DYSONTOGENESIS AND REDUCTION OF CHILDREN'S GAME: ANALYSIS, CONSEQUENCES, WAYS TO SOLVE PROBLEMS

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Abstract. The research focuses on the philosophical aspects of children's play. The aim of the study is to analyze modern approaches to the classification and development of preschoolers’ play activities, the negative phenomena of dysontogenesis and reduction of play. The authors analyzed the results of a survey of undergraduate students in specialty Preschool Education and their relatives about children's memories of the play, game situations and the impact of play competence (or lack of it) on adult life. Basic research methods are interview, surveys, statistical analysis. The main results of the study give grounds to claim that play is not the only leading activity of a senior preschooler. Even accepting the concept of "leading" and "non-leading" activities, it turns out that children's experimentation during preschool takes no less "leading" position than play. This fact radically changes the perception of conditions, goals and values in the organization of children's lives. The author's team proved that the dysontogenesis of play and non-acceptance of children's experimentation in preschool age leads to further distortion of the trajectory of development. The author's interpretation of the terms "play reduction", "play dysontogenesis", "amplification" and "simplification" of children's play is proposed. Keywords: dysontogenesis; experimentation; habilitation of the play; play activities of preschoolers; reduction of the play; the leading type of preschoolers' activity.
Introduction

The problem of reduction (attenuation) of the play and the reasons that put back the development of children's play remain one of the most topical for over 120 years. Reduction (Lat. reductio - return, restoration) means a process or action that leads to a reduction, weakening or simplification of something, sometimes to the complete loss of any objects or features. In The Genesis of Animal Play, Gordon M. Burghardt explores the origins and evolution of human and animal play. The author of the monograph hypothesizes and seeks confirmation of what can the play mean for our understanding of evolution, the brain, behavioral organization, and psychology (Burghardt, 2005). G.M. Burghardt found that although the play could be important for the origin of many things that we consider different from human behavior. It develops only through a set of interactions between developmental processes, evolution, environmental and physiological processes. The researcher also provides evidence of the friskiness of such unexpected groups of animals as kangaroos, birds, lizards and even fish that jump, juggle, etc. (Burghardt, 2014).

The results of the study are interesting for analyzing the consequences of the lack of variety of play activities and understanding the origin and development of the play. Observing modern children playing it can be stated that play is realized mainly in the form of simple manipulation of play paraphernalia. Preschoolers' play is short-lived, characterized by monotony, stereotype, narrow range of plots and limitations or lack of role-playing, initiative and creativity, which generally indicates the simplification (attenuation) of play activities. Amplification of play activities means enrichment at the expense of resources inherent in specific activities of preschoolers and the ability of adults to generalize children's experience and create conditions for its practical application by the child in play situations.

Play ontogenesis is characterized with an increase depending on age. Thus, the amount of creative component and initiative increases to the senior preschool age, the role of the factor of planning play actions grows, as evidence of the increasing complexity of game units by reducing their number does. The reduction of children's play activity is also influenced by external factors: information space with digital technologies, parental employment, etc. One of the reasons is the disintegration of the natural way of forming the game, when the educator adheres to the idea of the game as a regulated process and does not understand its specifics, has no idea what should be the game at each age of preschool childhood, does not have practical techniques of organizing the play and does not know how to play with children of different ages.

Play dysontogenesis we understand as impaired, which does not correspond to psychological regularities, the development of the child in preschool age, due to socio-cultural and educational factors. The term "play dysontogenesis" has not
yet become widespread in the field of education. Despite the fact that the cases of distorted play activities at preschool age and the presence of play deprivation in a significant number of children with normative development are mentioned in many studies. Play dysontogenesis we understand as the violation of the natural development of playing activities in general, or its individual structural components (play design, plot, content, roles, play actions, rules), as well as the pace and timing of development. This condition is due to the number of reasons. Among them there are both objective (globalization, climate problems, accelerating the formation of vital competencies, etc.) and subjective, namely:

- underestimation of the developmental potential of the play by significant adults (parents, educators);
- oversaturation of the subject-spatial environment with quasi-game attributes and toys of monofunctional purpose;
- incomprehension of the possibilities of sensory-enriched environment;
- artificial limitation of space and time resources for amateur free, child-initiated play activities;
- low level of competence of teachers to create conditions for children's creative play;
- a significant number of children in groups, etc.

The results obtained by the team of authors during the examination of the sensory-enriched environment were convincing, because they showed the strengths and weaknesses of the quality of the environment of a particular group (Kruty et al., 2021). Therefore, the ECERS and SSTEW scales, according to researchers, are universal and effective method of assessing the quality of the environment of kindergarten or any center for child development.

However, there is another reason that contributes to the reduction of the play. This is the uncertainty of terminology and, as a consequence, the substitution of concepts, which directly negatively affects the mass pedagogical practice. The results of the study of the play as interdisciplinary field are of great benefit to many other fields. So researchers should be aware of patterns and trends, take into consideration new theoretical and methodological approaches that enrich the understanding of the play. Thus, the aim of the article is to make an attempt to summarize scientific achievements and offer own interpretation of terminology on the leading types of activities of preschool children, to identify negative phenomena of dysontogenesis and reduction of the play.

**The theoretical background**

Many scholars often differ in their understanding of the meaning of the term "play". This leads to problems in the process of comparing research, formulating and testing hypotheses. Scientists have made many attempts to determine or identify the play in all its manifestations. Unfortunately, these attempts fail in the
narrow context in which they are developed because of conceptually different physiological, behavioral or cognitive approaches. Regulations about the play with an imaginary situation as the leading activity of preschoolers were first formulated by L. Vygotsky (Vygotskij, 1978). Note that there is often confusion or substitution of the terms "activity specy" and "activity type" in research. In our opinion, these terms should be clearly distinguished. *Activity specy is a generic concept to the activity type, ie in any activity type there can be several activity species.* Thus, in role-playing, as the leading type of preschooler's activity, there can be several species: communication, transformational, and so on.

Philosopher M.S. Kagan distinguishes theoretically in pure form the following activity species: transformative, cognitive, value-oriented, communicative (or communication). All activity species can be autonomous, but the implementation of each one is possible only with the assistance with other species (Kagan, 1975). The theory of leading activity clarifies which activity species are significant at a certain stage of development. Children prefer a certain type (specy) of activity depending on the stage of development: activity that corresponds to their real interests on the one hand, and that, obviously, plays a special role in the process of their development on the other hand. Careful study of the activity enabled Gordon M. Burghardt to identify five play criteria that can be used to assess the action of a living being: repetition, spontaneity, arbitrariness, voluntariness (satisfaction), not survival (safety) (Burghardt, 2005).

The formulation proposed by D. Elkonin that play is the only leading activity of a senior preschooler is accepted as an unconditional axiom in almost all domestic pedagogy and psychology textbooks (Jel'konin, 1999). However, M. Poddyakov argues that even accepting the concept of "leading" and "non-leading" activities, it turns out that *the activities of children's experimentation* during preschool childhood occupies no less "leading" position than play one (Podd'jakov, 1997). That changes radically the perception of conditions, goals and values in the organization of children's lives.

In our opinion, it is necessary to agree and support the point of view of M. Poddyakov that in the depths of play activity before the start of educational game there is a new type of leading activity - children's experimentation (Podd'jakov, 1997). *Children's experimentation* is a type of leading activity aimed at finding objective information about the structure of the Universe through individual practical experimentation with the object of study. Thus, *children's experimentation as a type of leading activity* contributes to the development of cognitive needs, facilitates mastering the method of scientific knowledge in the process of search activities and contributes to the formation of research skills of preschooler. Let's define that *the leading activity of the child is called* the activity which other new activities arise and within which they are differentiated, in which separate mental processes are formed or rebuilt, on which the basic changes of the child's personality mainly depend. We also outline the *scheme of development*
sequence of children activity leading types in early and preschool age: emotional communication → subject activity → amateur play → children's experimentation → elements of educational activity.

It is important for our research to recognize play and experimentation with leading types of preschoolers’ activity and to understand the importance of these types of activity in ontogenesis and phylogeny. The lack of free and amateur play has consequences, which American Academy of Pediatrics warns about. Deficit of play undermines the foundations of a child's development. This fact is stated on the results of medical scientific research. The conclusions were based on German neurobiologist Gerald Huether research. The researcher showed that the best tool for child's development is free play, not a minute-by-minute day consisting of developmental classes and workshops (Hüther & Quarch, 2016).

Mr. Huether explains that during the play releases substances that are responsible for connections in the brain. Catecholamines, endogenous opiates and other peptides stimulate the development of neural networks. And neural connections do not arise as a result of developmental activities, but in free play. The neurobiologist insists that in order to stabilize the enormous potential of the brain and reveal the inherent talents in children, adults must provide them with the opportunity to play as long as possible. In their book Rettet das Spiel, G. Huether and C. Quarch advocate consciously incorporating play into the daily routine of children's activities, emphasizing that "play is a fertilizer for the brain and food for children's souls" (Hüther & Quarch, 2016). Thus, the transition to a new leading type of activity depends on the whole system of living conditions of the child, not just on what the adult will teach the child.

Methodology, organization and results of the research

During September-October 2021 we conducted a survey of students aged 16 to 25 from Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, parents of students aged 50 and older, younger family members aged 5 to 15, and relatives (grandparents, aunts and uncles) at the age from 35 years. The senior respondent was 77 years old at the time of the survey. The total number of respondents was 1,321 people. They were interviewed in equal proportions in terms of geographical location (city, town, village) and gender. Respondents were divided into four age groups (5-15 years, 16-25 years, 26-50 years, 51-75 and older). This age distribution is explained by objective components: from the youngest to the oldest one in the group of students. Other groups of respondents were selected the same way. The main research methods are survey, in-depth interview, focus group, statistical analysis. The questionnaire was generated at google.com/forms. Respondents filled out a questionnaire at a convenient time anonymously (materials of the survey are submitted in the bibliography). Such
precautions prevented formal evaluation of the survey results and reduced the risk of subjective evaluation by the researcher.

The questionnaire consisted of 7 open-ended and partially closed-ended questions. The content of these questions is: 1. What play was your favorite in your childhood? Were you an organizer of children's play? Who suggested the plot? 2. How many toys (approximate number) had you got? What toys were your favorite? 3. Did the parents (who specifically – mother, father or both of them) contribute to your children's play? Was there enough time for play? 4. Does the fact that a child was not able to play enough in childhood affect the further development of preschoolers, primary school children, adolescents? Can this affect adults? Justify your position. 5. Do you think, modern preschoolers play less than the previous generation? Why? Why are game plots impoverished? Has the pandemic affected the number of children's games and their quality? 6. Do you think, the infantilism of modern adolescents and young people is associated with the reduction (attenuation) of playing activities, or the inability to realize themselves in children's play? 7. Is there enough time given by modern teachers for playing activities to preschoolers? Justify your position.

The average score for each of the questions was calculated as the arithmetic mean obtained from the majority of respondents' answers. The following table shows the quantitative data obtained from the questionnaire.

Table 1 Quantitative data according to the questionnaire, % (created by the authors)

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Analyzing the results, we find them high quality and convincing, because they show the strengths and weaknesses of the development of play activities of a particular person in a particular period of his/her life. In summary, we can say, that the proposed questionnaire is an effective method of assessing the impact of reducing the play on the further development of individual. Here is an example of processing the results of question № 2. Data were processed using a nonparametric Mann-Whitney test and Cohen's d. Results. Results: at a significance level of 0.05, it was found that the number of toys respondents in the analyzed age periods (5-15 years, 16-25 years) had much more than older respondents (26-50 years and 51-75 years). Z - indicator is - 4.357 and p <0.001. The importance of a variety of toys, measured by their number, is high. Cohen's d = 1.33. Conclusion: diversity is affected by both the quality of toys and their number, which was in each age group of respondents.
Thus, in the first question answers the most frequently mentioned games were: kvach, hide-and-seek, Cossack-and-robbers, chasing, flying through a ribbon of rubber threads, daughter-and-mother, traffic lights, ball games, football, volleyball. We should note, that there was no answer about basketball, the construction of halabuds, headquarters, and so on. In the age categories of 26-50 and 51-75 years, sports-oriented games predominate (26 and 36%), while younger respondents more often called games of a more passive nature (puzzles, constructors, chess, rubik's cube, mosaic, dolls, Barbie doll as a story hero, cars of different types and purposes, computer games, etc.). Among the reasons that led to such answers are the living conditions of respondents aged 51-75, as well as the level of family income, when childhood was in the late 80's and 90's of the XX century and the period of the collapse of the Soviet Union. Not having the opportunity to receive quality toys, the entertainment of this age period of the respondents' childhood was more in the natural environment.

In the second question answers such toys were named: dolls, cars, toys depicting animals, both domestic and wild, lego, and so on. The number of toys ranged from 5-6 to 120 toys. The table shows the distribution of the number of toys according to the age of the respondents. We have provided an error: the older respondents, the smaller number of toys they played with as children. However, respondents between the ages of 51 and 75 were more likely to provide details about the toy (doll name, machine type, color, size, combat, texture, etc.). These results show the brightness of the child's perception of what a girl or boy is playing with and what memories remain throughout the life of an adult. We also took into consideration that the Lego constructor appeared in active sale in Ukraine only at the end of the 20th century, like the Barbie doll. Of course, the older category of respondents did not indicate these toys. The obtained data coincide with the conclusions of O. Smirnova's research (Smirnova, 2015), which proves that the room of a modern urban preschooler has of almost 400 toys on average, and only 6% of which are actually used during play.

The fewer objects a child has to play with, the better the conditions for the development of his imagination and creativity are provided. A group of researchers (C. Dauch, M. Imwalle, B. Ocasio, A. Metz) from the University of Toledo (USA) found out that an excess of toys prevents children from developing creativity (Dauch, Imwalle, Ocasio, & Metz, 2018). According to psychologists, the excess of toys is often "counterproductive" for children's development. Over time, it becomes increasingly difficult for children to get the maximum "benefit" from the toys, they are quickly getting bored, their attention constantly switches from one subject to another. The child becomes literally uncontrollable and very impulsive. The authors emphasize that they do not encourage parents to refrain from buying new toys for the child. These are the toys that depict the products of human activity (tools, cars, weapons, household utensils), the more natural they are, the more accurately reproduce the "real" things, the more children like they.
Respondents' answers to the third question on parental support to children's play also varied depending on whether there was enough time for play. Modern children have plenty of time for play and leisure, parents (both mother and father) contribute to the deployment of play, buy new toys. Respondents in the categories 26-50 (23%) and 51-75 years (17%) indicated a small amount of time for childhood play.

The impact of the reduction of play activities on the further personality development was also identified with help of an in-depth interview as a method of informal individual conversation with respondents (37 respondents in total), which was conducted on the basis of tools (guides) with a list of mandatory topics for discussion. Preference is given to in-depth interviews in order to explore the problem when parents did not promote children's play activities (parents' income level was not included in the interview). This is a very sensitive, even painful topic. It should be noted that the majority of respondents aged 51 and older live in villages and settlements where involving children in household chores is traditional. Of course, this takes some time from children's leisure. However, the same respondents pointed to the quality of sports games in the natural environment.

The fourth question concerned situations where the child did not have the opportunity to play enough in childhood and its impact on the further development of preschoolers, junior high school students, adolescents. This question was closed for students. One of the irreversible consequences of preschool age play dysontogenesis is the emergence on the next stages of childhood (preschoolers, junior high school students, adolescents) the children which "did not play games enough", which are characterized by deficient personality development in their further life. Respondents indicated the possibility of influence, but did not directly connect play dysontogenesis with influence on further development.

Our hypothesis is confirmed by the data obtained during the survey. Of course, respondents aged 16 to 25 years (11%) do not yet see a direct correlation between play dysontogenesis and further self-development, while older respondents (26-50 and 51-75 years old) show this correlation significant - 37% and 43% of answers. Respondents of this age had a clear understanding of the need to create conditions for children's play activities.

Three focus groups, as an informal group discussion on the issue, were created to outline ways to prepare students to prevent play dysontogenesis and reducing play activities of preschool children. Focus groups (students, teachers, personal development trainers were involved) were led by specially trained specialists (moderators). The discussion was attended by 25 respondents during 1.5-2 hours.

The fifth question of the questionnaire was about the impact of the pandemic on the number of children's play and their quality. Unexpected answers were received from the age categories 26-50 (34% of respondents) and 51-75 years
(47% of respondents). Parents and their families believe that the conditions associated with quarantine restrictions have further "tied" children to monitor screens. Thus more time were spent for playing computer games, and so on.

However, the analysis of the results of answers to questions about the impact of the pandemic on play activities in the age group from 5 to 15 years showed that children slept more, felt happy much more often than sad, used their free time for play and experimentation, participation in new chosen independently classes, more often helped with household chores, enjoyed extra time with his family. The results of our study coincide with the data of Peter Gray, who also points to the possibility of anticipating increased play time to meet basic needs for autonomy, competence and the relationship between time and the environment for playing during a pandemic (Gray, 2020).

The sixth question about the reduction (attenuation) of play activities and the inability to realize oneself in children's play resonated with the fourth question. It became a kind of "trap question" to reveal the honesty, sincerity of respondents. However, the difference between the answers to these two questions was not critical. Thus, respondents aged from 26 to 50 believe that the infantilism of modern adolescents and young people is associated with a reduction (attenuation) of play activities, or inability to realize themselves in children's play - 40%. The same position respondents aged from 51 to 75 years old (33%) have.

Scientists (L. Vygotsky, K. Kruty, etc.) have proved that the play forms one of the key neoplasms of preschool childhood - productive imagination and its most important component - emotional decentralization (Vygotskij, 1978; Krutii, 2019). The state of play activity is an informative differential parameter in diagnosis. It indicates the beginning of the manifestation of the disease and signals severe signs of regression of the child play. A child who does not play is nonsense, rather an anomaly than the norm, something that worries parents, teachers and doctors. Lack of experience of independent play activities at preschool childhood naturally leads to intellectual consolidation, reduced ability to plan their own play activities. Play habilitation is the development of a child's unrealized play potential from an early age. The employment of parents affects the further development of the child. The term "play habilitation", in our interpretation, means a set of pedagogical measures to prevent or correct the consequences of insufficient play experience of the child, which further affect the quality of life, ability to learn, work. The result of the lack of play habilitation is an immature adult who is unable to take responsibility for their actions and decisions with clear signs of prolonged mental infantilism.

The answers to the last, the seventh question, were distributed predictably. Thus, according to parents of students and their relatives, modern teachers have enough time for play activities with preschoolers (age category 26-50 years - 29% and 51-75 years - 37% of respondents). However, respondents aged 16-25 already
had a different opinion - only 19% believe that enough time is provided. The closest to the objective reality were respondents aged 5 to 15 (15%).

Our data coincide with the results of the study "Monitor of Engagement with the Natural Environment" (MENE) was conducted as a partnership project in London (sample - 10 thousand children from 2 to 16 years) (Natural England, 2016). The survey collected information on children's stay in the natural environment, including: frequency and destination, motives for visits, who visits, whether adults were present. In the last 12 months, only 88% of all children in England have been in nature at least once, and 70% of children have been in nature every week. 12% of children have never been in nature during the last 12 months! If parents have rarely or never been in nature during the last year, their children have rarely left the city streets (39% of children have been in the woods or park during the last year). The conclusion of the study is catastrophic: children walk on average less than those who are in penitentiaries, i.e. less than one hour a day (Natural England, 2016).

Conclusions

The results of the study confirm and supplement already known developments, as well as contribute to the receipt of new data under the studied problem. According to the results of the study, groups of data were obtained. It is confirmed the position of play among the leading types of activities at preschool age (L. Vygotsky, M. Kagan, M. Poddyakov, etc.) and the importance of amplification and habilitation of play activities, promoting children's experimentation (K. Krutiy, O. Holiuk, N. Rodiuk, G. Huether, C. Quarch, etc.). It is confirmed and expanded the data of scientists (C. Dauch, M. Imwalle, B. Ocasio, A. Metz, V. Dolnyk, O. Smirnova, etc.) on the quantity and quality of children toys and the feasibility of increasing them. It is supplemented the results of research (P. Gray and others) on the peculiarities of play activities during the pandemic. The reasons for the reduction of the play and the possibility of its amplification are specified (O. Bilska, K. Kruty, O. Popovych, etc.).

The new results include: substantiation of the leading types of activities (play activities, children's experimentation) and confirmation that the dysontogenesis of play activities and failure to promote children's experimentation at preschool lead to further distortion of the trajectory of development and reduction of play. Ways to eliminate the dysontogenesis of the play should be methodological measures to habilitate the child's play activities as an original age, psychological, social and cultural phenomenon. To this end, a number of conditions should be created that require close attention to priority implementation in preschool education, among which the most important authors include: creating an adequate multifunctional enriched subject-spatial environment and improving the playful competence of educators as a basic qualification of preschool teachers.
References


