

# THE EXPERIMENTAL APPROACHES AND CREATIVE MINDSETS OF CHILDREN IN HEURISTIC PLAY

BARBARA BILEWICZ-KUŹNIA\*

**Abstract:** This article presents studies resulting from the observation of 8 sessions of heuristic play involving children aged 4-5 years. Heuristic play was described and implemented in pre-school education by Elinor Goldschmied (1910-2009). This kind of play is sensory and motor in nature, and uses everyday objects, including waste materials. The studies were of the qualitative kind. The objective of the observations was to discern the creative mindsets and approaches of children. The findings are categorised under 3 headings, corresponding to 3 criteria - the nature of the cognitive contact, the conceptual approach to playing and while playing, and the personality traits of the subjects. Considering the character of the child's cognitive contact with the material while playing, we can distinguish between four types of experimental approaches: explorer, enumerator, master of structures, and master of descriptions. When considering full-blown play, one can observe such conceptual types as originator, imitator, creator of meanings, and re-organiser. In terms of personality type, playing can reveal such types as introvert, pedant, extrovert, adventurer, instructor, and altruist. The presented classification can facilitate a better understanding of the diverse ways and manners of children's exploration, and their creative mindsets on and while playing. It also directs our attention to the traits of character and temperament, which determine the styles of research and the methods of determining meaning.

**Keywords:** Elinor Goldschmied, heuristic play, children's creative mindsets, experimental approaches, exploring

## THE ISSUES AND METHODOLOGY

Children engage in exploratory activities from birth, which later evolve in exploratory and experimental activities. As indicated by Dorota Kubicka (2003, 89), exploration is triggered, in general, by all new,

---

\* Barbara Bilewicz-Kuźnia (✉)

Department of Pedagogy and Psychology, Marie Curie-Skłodowska University in Lublin, Poland

e-mail: barbara.bilewicz@poczta.umcs.lublin.pl

unusual “stimuli-situations,” and it is the novelty of the “stimulus-situation” which triggers creative action in one of the strongest ways. Heuristic play is a type of activity which allows the child to satisfy many cognitive needs. It made its way to pre-school education, and thereby to pedagogical literature, through the pedagogical and social activities of Elinor Goldschmied (Goldschmied, Jackson 1994) who described the developmental conditions and benefits resulting from engaging in exploratory playing. The ideas and terms which she popularised, e.g. the treasure basket, heuristic play, and the key person system, starting from the 1980s, first became widespread in the United Kingdom, then in Italy (where Goldschmied worked), and gradually became known all around the world (Elfer, Goldschmied, Selleck, 2012; DVD 2013 title: *Discovered treasure. The life and work of Elinor Goldschmied 1910-2009*).

In the English educational literature (Towey 2013; Whitebread 2012), heuristic play usually stands for activities around the treasure basket, and involving items collected in bags, which the child can explore in a number of ways. Tina Bruce (2011, 35) suggests using everyday objects when organising heuristic play for children aged 4-6. The objects should be collected in extensive numbers and placed in single-colour bags, closed with ribbons, and labelled with photos and captions demarcating the items.

Heuristic play is an activity which is engaged freely and independently, in which the child makes observations about the properties of toy items, discovers their features for his or her own use, as well as creates new uses, associations and relations, and finds new applications. The adult provides materials to play with, and the child is the main subject and author of the ideas and content. After a preliminary examination of the bags and the labels attached to them, children usually take out the items and explore them. Over the course of playing, the little investigators use their intuition, as well as deduction, as well as study the items, try to combine elements, check how they work, make errors, and verify them. This type of activity is associated with epistemic play, as described by Corrine Hutt (1979), and sensorimotor play, illustrated by theories proposed by Jean Piaget (1962). This article is an attempt at taking a closer look at the experimental activities undertaken by children in heuristic play, and the creative mindsets revealed by them.

The subject of the research was children’s heuristic play organised in a pre-school in a small Polish town. The researcher was interested in

observing the playing children in terms of describing and naming their creative mindsets. A qualitative strategy was employed in the study. The primary method of data collection was photographic observation. The studied individuals were 15 children aged four to five, residing in a small town, and attending the local pre-school for the second year. The play sessions took place in the morning in the pre-school hall. The data were collected over the course of 8 play sessions. Approximately 25 heuristic bags and 3 containers were prepared for the sessions. These included colourful caps, plastic bottles, small bowls, cutlery, small plastic boxes, cardboard boxes of various sizes, metal cans, milk cartons, plastic tubes, ribbons, egg trays, wooden cutlery – spoons, spatulas, and forks, as well as plastic trays, metal ladles, metal and silicon whisks, wooden cutting boards, metal lids, potato mashers, small pumpkins. The bags were laid flat on the carpet. Each bag was marked with a description and a photo. The bags were arranged front up to show the photo and description. The play organisation followed this sequence - inviting children to play, the children's examining the bags with materials, independent free play, conclusion and tidying up the materials.

#### THE THEORETICAL BACKGROUND OF THE STUDIES

The research conducted by Morris I. Stein (1953, 1986), Joy P. Guilford (1960), Victor Lowenfeld (1967) and Carl Jung (1923) constituted the theoretical reference point to the attempt at describing the behaviour, approaches and types of creative mindsets observed during the heuristic play sessions. Stein (1953) in the 1950s created a synthesis of attributes characterising creative people. When it comes to little creators, i.e. children, these can include leadership, initiative, activity and self-sufficiency, as well as being less held-back, less formal and conventional, and less inclined to restrain their urges. Also, the traits include being strongly motivated, enjoying working, strong internal discipline, stubbornness and meticulousness. Creative people are also independent, emotionally receptive, vital, enthusiastic, and can efficiently use their changeability. They can be introverts, rather unsociable and reserved. They are characterised by an aesthetic mindset to the world, an aesthetic type of intelligence and emotionality (Stein, 1953).

Among the criteria for creative mindsets determined by Guilford (1960) and Lowenfeld (Lowenfeld, Brittan 1967), of note is cognitive sensitivity, which is a trait allowing an individual to perceive

subtleties, notice absences, see the unusual, reveal needs and shortages; they entail the ability to transform things and give them new meanings, i.e. to change the function of an item, to make it usable in a different form; and also the power of analysis, i.e. the ability to engage in abstract thinking, allowing a transition from synthetic perception to the determination of detail; and synthesis, which is the ability to perceive connections which create a given whole.

The psychological model of Carl Gustav Jung (1923) is another useful model which can act as a lens in investigating the cognitive and emotional approaches of little creators in heuristic play. Jung distinguishes between four basic areas of the human psyche, referred to as psychological functions. These are thinking, feeling, sensation and intuition. Information is received thanks to various processes within a continuum from sensation to intuition, and value judgement takes place thanks to processes evolving from thinking to feeling. Every type of information reception and value judgement differs in its cognitive style. The advantage of one of the types of experience organisation can determine the psychological type according to which an individual can be characterised. According to Jung, especially talented people are usually characterised by such traits as cognitive and emotional sensitivity, persistence and intuition.

#### EXPERIMENTAL APPROACHES AND CREATIVE MINDSETS IN HEURISTIC PLAY

Based on the collected data, it was possible to distinguish between several types of children's experimental approaches and creative mindsets displayed during the heuristic play sessions. The division was made on the basis of the three criteria of cognitive contact, a conceptual approach to playing and revealing it while playing, and the character traits of the researched subjects.

#### THE FIRST CRITERION: THE NATURE OF THE COGNITIVE CONTACT

After observing children during the play sessions, it was noted that they could perceive studied materials in an analytical or a more synthetic way. When it came to the nature of the cognitive contact between children and objects, one could note a generally experimental and explorative attitude (hence the term *explorer*), and the perception of items in a more specific way, through the prisms of number, shape and form, or markings (hence such terms as *enumerator*, *master of*

*structures* and *master of descriptions*). Sometimes these two specified forms of reception coexisted and intertwined, or the child went from one to the other.

The *explorer* wants to investigate the item using all his/her senses (sight, hearing, touch, taste and smell) and body (e.g. by crushing it, using the weight of his/her body). Explorers are fixated on exploratory activities, and their reactions are indirect and repetitive. They are strongly focused on their actions, obstinate and persistent. They are not afraid of changes and transformations in items, and rearrange their form. They want to discover all items and their properties in many aspects. They are dynamic in experimenting, and set the items in motion by dropping, throwing and crushing them. They also use other items to check how they interact when in physical contact. They cannot get enough of experimental activities.

Example: Franek observed the label on the bag for a while, running his fingers over it. Then, he started to untie the bag. He was enjoying it and smiling. The boy repeatedly untied and tied the bag. This took approximately 10 minutes, following which he took out an egg tray from the bag. He sat in a comfortable position and started to open and close the container. He repeated this activity, biting his lip. Later, the boy took out several more egg trays. He checked whether all looked the same, examined the labels, compared sizes by running his finger along the edge of the tray, and compared the colours. Then, he started to rub the tray against his clothes, arm and face. This lasted for approximately 3 minutes. The boy licked each of the trays, then got up and sat down again. This was when a playmate approached him. Franek did not respond to his friend's verbal and non-verbal messages. He did not raise his eyes, and continued to look at the object he was manipulating. The little friend started to bang using plastic spoons. The sound, though irritating, failed to draw Franek's interest, as he was absorbed in his own activity. The peer walked away confused. Franek still paid no attention and continued to persistently open and close every tray. Then, he put one tray into another and shook them until they fell on the carpet. He did this repeatedly. After that, he arranged the trays next to one another at regular intervals. He sat on the first one, stood on the second, crushed the third with his arm, the fourth with his knee, lay back on the fifth, and lay down on his stomach on the sixth one. After all this, he sat down. He examined all the trays and compared them. When comparing the crushed trays he also compared them with a remaining tray which had not been crushed. When the end

of play was called, the boy became sad. His activities became slower. He did not let the other children help him put the trays back into the bag, and then took it back, gazing at it constantly. In the end, he asked “Will you come back here with these treasures? I haven’t checked everything yet”.

Perceiving objects in a more specific way, through numbers, words or geometric order, made it possible to identify the mindsets of the pre-school pupils as those corresponding to enumerators, masters of words or masters of structures. Children who received items in the context of counting, marking or creating patterns, freely used symbolic representations. One can state that they acted at a higher than the enactive one, which manifested itself in manipulation activities. The enumerator type was determined. This is a child fascinated by mathematics in its arithmetic aspect, counting and calculating. Another type was the master of structures, fascinated by mathematics in the field of geometry, along with its spatial and visual aspects. Finally, there is the master of descriptions, interested in words and linguistic symbols. Using these communication tools (signs, words and symbols) is a sign of the child’s cognitive maturity manifested while playing. These are illustrations of the aforementioned cognitive approach, evidencing the use of culture tools and proficiency in their use.

*The enumerator* uses objects to engage in mathematical activities, mainly estimating, counting and calculating. He/she knows numerals and operates with symbols, being fascinated by counting, even in very extensive terms. He/she consequently counts items using cardinal and ordinal numbers. These activities reveals his/her need for enumerating numerals (also from memory), without direct contact with the material. Enumerators can also count using other known methods, e.g. in twos, hundreds and backwards. They tend to count real objects, and do mental arithmetic, including additions and subtractions.

Before starting to play, Krystian counted the bags and containers holding items. He chose the bag with toilet paper rolls. He took out individual rolls and quoted the subsequent numerals. After removing all the rolls from the bag and arranging them on the carpet, the boy repacked them, putting them individually into the bag and counting out loud. He repeated this activity. This lasted for approximately 15 minutes. Then, he took out two rolls at a time, and counted in twos: 2, 4, 6... After removing them all, he stared at them for a longer time. He did this repeatedly. Sometimes he made a mistake, but after noticing it, he started the sequence from the beginning. He was very focused and

absorbed by his actions. After some time, he put the items back into the bag and placed the bag away. Then he joined a group of girls engaged in a restaurant role-play. He was throwing coloured lids into a cup and counting them. The girls did not like this. Krystian went away. He sat on the floor and observed the playing children for a while. Suddenly, he started to point in turn at every child. He mumbled something and nodded his head. Sometimes he would shake his head and start again. The boy was counting the children. This lasted for approximately 5 minutes. Then, Krystian approached the bag containing egg trays. Firstly, he counted the containers, then every cavity in the individual containers. He selected trays for 4, 6, 10 and 12 eggs. Then, the boy moved two trays closer to each other and counted all the cavities. He smiled from time to time. He continued to count until the end of the session. He was eager to engage in cleaning activities. When throwing things into bags, he also counted them.

*The master of structures* pays attention to the form and colour of items. He/she seeks to put items in geometrical order and uses materials for artistic activities, as well as arranges items in patterns, decors and pictures with various meanings. He/she also links materials in pairs or according to other criteria (colour, size, etc.), and arranges striped (one-dimensional) decorations and two-dimensional decors. He/she uses basic forms (circle, square and triangle) to build images with specific meanings (house, plane, etc.).

Asia sat in a secluded place and started to make rows of match boxes. She repeated this, and arranged caps with the boxes using matching colours. Then, she started to make different patterns on the carpet using the caps. At first, she paid no attention to the cap colour, but later she segregated them by colour. After that, she created flowers: blue petals, yellow centre and green stem and leaves. Then, she made simple geometrical patterns, e.g. circles or squares, and moved on to more precise forms: house, plane, etc.

*The master of descriptions* labels, connects names and items, reads descriptions and describes the content of pictures, recalls specific names or comes up with new ones, and uses verbal symbols. He/she is verbally active, but does not make longer utterances, descriptions, narratives or dialogues, usually opting for single terms.

Damian was reading aloud bag labels. He grabbed one bag and read the inscription, turning the label. He put the bag aside and sat next to his playmate. He picked up an egg tray and gave it a name. Then, the pointed to other trays and said "These are also egg trays". After that,

he approached every child, read the labels and named the items. He did the same with the materials not chosen by any child, continuing this activity throughout the entire session. While segregating the materials into the bags, the boy named the items. He would name any object falling inside the bag.

#### THE SECOND CRITERION: THE CONCEPTUAL APPROACH

Most children transform playing with materials into other, more complex forms of play, in which creative mindsets can be observed more clearly. In these developed types of play various types of conceptual approaches to and while playing can be noted. The following stances were observed: initiator, imitator, creator of meanings and re-organiser.

*The play initiator* motivates and inspires him/herself and others to play. When initiators are playing alone, they often use soft speech, which allows them to plan and organise exploratory activities, and devise a “play plan”. When they are playing with other children, they become a source of inspiring ideas, and they suggest, invite, encourage, propose and give opinions.

Ola waved to her girl friends invitingly, saying “Take the boxes and boards; they’ll come in handy.” They brought the materials. Ola suggested “Shall we play at ship?” The girls looked at one another and nodded hesitantly. Ola explained the rules of the play. They all agreed on the roles they would play, and started to play at pirate ship. Ola was sitting in a big cardboard box, which was pushed by the girls, who were shouting “Ahoy Captain!!!”

*The imitator* observes others before engaging in an activity, and copies and imitates their actions. He/she is in a phase of learning through observing other people, does not conduct experimental activities on his/her own yet, or immerse him/herself in play. His/her derivative activities are consistent, but he/she does not focus on one activity for a long time; instead, he/she changes activities and searches for new models. Imitators need acceptance for their actions, and when criticised they become sad and walk away. They also tend to repeat the imitative activities with other models, including adults.

Miłosz quickly abandoned the materials which he had selected. He approached other children, observed their activities and copied them. For instance, he observed with interest a girl pretending to be pouring water from one dish to another. He stood behind her and started to imitate her movements, saying “I must be careful not to spill



anything!” He repeated this activity several times, and then smiled and walked away, saying “I’m done.” He moved to the boy examining the properties of toilet paper rolls. Firstly, he stood some distance away and observed what he was doing. Then he moved closer and sat in front of him. They appeared to be mirror images of each other. The boy was squeezing the rolls in his hand. Miłosz watched and did the same. He precisely mimicked the moves, gestures and facial expressions of the observed child. This activity lasted for approximately 5 minutes. Suddenly the observed one looked up and shouted “Stop mocking me!!! Go away!” After hearing this, Miłosz became sad, moved away, sat on the carpet and observed other children.

After this incident, Miłosz walked around the room for some time (approximately 5 minutes), holding his finger by his mouth. From time to time he would stop, shake his head and mutter “No no no, this is not it...” Finally, he approached an adult, looked closely, smiled and stood before him. He imitated the activities and moves of that person until the end of the session.

*The creator of meanings* creates ideas for play by manipulating and using items, as well as changes the intended use of specific items, gives them new meanings and senses, renames objects and assumes various roles. He/she is the creator of the content for play. He/she understands or creates symbolic uses for items. He/she functions in play in imaginary worlds and introduces fantasy elements.

Roksana selected several items to play with and started to play at car workshop. Plastic teaspoons represented screwdrivers and wrenches, which the girl used to repair damaged cars (small boxes) and trucks (cans). The girl pressed a plastic spoon onto a cardboard box, making various sounds, such as trrrrrr, brrrrr. She grimaced with effort. She wiped sweat from her forehead, her fringe was wet. Despite being tired, Roksana put plastic spoons into a bowl with a smile on her face, saying “Luckily, I’ve got this toolbox. I don’t know what I would have done without it.” The girl tore off a piece of cardboard from a big cardboard box, and placed a small box inside the missing fragment. She muttered “Here-here-here... repair, repair”. After a short while she slid the small box out. She pushed it along the rug up to a place where she laid out colourful ribbons to form a square. She said with a changed voice “Vehicle ready for pickup. Guarded car park.”

Franek was waving a metal cap, saying that it was an elf on a magic saucer, who was flying to save his brothers who had been caught by a

hag (a toilet paper roll). He was very excited, modulated his voice, jumped up and ran in one place – as if he was trying to run from somebody – covered his eyes and said “She won’t catch me! I won’t get caught! I’m the Super-Elf after all.”

*The re-organiser* can adopt and observe play rules. He/she has ideas on how to re-organise play, make it livelier, and change the plot. Re-organisers present their ideas to other participants. They are nonconformists and clearly state that they do not like something in the play.

The girls were playing at restaurant. Suddenly Ola stood up and told her friends that she would not play like this. She left the group and brought new items. She said that she was going to bake a cake, and invited others to join in.

### THE THIRD CRITERION: THE PERSONALITY TRAITS

Due to different styles of play, we highlighted several attitudes different in terms of individual character traits of the participants. In principle, following Jung, one can state that there are two psychological types: introverts and extroverts. In addition to these well-known main types, there are attitudes which stem from them: pedant, and, in the case of extroverts: adventurer, instructor, and altruist. It was noted that these attitudes were not disjunctive.

*The introvert* remains silent throughout the entire duration of the play. He/she is playing alone, does not engage in interactions, is reflexive, thinks through his/her actions, and can easily imitate the activities of other people, but does not engage in verbal contact. He/she is also distant in spatial and emotional terms.

Krzyś was playing alone throughout the entire session, by arranging materials next to one another and looking at them. When another boy sat next to him, he observed him discreetly, but said nothing. He imitated his friend’s activities in peace and quiet.

The pedant. This attitude is characterised by attaching significance to the performed activity, doing it precisely, slowly and concentrating on details.

Dominik was playing at being a cook. He arranged items in rows, and said “Now I’m ready.” Then, he pretended to be putting on a cook’s apron and hat. He stood up and put his hands together. He rubbed his hands carefully on each side. He put a blue ribbon on his hands, rubbed them a couple of times, and placed his hands in a metal tin, which imitated rinsing in a sink. He shook off his hands and

pretended to be wiping them with a towel. Then, he turned round, raising his hands, and lowered them slowly. He checked again whether all things were arranged evenly. He grabbed a plastic cup and wiped it. He chose one cap in every colour, examined them carefully on all sides, blew in them and threw them inside a plastic cup. Another activity – frying eggs, was performed slowly, with him making a ritual out every action.

*The extrovert* is a very social and outspoken person. He/she is also impulsive, engages in interaction with people of both genders, and acts in a group.

Kacper was not distanced from new people, adults nor peers alike. Jointly with a group of friends they agreed to play at war. The boys agreed on the rules and roles. Kacper presented his ideas for playing to the boys. When it did not match their expectations, he listed a number of arguments to convince them. He did not ignore any of the boys, but established verbal and non-verbal contacts with every one of them; he blinked, smiled and patted them on the arm.

*The adventurer.* His/her playing is dynamic, daredevil, full of turns of action and with some risk. He/she is driven by impulses, sets objects in motion and creates dynamic events. Adventurers are cheerful, lively and spontaneous. They can play at war, policemen, shooting and running, walking a line between safety and danger, taking risks, expanding the playing area, venturing beyond “the carpet”, and playing everywhere, in all nooks and crannies. Such behaviour is more commonly found in boys.

Nikodem vigorously poured out the content of the bag with milk cartons onto the carpet, giggling. A moment later he ran to the girls. He bowed gallantly and said “Dear ladies, I need two bowls.” Next he smiled to thank them. Quickly sliding on his knees he crashed into the milk cartons, and placed plastic bowls on his and his friend’s heads, giggling. A moment later he got up, looked around the room, and ran towards the boys who were playing at war. Along the way he grabbed several wooden spoons which were lying on the carpet. He shouted “Hey boys, I’ve got some weapons for you!!!” He handed over the spoons to the boys and kept one for himself. He fought a quick battle with one of the boys, jumped around, stamped his feet and turned around, sometimes he waving the spoon, making such sounds as “trututututu, brrrrrrrrr, bing-bang”. Then he turned to the girls who were playing at restaurant and asked for a glass of something stronger as he was “stricken by great emotions connected with the skirmish he

had just fought”. The girls gave him a plastic cup filled with colourful caps. The boy tipped the cup, wiped his mouth with a sleeve, put the cup away, and ran to the next playing groups.

*The instructor.* He/she likes to share his/her skills and knowledge with others, as well as suggests learning, tools and toys to others.

Mikołaj was playing at being a gardener. He was running around the room with a “hoe” and offered gardening services to other children. No one liked this suggestion, so the boy offered to become their teacher “If you don’t know how to make a hoe or a tractor, I can teach you.”

*The altruist.* He/she cares about the good mood of other people, solves problems, acts as a peacemaker between arguing individuals, controls the situation, makes reflections, asks questions, and can give up his/her well-being for the sake of others.

When Kacper noticed that some of the playing children were arguing, he stopped what he was doing, and sat or stood between the arguing parties, trying to help resolve the conflict. He usually succeeded in reconciling the arguing children. He was sensitive to social situations and sought to integrate the group, e.g., by approaching a group of girls and asking “Why aren’t you playing with the boys?” He also asked adults “Ma’am, he tripped, is he going to be okay? Ma’am, Dominik hit Ola. He should not be doing this, that’s what I told him.” When he was playing with a wooden spoon, which replicated a sword, he was approached by a peer who wanted to borrow it. Kacper became sad, looked at the item, clenched it tightly to his chest, and placed it in the boy’s palm, saying “Take good care of it.”

## CONCLUSIONS

Children can engage in explorative activities and assume various roles in heuristic play. They can be passive observers, active participants or lone explorers, as well as act in groups, initiate explorative interaction, or respond to the actions or invitations of others. They are always those who learn. The presented typification is an attempt at a deeper understanding of children’s play, cognitive needs, inclinations and potential, and the differences between individuals.

Heuristic play should be viewed, following Dewey, as “hard mental work” ([www.encyklopedia.dzieciństwa](http://www.encyklopedia.dzieciństwa)). By assuming the role of an individual who explores his/her surroundings, and the properties of known and newly discovered items, the child makes new observations and gathers impressions, penetrates the surroundings and repeats physical experiences. He/she extends his/her physical and logical-

mathematical knowledge, and learns about him/herself. This specific type of exploration, coupled with the desire to present the obtained skills, e.g. of counting, naming, creating classes, rhyming or making decors, makes it possible to get to know the cognitive possibilities, skills and fascinations of the child. Therefore, it performs a diagnostic function. While playing, children show their skills, which makes possible for adults to evaluate their cognitive functioning and ability to operate at the symbolic level. Analysing the quality of cognitive contact between children and “waste” materials allows us to explicitly state that in this type of play children hone their senses, develop mathematical thinking, specify, distinguish, classify, create sets, associate items with their names, and create cognitive and regulatory structures.

During childhood, creativity is manifested mainly in playing, when the child can use its ability to explore, transform and play with meanings. Specifying in the described play the various conceptual attitudes provides an insight into the nature of creativity. It makes it possible to determine the location of the child’s development within a creative continuum, where we can find such attitudes as lack of interest in playing, imitating, and the individual creation of senses and meanings. Distinguishing between these attitudes also has a practical value. It facilitates a better understanding of the specificity of the stage of experience-gathering and the learning phase. For example, it shows the value of mimicry.

Furthermore, another important characteristic of creative people becomes visible in heuristic play. This is the ability to concentrate and become fascinated by a given activity. Creators are often absorbed in the task, go with the flow of action, experience a surge, and become immune to sensations and stimuli other than those they can influence themselves or which they created. While this attitude was not determined and described in greater detail, it was noticeable in all sessions in the majority of the children.

The third aspect of the analysis allowed us to note that the individual traits of character and temperament determine the direction and plan of experimentation and play. Therefore, we observed introverts and extroverts, distanced creators, pedants, and outsiders, as well as enthusiastic and changeable individuals, adventurers, and children who took the initiative and sought social content. These observations facilitate the understanding of the phenomenon of various attitudes displayed by children, ways of learning and gathering initial

physical, logical and social experiences. Children have various needs and express their emotions, feelings and observations in a number of ways. It turns out that traits of character and temperament, such as motivation, zeal for work, reliability and vitality differentiate between even the youngest creators, which allows us to recognise their characteristic and different behaviour, and note different attitudes, or even emotional and social types. The specified experimental approaches, with provided examples, also relate to the emotional and social characteristics of creative people, as described by the researchers.

The proposed classification surely does not exhaust the topic in question, but rather is a beginning of the road to its thorough exploration. It is also worth searching for and presenting other approaches and attitudes, specifying additional categorisation criteria. Of note is the fact that the described approaches apply to both genders; however, it was observed that some traits and behaviour might concern more often one of the genders (e.g. the explorer applying more often to boys). Furthermore, it was observed that traits and attitudes are not disjunctive, but they tend to intertwine and overlap. Determining some of them requires in-depth observations, and some are very difficult to clearly discern and specify. As in any other study, here we too have some doubts. These, as well as other doubts, can be resolved by more or less similar, or in-depth, research observations.

## REFERENCES:

- Bruce, Tina (2011). *Learning through Play for Babies, Toddlers and Young Children*. Hodder Education Hachette UK Company.
- Elfer, Peter, Elinor Goldschmied, Dorothy Y. Selleck (2012). *Key Persons in the Early Years*. Abingdon: Routledge.
- Goldschmied, Elinor, Sonia Jackson (1994). *People Under Three: Young Children in Day Care*. London: Routledge.
- Guilford, Joy P. (1960). "The Nature of Creativity". *Western Washington College Bulletin*.
- Hutt, Corrine (1979). *Play in the Under-Fives: Form Development and Function*. In J. G. Howells (ed.), *Modern Perspectives in the Psychiatry of Infancy*. New York: Brunner/Mercel.
- Jung, Carl G. (1923). *Psychological Types*. London: Routledge and Kegan.
- Kubicka, Dorota (2003). *Twórcze działanie dziecka w sytuacji zabawowo-zadaniowej*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Lownfeld, Viktor, W. Lambert Brittain (1967). *Creative and Mental Growth*, Macmillan Publishers.
- Piaget Jean (1962). *Play, Dreams and Imitations in Childhood*. New York: Basic Books.

- Stein, Morris I. (1953). "Creativity and Culture", *Journal of Psychology*, 36.
- Stein Morris I. (1986). *Gifted, Talented and Creative Young People: A Guide to Theory, Teaching and Research*. New York and London: Gerland Publishing, Inc.
- Tovey, Helen (2013). *Bringing the Froebel Approach to Your Early Years Practice*. London: Routledge.
- Whitebread, David (2012). *Developmental Psychology & Early Childhood Education*. London: Sage.

**Digital sources:**

*Discovered Treasure: The Life and Work of Elinor Goldschmied 1910-2009*. DVD (2013) The Froebel Trust Project, TVR, Television Roehampton.

**Internet sources:**

[http://encyklopediadziecinstwa.pl/index.php?title=Main\\_Page](http://encyklopediadziecinstwa.pl/index.php?title=Main_Page) [accessed 29.04.2017]