuristics includes a group of specific means and methods, partly based on concepts and methods of computer science, mathematics, logics, robotics, theory of games and decision-making, as well as operational research. K. Wenta writes that the most crucial areas of computer science heuristics included, at the end of 1970's, the following methods of:

- organizing heuristic programs and organizing the search of solutions to problems, chess playing programs, proving theorems in formal systems, planning activities, decision-making;
- forming conclusions: deductive, inductive, statistical and through analogy, forming various mental factors;
- defining information necessary to solve certain class of problems and computer representation of this information;
- locating the necessary information in the memory;
- dividing information into structural and representative in the form of procedures as well as creating the structures of a certain class in computer memory;
- automatic programming and creating highly advanced computer languages;
- representing the knowledge of the world and “micro-worlds” as well as creating and verifying computer models for any problem expressed in a natural language;
- automatic learning, including the acquisition of heuristic instructions and methods of generalization and classification; identifying figures/characters, among them visual, sonic and auditory pictures;
- creating universal systems of problem solving and robot programming;
- psychological, linguistic and philosophical studies in order to create programs and heuristic models;
- concerning problems of cooperation between humans and computers.

The system of education undergoes constant development, which is related to the ongoing influence of information technology. Computer

methods and techniques provide people with great intellectual help; they have changed human lives not only at work, but also outside working environment.

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9. What do adults know about toys?*

A toy constitutes an important element of every type of play. It is treated as an element of entertainment, an item purchased occasionally for children who are healthy as well as for those who are sick, for children coming from different cultural backgrounds, and for those living in families of different social and material status. According to J. Bujak [1988], a toy is a tangible item made specifically for the purpose of play. It contains cultural elements characteristic of the past epochs within the scope of material, spiritual and social culture, and it communicates them in a way that provokes certain playful behavior through which it forms the physical, mental and emotional development. This definition suggests two functions that toys fulfill: playful (serves the purpose of play) and educational (serves the purpose of the physical, mental and emotional development of a child).

The scientific works written on the subject deal with various aspects of play: historical, ethnographic, sociological, psychological and pedagogical.

While playing with a particular toy, the child gains valuable experience; that means he/she learns. There have always been toys intended by their creators for the children playing with them to receive a certain amount of knowledge. In ancient times, there were toys in the shape of a letter of alphabet or a number with a string passing through, resembling beads. Later, Roman confectioners baked cakes in the shape of a letter. In the contemporary world, numbers and letters made of chocolate, marzipan and sugar were quite common. In the 19th century, board games, raffles and cards for children were quite popular. They helped children to learn the alphabet, grammar, languages, literature, geography, religion, music, agriculture, arithmetic, history and even philosophy. A number of toys paved the way for some important discoveries and serious technological inventions, such as the airplane with the internal-combustion engine, the film projector and other [J. Bujak 1988]. At the beginning of the past century, the toys related directly to war, nowadays called mili-

* „Co dorośli wiedzą o zabawkach” – referat wygłoszony na międzynarodowej konferencji w Uniwersytecie Mateja Bela w Bańskiej Bystrzycy (Słowacja) w 2005 r.

tary toys, were seen as having a negative educational impact on children [B. Żulińska 1910]. At that time they were guns, whips, swords and soldiers. Nowadays, however, these are the computer games in which the acts of violence and killing are predominant.

These days, children, inspired by TV commercials, which became an impulse for toy manufactures, often want to have a certain “trendy” toy.

Therefore, an interesting question arises: “What do contemporary adults know about toys?” The question is addressed to toy manufacturers and retailers, as well as to parents and their children.

Research procedure

The research concerned the knowledge of adults about toys. The attempts were made to answer specific questions:

- What toys do contemporary children at the kindergarten age play with?
- What toys do parents buy for their children?
- What criteria do toy manufactures apply while creating toys for children? What resources do they use?
- What prompts sales assistants to offer certain toys to parents? What knowledge do they apply?
- What features do manufacturers, salespeople, children and their parents ascribe to a good toy?

In order to collect the necessary data, questionnaires were given to manufacturers (32 persons), salespeople (56 persons), and parents of children at the kindergarten age (58 persons). Conversations were held with children (58 children at the age of six). All people participating in the survey came from the Malopolskie and Podkarpackie provinces in Poland. The survey was conducted under my supervision by the students of pre-school pedagogics in the years 2003–2004.

Results

Factors influencing the assortment of toy manufacturers

On the basis of the data obtained from toy manufacturers, we learnt about the assortment of toys produced by the survey participants. It was concluded that wooden toys constitute the assortment of 32,1% of survey participants. Soft toys are produced by 22,4% of manufacturers,

and educational games by 10,2 % of them. Moreover, 12,8% have the assortment of toys intended for playgrounds, 7,2% manufacture plastic building blocks, 7,8% of producers mentioned: dolls and puppets, and 8,5% manufacture computer games.

One of the questions addressed to the toy manufacturers was: "What was the key factor in deciding about the assortment of toys manufactured by your company?" Data gathered indicates that for 34,5% of participants the main reason for choosing certain toys to produce are the latest trends in toymaking fashion. Nevertheless, 34,2% of them stated that their assortment of toys is purely **incidental**. For 15,8% of respondents, the choice of toys is dictated by the company traditions; 10% of them say that the choice of toys depends mainly on the details of the contract signed with the buyer. Only 5,5% justified the type of production with no financial capacity to modernize or to make radical changes in the production line.

To the question "How do you acquire your knowledge about toys?" most of manufacturers (48,5%) answered that they observe the market to see what products are in demand; 31,2% speak of the experience gained during trade fairs; 20,3% mention publications and cooperation with toy designers.

The answers to the question "In your opinion, what are the characteristics of a good toy?" were as follows: 67 of all answers indicated that a good toy is one that interests the child, 54 answered "trendy", 36 emphasized the esthetic aspect and the fact that it is officially certified. Only 12 answers indicated the need of being suitable for a certain age group.

The following question directed at the producers concerned the preferred functions of toys ("In your opinion, what role do they play in a child's life?"). A vast majority emphasized the playful and educational aspects. Other functions mentioned were as follows: helping to develop proper social attitudes and the sense of esthetics, to release emotions. Everyone recognized the need to provide children with toys.

Salespeople's opinions on the subject of toys

All salespeople surveyed agreed that it is crucial for the toy to have a safety certificate. Instructions, which should be clear, are **also important**. If a toy was manufactured abroad, the instructions should be translated into Polish. All respondents admitted that the market demand, that means toys most frequently purchased, influences the choice of stock in their shops.

In response to the question: "What requirements should the toy comply with to be issued a sales permit?" salespeople indicated certain conditions that must be fulfilled. 30% of them admitted that the price of the toy is a deciding factor. TV commercials and current trends play an important role as well (29% of respondents). Salespeople think that it is also necessary to meet children's expectations. Other requirements that are taken into consideration while choosing toys for sale are: the esthetic aspect (13%), children's interests (11%), the brand (10%), and certification (7%).

The following figures show where salespeople's knowledge concerning toys derives from. About 72% say that what they know about toys depends on the latest trends, and only 28% admit that expert publications (magazines or handbooks) are their main source of knowledge about the toys.

Salespeople who participated in the survey were asked to list some characteristic features of a good toy, starting with the most crucial ones. 100% of them said that it should have a certificate of the Polish Institute of Hygiene; it should be safe (97% of answers), reasonably priced (61% of answers), suitable for a certain age group (47% of answers), and made by a well-known company (39% of answers).

According to salespeople, toys serve three major functions: being playful, esthetic and educational.

Toy functions according to parents of children at the age of six

The research shows that most parents (39%) pay attention to esthetic and safety aspects while choosing an appropriate toy for their children; 29% of them state that it is important to check if the toy is durable; 22% of parents take into consideration children's interests or they just want to make the children happy; 10% concentrate on the price of the toy. None of the parents indicated that they are influenced by the latest trends, advertising, popularity of the toy or whether or not it is certified. All parents stated that they do not buy military toys since such items provoke aggressive behavior.

All children have their favorite toys, which they like to keep close all day, take when they go for a walk and keep in bed when they go to sleep at night. Parents' tastes concerning toys do not always go together with children's preferences and expectations.

Parents often buy toys for their children just to make them happy. However, parents' awareness of what toys the children want is not always in accordance with children's wishes. Parents indicated that their six-year-old children expect to get dolls (42%), cuddly toys (26%), or building blocks (21%). 11% of parents stated that the child does not expect to receive any specific toy.

Parents' knowledge about toys appears to be unsatisfactory. When asked what requirements a toy that is for sale should meet, 28% of parents responded they did not know; 72% were aware that the toy should be certified. Parents were also asked whether they pay attention to the description on the box. Most of them – (79%) said yes. They check carefully for what age group the toy is intended. They are also interested to know the manufacturer, the brand name and the country the toy comes from.

The next question concerned the source of parents' knowledge about the toys. Their responses indicate that the knowledge is based mainly on their own experiences as children (39%); 32% base their knowledge on advertising, 24% on current market supply and friends' advice. Only 5% of parents look for some information in expert publications.

According to parents, a good toy is made of good quality materials and it is safe to play with. They also indicate its playful and educational function.

Toy functions preferred by children

Research indicates that girls favor cuddly toys (27%), dolls (25%), bicycles and scooters (18%), construction materials (12%), coloring books, books (10%), and (8%) board and computer games. Boys, on the other hand, frequently mentioned cars (36%), construction materials (19%), a ball or a bicycle (18%), board and computer games (17%), and only 10% of boys mentioned cuddly toys.

Children observe what toys their friends play with. They see which toys are popular and they also want to have them.

The survey analysis indicates that the parents' and children's opinions differ. The reason may be that perhaps parents do not always pay close attention to children's play; therefore, they are unaware of what toys their children favor. Among the toys indicated by children were those that escaped parents' attention (e.g. a bicycle, a scooter, a jump rope, board and computer games, and books). The divergence of opinions is especially visible when it comes to proportions of toys indicated.

The reason may be that children change their preferences or they have too many toys they did not have a chance to get used to, so they are not indicated as favorites.

The research shows that the favorite toy is not necessarily the one the child usually plays with. Children are eager to play with toys which are popular, fashionable, shown on television, or the ones their friends play with. 'Barbie' with accessories and a house, a baby doll called 'Baby Born' or 'Polipoket' are all popular with girls. Boys usually play with cars, preferably with those that have spare parts or various accessories. Yu-Gi-Oh (collections with their images) is now very popular with boys.

Children indicate that a good toy should be nice and colorful (91%), trendy (15%), and have an educational value (4%). Interviews with children proved that playful, social and cognitive functions of toys are equally important.

Conclusions

What adults know about toys appears to be essential and necessary. It is the adults who design, manufacture and supply toys so that parents can make their choice concerning the purchase. The contemporary toy is not only intended for play, but as an indispensable attribute of play it has to perform certain functions, mainly educational, therapeutic, and playful. It should also aid in the child's upbringing and development.

Designers and manufacturers are constantly working on the new and improved models of toys, which are supposed to draw customers' attention and to influence their senses through the use of interesting shapes, colors and mechanisms. Children, parents and teachers have access to a more diversified assortment as far as quantity and quality are concerned. Therefore it is extremely difficult to choose "the best" toy. The best toy is the one the child keeps coming back to, always fascinating and creating the opportunity for the child to act and be happy. The toy does not have to be expensive or complex. It is important that it stimulates the child's imagination, gives him/her a chance to discover new, unknown areas of activity, teaches new skills and at the same time pleases and makes the child happy. It is worthwhile, then, to advocate new designs, the quality and fine craftsmanship in order to wisely connect the toys to their users.

The research proves that adults see the need to buy toys in their many and varied forms. They do not want to remain indifferent as if the toys were just meaningless items. However, busy working parents do not spend enough quality time with children to know what toys children play with and what their favorites are. Their main source of knowledge about toys is what the mass media communicate. Parents very often act under the influence of advertising. Manufacturers, on the other hand, take into consideration the market demand, which is dictated by the consumers.

It is the customers that indirectly influence the selection of toys in the stores. Parents realize that a toy should have the certification of safety; however, there are many who are not interested in what requirements the toy should meet. Their knowledge about toys is based on the current fashion or what the society and the mass media dictate. Vendors study expert publications and magazines. Toy manufacturers broaden their knowledge through the participation in trade fairs.

Parents believe that for a toy to be considered good it has to comply with safety regulations. They also pay close attention to whether it stimulates the creative and cognitive activity and influences the all-round development of the child. Vendors and manufacturers also appreciate similar functions of toys; however, only the latter are able to list the most features of a good toy.

The above deliberations lead to the conclusion that children's playful activities should be organized carefully so that they intensify children's experience and so that their activities gain more intellectual character. This is possible if the material, by which we mean toys, is appropriate and carefully selected. Therefore, adults (parents, vendors, and mainly manufacturers and designers) should constantly be faced with the following question: "What input do they want to provide children with in order to broaden and form their experience?"

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Bożena Muchacka, Ph.D., associate professor at the Pedagogical University of Cracow

Pedagogue, academic teacher at the Pedagogical University of Cracow and at the State Higher Vocational School in Nowy Sącz; author of ca. 90 scientific treatises, including 5 monographs, 5 academic textbooks for students, 11 editorial discussions, 70 scientific articles in collective works and scientific magazines, including 49 Polish and 21 foreign.

Major publications: *Research games in pre-school education* (WN AP, 1999), *Stimulation of cognitive activity of preschool children* (WN AP, 2001), *Support strategy for knowledge structuring of children in educational situations* ("Impuls", 2007), *School in learning and educational practice – ed.* ("Impuls", 2006).

Ms. Bożena Muchacka is a secretary of the International Council of Children's Play, a member of the Pedagogical Sciences Commission of the Polish Academy of Sciences and a member of the World Organisation for Preschool Education (OMEP).

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