AGE-RELATED DYNAMICS OF PLAY IN ELEMENTARY SCHOOLCHILDREN WITH INTELLECTUAL DISABILITIES

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Abstract

The data published in scientific literature proves unequivocally that play in preschoolers with mental retardation (intellectual disability) even in educational environment is formed with substantial difficulties and distinct unusual features (Baryaeva L.B., Nefedova Yu. V., Elkonin D.B. et al). For that reason play doesn’t reach its full developmental potential as the primary activity and stays primary all through the elementary school, but until now this phenomenon has not been researched sufficiently. To check this assumption an experimental design is realized with 146 elementary schoolchildren with mild mental retardation (intellectual disability), aged 7-12, studying in 1-4 grades of special needs schools of Saint-Petersburg, Russia. An observational protocol is used to study play, which allows to research the following 9 aspects of play: interest towards toys and toy manipulations, adequacy of independent toy manipulations, usage of substitute objects, predominant content of play, goal-orientedness of play, skill at adjusting one’s actions to actions of other participants, flexibility in interactions with peers during play, participation of an adult managing the play, speech during communal play. The goal of this study is to establish the existence or absence of age-related change in how students with mental retardation (intellectual disability) learn to play and to describe that change qualitatively if it exists. For that purpose a comparative analysis of the results of observing two groups of students (grade 1-2 - 93 participants, grade 3-4 - 53 participants) is performed. The analysis reveals that children with mild mental retardation (intellectual disability) demonstrate slight positive age-related dynamics in the development of all researched aspects of play (mean 1.0-2.1; max 6.0). Only when they reach 10-12 y.o. everyone develops a stable interest in play and, in most cases, an ability to incorporate into play not just simple manipulations but also elements of social interactions between people (restricted to topics already studied: family, store, doctor’s office, etc.). By the end of elementary school the duration of play becomes relatively longer, especially when supported by an adult, and the degree of independence increases, but the children are still incapable of independently organizing and managing role play even in small groups. Only the children raised in a special needs kindergarden possess basic experience with play when commencing school education.

Keywords: play, play actions, children with intellectual disabilities.

1 INTRODUCTION

In Russian pedagogy and psychology, the development and formation of play as a special type of child’s activity has been explored for many decades in various aspects. The basis of these studies are the works of L.S. Vygotsky [1], A.N. Leontyev [2], D. B. Elkonin [3], et al). The Improvement of the system of pre-school education of children with intellectual disabilities in recent decades gave rise to the interest in studying play and the process of its formation (L. B. Baryaeva, A. Zarin [4], Yu.V. Nefedova [5], et al). The results of these studies [3], [4], [5] allow us to state unambiguously first, that intellectual disabilities can lead to lagging not only in the mental development of children, but also in mastering play; second, that formation of preschool play in children with intellectual disabilities occurs with great problems and has significant quality distinctions [4], [5]. Therefore, end of preschool age does not stop play formation, and play is the most attractive activity that is accessible for children at this age. The development potential of play as a leading type of activity is not exhausted by the beginning of school education [7]. This concerns, first of all, the most difficult type of play when it comes to children with intellectual disabilities, socio-dramatic play, which contributes to life experience (cognitive, emotional, social) of children, and to formation of communicative competence [3]. Going to school completely changes the life of a child, limiting his or her ability to participate in play. Many parents and some teachers believe that a younger student does not need socio-dramatic play [8]. Perhaps, therefore, play as an activity of elementary schoolchildren with intellectual disabilities has been studied very little. Greater emphasis is placed on the play which is used in learning process, that
is didactic play in all its various forms (as an important method of teaching) and mobile plays (primarily as the form satisfying child’s needs in physical activity and as a method of learning how to move).

2 METHODOLOGY

The study was based on an understanding of the significance of play in the development of children of not only preschool, but also of primary school age. In this regard, its goal was to identify qualitative changes in the play of students aged 7-12 years old with intellectual disabilities. The concept of the research was based on the traditional scientific positions for the Russian special pedagogy and psychology: on leading activity as the main factor of mental development at a certain stage of age development [1], [2], [3]; on learning as a leading social factor in the development of a child with intellectual disabilities [1], [4]; on an integrated approach in the psychological and pedagogical examination of children with intellectual disabilities [6], [7].

The developed program of studying play provided for the study of its emotional, operational, informative and communicative component. Each component was evaluated by several parameters - emotional: the presence of interest in toys and actions with them, the goal-orientedness of play, preferred type of play, independence in the play; operational: adequacy of independent toy manipulations, nature of the toys used, use of substitutes; informative: the content of the play actions, predominant content of play; communicative: skill at adjusting one’s actions to actions of other participants, manifestation of flexibility in interacting with peers during the play, speech during communal play [9]. Each parameter was assessed on a scale from 0 to 6 points, in which the qualitative characteristic of its manifestation corresponded to a certain number. The scale is based on the ontogenesis of the studied functions, processes and actions: 0 points reflect their lack of formation in children, 6 points correspond to the average indicators of their formation in children with standard development at the age of 6-7 years.

To conduct a study of play of children with intellectual disabilities, a method of observation was chosen. The sessions of observation of the play were held regularly in the process of specially organized play situations, their results were recorded in the reports. The final assessment of each parameter was the result of the discussion in the expert group (experimenter or researcher, teacher, nursery teacher). Within the study, 146 junior schoolchildren with intellectual disabilities aged 7-12 years old enrolled in grades 1-4 of St. Petersburg (Russia) were surveyed.

3 RESULTS

To gain solutions during the study, the examined children were divided into 2 age groups. The first group consisted of 93 students of 1-2 grades at the age of 7-10 years (group 1), the second group - 53 students of 3-4 grades at the age of 11-12 years (group 2). Comparison of results is carried out in terms of the average score determined for each studied parameter of play, which characterize the emotional, operational, informative and communicative components.

Table 1. The dynamics of the emotional component in the play of elementary schoolchildren with intellectual disabilities (in terms of the average score at max = 6.0).

<table>
<thead>
<tr>
<th>Study parameters</th>
<th>1-2 grade students n=93</th>
<th>3-4 grade students n=53</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of interest in toys and actions with them</td>
<td>3.9</td>
<td>5.8</td>
</tr>
<tr>
<td>Preferred type of play</td>
<td>1.8</td>
<td>3.4</td>
</tr>
<tr>
<td>Goal-orientedness of play</td>
<td>2.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Independence in the play</td>
<td>1.9</td>
<td>4.0</td>
</tr>
</tbody>
</table>

The data presented in Table 1 show that there are differences in the formation of the emotional, operational, informative and communicative components of the play among students in grades 1-2 and 3-4: the results of the latter are higher in all studied parameters. Let us dwell on the characteristics of individual components.

The emotional component of the play undergoes relatively significant changes in the early school years. The majority (68%) of first-graders and second-graders react positively to play tasks and toys,
as well as actions with them, although they do this for a short time. This selective interest in toys does not depend on their external attractiveness, but still children prefer to perform actions only with well-known certain toys (3.9 points). For most third graders and fourth graders, there is a steady display of selective interest in toys, the presence of favorite toys and the ability to use both familiar and new toys in accordance with the conditions of the play (5.8 points). Children are always ready to accept an offer to play, and often they themselves initiate the play.

Students in grades 1-2 show a low degree of independence in the play (1.9 points). About 1/3 of them do not show a desire to play, but are included in the play that an adult offers, and act with him or her (17%) or sometimes initiate the play themselves, but play only under the guidance of an adult (17%). Nearly half (47%) of children initiate the play, but it takes place entirely under the guidance of an adult. The degree of independence in the play for third-graders and fourth-graders increases significantly (4.0 points). Most (64%) of them initiate the play and play with a little support from an adult who asks questions, suggests a toy, a mode of action, etc. Another 21% of children not only often initiate plays, but also play on their own without an adult. However, among children with intellectual disabilities, several students were identified who were able to initiate the play, but played only under the guidance of an adult. At the same time, in some cases, an adult defined the whole process of playing, in others - acted as a full participant in it, providing all possible assistance to the child and supporting his or her initiative.

While learning in the 1st and 2nd grade, the goal-orientedness of play only begins to form in children (2.5 points). 40% of first-graders and second-graders “get stuck” at the beginning of the play in a certain play action, and reduce the whole play only to it. Approximately the same number of children, after performing several logical actions, stop the play or switch to another activity. Some preconditions of purposefulness is found only in 12% of children who play relatively long, but they can only complete the implementation of the play plot with the help of an adult. In most cases, these were the children who were trained to play in kindergardens under a special program. By grade 3-4, the number of such children increases to 51%, but only a few (4%) are able to play for a relatively long time and independently realize the play plot to the end.

Play preference reflects genuine interest in activities. Among the kinds of plays preferred by children during the period of learning in primary school, the following can be distinguished: mobile, didactic plays with objects and with didactic toys, plot plays and socio-dramatic plays. Students in grades 1-2 play mostly mobile (44%) and didactic plays with objects (35.5%). Students in grades 3-4 prefer plot plays (49%) and plays with didactic toys (43.5%), considering them as the most attractive occupation. This attitude to play is typical for children with standard development at the age of 6-7 years [3].

**Table 2. Dynamics of operational component in the play of elementary schoolchildren with intellectual disabilities (in terms of the average score at max = 6.0).**

<table>
<thead>
<tr>
<th>Study parameters</th>
<th>1-2 grade students</th>
<th>3-4 grade students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequacy of independent toy manipulations</td>
<td>4.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Toys characteristics</td>
<td>2.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Usage of substitute items</td>
<td>1.8</td>
<td>3.7</td>
</tr>
</tbody>
</table>

The most developed among first-graders and second-graders are actions with toys (4.2 points), as far as they operate with all familiar toys in accordance with their purpose. However, some children, when it came to including new toys in the play, could only manipulate them or even perform inappropriate actions. By 3-4 grades the picture describing actions does not change quantitatively (4.6 points), although children play adequately. Only 36.5% of students in grades 1-2 always use any toys adequately. These were the children who were trained to play in kindergardens prior to school. In 3-4 classes the number of such children is 62%. Play actions are developed and detailed. At the same time, even by the end of primary school age, children with intellectual disabilities do not use action-based plays with imaginary objects in socio-dramatic plays.

First graders and second graders mainly use simple toys (rattles, pyramids, cubes, balls, etc.) and certain figurative toys such as dolls, cars, animals, etc. (2.3 points). Third-graders and fourth-graders are much more likely to play with figurative toys and use a significant number of substitute items that have an external resemblance to the replaced ones (3.7 points).
At the beginning of primary school age, about half (49.5%) of the children with intellectual disabilities understand the meaning of substitution. However, they use substitute items only in a joint play with an adult, either by imitating his or her actions or according to a direct instruction of an adult. At the same time, just a few children are able to apply independently those substitute items that they had used in the process of learning in classes (1.8 points). By the end of primary school age, children form the ability to occasionally use the substitute items in the play which were used in the process of learning in classes and explain their actions (3.7 points).

Table 3. The dynamics of the content component in the play of elementary schoolchildren with intellectual disabilities (in terms of the average score at max = 6.0).

<table>
<thead>
<tr>
<th>Study parameters</th>
<th>1-2 grade students (n=93)</th>
<th>3-4 grade students (n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play actions content</td>
<td>2.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Prevailing content of the play</td>
<td>3.0</td>
<td>4.4</td>
</tr>
</tbody>
</table>

The development of the content component was assessed according to the following parameters: the content of play actions and the predominant content of play. As the data presented in Table 1 proves, the content of play actions for students of grades 1-2 is extremely limited, since for most of them (46%) it is represented by simple chains of object-play actions (feeding a doll, transporting toys in a truck, etc.) not associated in a single plot. Only 29% of schoolchildren unite individual chains of object-play actions into play actions reflecting a simple plot (they dress the doll and perambulate it in the stroller "The Doll Goes for a Walk", etc.). This content of play was found in 37% of students in grades 3-4. The content of play actions of students in grades 3-4 changes: 36% of children perform plot actions related to each other by the logic of the plot (for example, "Family", "Doctor", "Shop", etc.); 23% - perform separate role actions (mother, driver, doctor, etc.), not always maintaining role-playing behavior until the end of the play. Thus, by the age of 11–12 only a few children (3.7%) with intellectual disabilities master the ability to act in accordance with a given role, perform various play actions (prepare the doll food, feed it, put it to sleep, etc.) in a certain logic and interconnections.

Predominant in the content of the play of first-graders and second-graders are actions with objects in combination with household actions that reflect reality in well-known everyday situations (3.0 points). Predominant in the content of plays of third-graders and fourth-graders are extended everyday activities with elements of relationships between people, but only within the limits of the studied playing topics (4.4 points). However, among students in grades 1-2, there were those whose content of the plays were simple manipulation (6.5%) and actions with toys in accordance with their intended purpose (20%). Such content is absent in the plays of students of 3-4 classes. A significant proportion of children with intellectual disabilities aged 11–12 years old are able to reflect relationships between people related to real life and include content that goes beyond the limits of the studied play topics.

Table 4. The dynamics of the communicative component in the play of elementary schoolchildren with intellectual disabilities (in terms of the average score at max = 6.0).

<table>
<thead>
<tr>
<th>Study parameters</th>
<th>1-2 grade students (n=93)</th>
<th>3-4 grade students (n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill at adjusting one’s actions to actions of other participants</td>
<td>2.3</td>
<td>3.9</td>
</tr>
<tr>
<td>Flexibility in interactions with peers during play</td>
<td>2.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Speech during communal play</td>
<td>2.8</td>
<td>4.5</td>
</tr>
</tbody>
</table>

The communicative component is an important element of the joint play of the child with a peer or adult. Speech is an integral part of playing together. Using speech, play participants can quickly share information; it complements the play action and enriches the plot. During a joint play, first-graders and second-graders show average speech activity (2.8 points). During the play, they mostly turn to an adult or a peer with questions about the actions being performed. However, in children of 7-10 years old, individual differences are quite pronounced, as they showed both extremely low (20%) and high activity (20%). High activity prevailed (66%) among third-graders and fourth-graders, which determined the relatively high average (4.5 points). During the play, they were able to initiate voice
contacts, to use various statements for their realization, but they did not always go beyond the limits of the play situation. Somewhat less individual characteristics are manifested in the speech of children aged 11-12, but during the study, students were identified who, during the play, turn to an adult or a peer with questions about the actions being performed (24%) or for explanations about the actions being performed (10%).

The ability to coordinate their actions with the actions of a play partner at the first stage of schooling is developed in children with intellectual disabilities to varying degrees, which determined the low average of its development (2.3 points). The majority (63%) of students in grades 1-2 can, with the support of the play partner, coordinate their actions with their partner's actions, sometimes making independent attempts to track the actions of the partner and build their own according to the actions of the partner. Some children were not able to play with a partner (4%) or were able to play alongside, only sometimes making attempts to coordinate their actions with the actions of an adult or a peer when they directly addressed him or her (10%). The majority of students in grades 3-4 (78%) sometimes or often during the play ask questions about their partner's actions in order to build their own. The others were sometimes able to discuss their supposed actions with the partner before starting the play and very often, during the play, ask questions about the partner's actions to build their own (19%) or coordinate their actions with the partner's actions, correct them with the partners during the play (4%).

The manifestation of flexibility in interaction with peers during the play is the most important condition for a conflict-free play. Some prerequisites for such an ability are formed in children with intellectual disabilities by the age of 7-10 (2.3 points), although unevenly. Half of the children sometimes show flexibility, and 23% of the children do it often, making some minor changes in their behavior during a well-known play under the influence of the behavior of an adult or a peer. A small part (18%) of first- and second-graders also manifested a lack of flexibility in interaction with play partners. The index of development of flexibility among students in grades 3-4 is significantly higher (3.9 points). 59% of them are capable of very often showing flexibility during well-known plays, making significant changes in their behavior, due to focusing on the behavior and actions of the partner and taking into account the situations arising in the play. Of the remaining students, 13% show flexibility during many plays, making significant changes in their behavior, due to focusing on the behavior and actions of the partner and taking into account the situations that arise. 29% are characterized by the ability to make changes in their behavior during a well-known play under the influence of the behavior of an adult or a peer.

![Fig. 1. The dynamics of the components of the play in schoolchildren with intellectual disabilities (average score at max. = 6.0).](image-url)
0.4 points. The data also illustrate the presence of positive age dynamics in the development of all the studied components of the play of children with intellectual disabilities at the age of 7-12 years. The use of the Student's t-test for mathematical processing of the results of the study confirmed the statistical significance of the differences in the formation of play among 7-10 and 11-12 years old students at a significance level of $a = 0.05$. For all considered play study parameters, the empirical value of Student's t-test is higher than the critical value ($t = 1.977$) and ranges from 2.17 to 14.62.

4 CONCLUSIONS

1 In children with intellectual disabilities, at the beginning of primary school age, which coincides with learning in grades 1-2, the emotional, operational, informative and communicative components of play are roughly very poorly developed. Many children are interested in toys and are able to use them adequately. At the same time, plays are reduced to performing simple play actions that are rarely associated in a plot and mostly do not require the participation of a peer partner. In plays, children are little independent and focused, independent play is practically not accompanied by speech. Words do not fulfill their function as signs - as a substitution of an object, its properties, actions, relationships, which is typical for children of the seventh year of life with standard development.

2 During the training of children with intellectual disabilities in the lower grades, there is an intensive development of play, due to their mastering knowledge about the surrounding objects, natural and social world, gaining experience of interaction with peers and adults and experience of various activities. Practically for all children aged 11-12 years, play becomes an interesting activity, the goal-orientedness of play as well as the independence of participation in it increase, and the skill at adjusting one’s actions to actions of other participants, and to manifest flexibility during interaction with peers in the course of the play develop. Despite significant changes in the quality of the play, children with intellectual disabilities aged 11–12 years, considering all components, do not reach the level typical for children of the seventh year of life with standard development.

3 The positive age dynamics of development of all components of play in children with intellectual disabilities during their learning in lower grades allows to suggest that the developmental potential of play can be used in the educational process. A rational combination of play and learning activities in primary school age can contribute to the development of such value qualities and skills of students as independence and self-control, ability to subordinate their actions to a goal and negotiate with other participants, etc.

REFERENCES
