NOVATEUR PUBLICATIONS
JournalNX- A Multidisciplinary Peer Reviewed Journal
ISSN No: 2581 - 4230
VOLUME 11, ISSUE 9, September – 2025

CONSIDERING GENDER IDENTITY OF PRESCHOOL CHILDREN: PROBLEMS AND SOLUTIONS

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Abstract
This article analyzes the importance of teaching preschool educational institutions to take into account the gender characteristics of their students in the literature, and within the framework of our research, it is emphasized that it is important to identify the skills and abilities of older children in the educational process using pedagogical diagnostic methods and individual characteristics using neuropedagogical diagnostic methods. As a result, the increase in children's cognitive activity was proven through mathematical and statistical analysis.

Keywords: Thinking strategy, individual characteristics of children, representative system, individualized education.

Introduction

Providing children with modern education from preschool age, their active mental, intellectual and social development is one of the problems that must be solved in preschool educational organizations today. In particular, it requires that education be aimed at their acquisition of simple primary knowledge, skills and qualifications appropriate to their age, and that it be carried out in harmony with the development of their speech, thinking and moral qualities. This is because this stage is the period when children become individuals with a very complex psyche, and their assimilation of knowledge and the development of cognitive activity during this period have their own characteristics. These characteristics are due to the fact that a number of individual qualities, such as thinking strategies, types of memory and attention, and leading representational systems, are to one degree or another dependent on human gender. Since the development of a child's psyche through the ages is directly related to the growth and formation of the brain, it is precisely this "delicate" balance that is one of the most important factors in organizing the educational and upbringing process. Teaching preschool children, taking into account the “subtle” connection between the gender characteristics of their age and the formation of their brain, ensures the active formation and development of mental and intellectual abilities, creativity, social qualities and talents in the child **Error! Reference source not found.**, and serves as an important factor in the successful socialization of the child's personality [3.71]. However, improper influence on this process can negatively affect the child's mental development, causing various deviations in the child's development and behavior.

Literature Review:

There are a number of important specifics that need to be taken into account when teaching children in preschool educational organizations.

In his research, H. Ibraimov argues that each person is unique (the principle of uniqueness). He speaks of the fact that each person has a unique individual characteristic, such as the volume and speed of information processing, the dominance of one or another memory system, and the flexibility of thought processes. Brain development is stimulated in conditions of creative freedom and blocked in an environment of pressure, coercion, and threats. He emphasizes that some teachers strive to maintain strict academic discipline in the classroom, which can ultimately lead to the destruction of the creative environment [6,288].

D.R. Gulyamov and K.B. Kalankhodjaeva emphasize the importance of introducing individualized education by taking into account the neurological characteristics and aspects of the child's brain organization in the educational process [5,38].

K.Kh. Allaberdiev in her dissertation on the topic of neuropedagogical possibilities of forming creative activity in older preschool children emphasizes the importance of taking into account the neuropedagogical possibilities of the child's personality. She argued that the formation of creative activity of students can reveal not only the level of intellectual development of the child, but also his individual unique abilities [1,14].

In her research on the development of thinking activity in preschool children, I.I. Tuychieva cited gender differences in increasing the thinking activity of preschool children as follows: [11,14] (see Figure 1).

An analysis of scientific research on the subject shows that girls and boys differ in the way they perceive information and their thinking strategies, and as a result, in the mechanisms for acquiring new knowledge and forming skills. The main reason for this is that girls and boys differ in the amount of information they receive and the speed of processing it, the volume of their attention and memory, the dominance of one or another memory system, the course of cognitive processes, the way they imagine and understand existence, and the way they "see the world." It is these differences that determine the gender characteristics of children.

Figure 1. Gender differences in the development of thinking activity of preschool children

Boys	**Girls**
Way of thinking	
Boys have a more developed left hemisphere, tend to work independently, have a harder time concentrating on tasks, are able to absorb information and data slowly but consistently, and first understand the essence of events and incidents, and then take action.	Girls have a more developed right hemisphere, they like to work in a team, they see everything figuratively, they see events and phenomena figuratively, and they are slower to grasp the essence.
Speech development	
Boys have difficulty expressing their ideas in a well-developed manner, have a limited vocabulary, and are less able to connect sentences in their speech, think logically, and speak in important situations.	Girls have a small vocabulary, speak quickly and a lot, have a well-developed reading speed, good spelling, and express their emotions in speech.
Movement speed	
The task is completed slowly, requiring a high pace, with a higher level of performance in the middle and end of the session.	During training, they get to work quickly, cannot handle high-level tasks, and get tired quickly, but they are diligent and diligent in completing the assigned tasks.
Perceptual capabilities	
Boys love praise. They love to be evaluated and praised for their work, they do not like to repeat information, their attention span decreases, they first understand the meaning and then take action, and they understand information better when it is presented from the general to the specific.	Girls like to make a positive impression on adults, they want positive evaluations in all situations, they like to repeat given tasks many times, they need a lot of time to understand the meaning, and they have developed expressive and figurative thinking.

Girls are generally more sociable and active than boys, as they tend to be more analytical, classificational, abstract, algorithmic, and inductive in nature, and prefer to analyze problems and solve them logically [4,203] .

In her research on the topic of the technology of forming gender tolerance in children of a large group of preschool educational organizations, G.R. Kurbanova gave practical suggestions and recommendations for clarifying the level of gender stereotypes in children by combining the identification of gender roles with vitagenic information and directly taking into account the intensity based on prioritizing dualistic actions of the sex role [10,10] .

According to E.P. Ilin, organizing educational activities based on a gender approach at the appropriate stage of education, taking into account gender, psychological, and age characteristics, helps children develop their personalities and maximize their self-awareness and abilities [7,544] .

O.V. Zhigulina believes that such an organization of educational activities creates favorable conditions for the development of the child's personality and strengthening his mental health through the introduction of differentiated educational principles [2,150] .

According to A.V. Tsvetkov, this situation is due to the limited capabilities of the brain, the functional development of certain parts of the brain "power" at each age. As a result of this imbalance, the brain "power" is directed not to the area where it should be, but to another area. This leads to insufficient development of the part of the brain that should be functionally developed at that age [9,24]. For example, he explains in his research that a 5-6-year-old child can perform mathematical operations well as a result of the active development of his mental abilities in mathematics. Also, M.Yu. Ushakova studied the gender characteristics of speech in older preschool children. She found that taking into account the characteristics of girls and boys in developing their speech and organizing classes based on a special program gives positive results. According to the researcher, girls' speech is usually objective and relatively free, with a more pronounced affective component. In boys' speech, cognitive and thinking components occupy a greater place, and are more dynamic and explanatory in nature. However, despite this, little attention is paid to the use of lexical units in boys' speech [8,24].

Research Methodology

A literature analysis was conducted on taking into account the gender characteristics of preschool educational organizations in the education of their pupils. The results of the identification of children's individual characteristics in the educational process, taking into account their gender characteristics, through neuropedagogical diagnostic methods and the introduction of individualized education, and the achievement of increasing children's cognitive activity are explained by mathematical and statistical facts.

Analysis and Results

In order to provide educational information to children in the educational process in a “language that is understandable”, it is necessary to know the asymmetry of the cerebral hemispheres , that is, the features of their functional organization, and to measure, analyze, and compare them in certain units. Because the child’s behavior and mental activity depend on which of the hemispheres is dominant, and in order to effectively and purposefully influence it, first of all, the child’s brain it is required to determine the mechanisms of the activity of the hemispheres by means of diagnostic methods.

Within the framework of our research, we used pedagogical diagnostic methods to determine the BCM of preschoolers in the formation of mathematical ideas of a large group of preschoolers, as well as neuropedagogical diagnostic methods to identify their gender differences and individual characteristics. During the experiment, we can see that the quality level increased by organizing the educational process taking into account the neurological capabilities of children. We used the Pearson distribution of mathematical statistics to theoretically substantiate the qualitative indicators of the BCM of preschoolers before and after the experiment χ^2.

of the experimental and control groups **before** and after the experiment are shown in the criteria "high", "medium", "low", "very low", and we have designated these indicators with the scores "5", "4", "3", "2", respectively;

A. Before the experiment, we calculated the evaluation results **of girls** in the experimental and control groups with samples 1 and 2, respectively, and generated the following variation series required for the Pearson distribution.

(Table 1):

Table 1

	1st choice					
Experimental group	x_i	5(excellent)	4 (good)	3 (satisfactory)	2 (unsatisfactory)	**General average number**
	n_i	53	39	5	3	n =100
	2nd competition					
Control group	he/ she/it	5	4	3	2	**General average number**
	m_j	44	31	19	6	m =100

Pearson's χ^2distribution:

$$\chi^2 = n_1 n_2 \sum_{j=1}^{m} \frac{1}{n_{1j}+n_{2j}} \left(\frac{n_{1j}}{n_1} - \frac{n_{2j}}{n_2}\right)^2 = \frac{1}{n_1 n_2} \sum_{j=1}^{m} \frac{(n_{1j}n_2 - n_{2j}n_1)^2}{n_{1j}+n_{2j}}.$$

The statistical results obtained by dividing the students into experimental and control groups χ^2 are based on the degree of freedom criterion.

$k = n - 1$and $\alpha = 0{,}05$the critical value corresponding to the value level

$\chi^2_{kp} = 7{,}815$with :

We calculate the average values using the following formula:

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i = \frac{1}{100}(53 \cdot 5 + 39 \cdot 4 + 5 \cdot 3 + 3 \cdot 2) \approx 4{,}42$$

$$\overline{Y} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j = \frac{1}{100}(44 \cdot 5 + 31 \cdot 4 + 19 \cdot 3 + 6.\cdot 2) \approx 4{,}13$$

This value indicates that the average learning in the experimental group was higher than in the control group, i.e. $\overline{X} > \overline{Y}$.

Now let's calculate the variances for both groups:

$$\overline{X^2} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i^2 = \frac{1}{100}(53 \cdot 5^2 + 39 \cdot 4^2 + 5 \cdot 3^2 + 3 \cdot 2^2) \approx 20{,}06$$

$$\overline{Y^2} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j^2 = \frac{1}{100}(44 \cdot 5^2 + 31 \cdot 4^2 + 19 \cdot 3^2 + 6 \cdot 2^2) \approx 17{,}91$$

$$D_n = \overline{X^2} - (\overline{X})^2 = 20{,}06 - 19{,}5 = 0{,}56$$

$D_m = \overline{Y^2} - (\overline{Y})^2 = 17{,}91 - 17{,}06 = 0{,}85,$

$D_n < D_m,$

$$\chi^2 = \frac{1}{n_1 n_2}\sum_{j=1}^{4} \frac{(n_{1j} n_2 - n_{2j} n_1)^2}{n_{1j} + n_{2j}}$$

$$= \frac{1}{100 \cdot 100}\left(\frac{(53 \cdot 100 - 44 \cdot 100)^2}{97} + \frac{(39 \cdot 100 - 31 \cdot 100)^2}{70} + \frac{(5 \cdot 100 - 19 \cdot 100)^2}{24} + \frac{(3 \cdot 100 - 6 \cdot 100)^2}{9}\right) = 10{,}92$$

$$\chi^2_{\text{куз}} = 10{,}92 > \chi^2_{\text{кр}} = 7{,}815$$

The reliability of the result $\chi^2$was also confirmed in the criterion.

Thus, αwith a significance level of = 0.05, it can be said that the average score of the experimental group is higher than the average score of the control group.

After the experiment , the variation series for the 1st and 2nd samples of the evaluation results of girls in the experimental and control groups is as follows (Table 2):

Table 2

	1st choice					
Experimental group	x_i	5(excellent)	4(good)	3 (satisfactory)	2 (unsatisfied)	**General average number**
	n_i	51	31	15	3	n =100
	2nd choice					
Control group	he/she /it	5	4	3	2	**General average number**
	m	34	40	19	7	m =100

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i = \frac{1}{100}(51 \cdot 5 + 31 \cdot 4 + 15 \cdot 3 + 3 \cdot 2) \approx 4{,}3$$

$$\overline{Y} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j = \frac{1}{100}(43 \cdot 5 + 32 \cdot 4 + 19 \cdot 3 + 6. \cdot 2) \approx 4{,}12$$

It can be seen that the average mastery in the experimental group is higher than in the control group, i.e $\overline{X} > \overline{Y}$.

Now let's calculate the variances for both groups:

$$\overline{X^2} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i^2 = \frac{1}{100}(51 \cdot 5^2 + 31 \cdot 4^2 + 15 \cdot 3^2 + 3 \cdot 2^2) \approx 19{,}18$$

$$\overline{Y^2} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j^2 = \frac{1}{100}(43 \cdot 5^2 + 32 \cdot 4^2 + 19 \cdot 3^2 + 6 \cdot 2^2) \approx 17{,}82$$

$$D_n = \overline{X^2} - (\overline{X})^2 = 19{,}18 - 18{,}49 = 0{,}69$$

$D_m = \overline{Y^2} - (\overline{Y})^2 = 17{,}82 - 16{,}97 = 0{,}85,$

$D_n < D_m,$

$$\chi^2 = \frac{1}{n_1 n_2}\sum_{j=1}^{4} \frac{(n_{1j} n_2 - n_{2j} n_1)^2}{n_{1j} + n_{2j}}$$

$$= \frac{1}{100 \cdot 100}\left(\frac{(51 \cdot 100 - 443 \cdot 100)^2}{90} + \frac{(31 \cdot 100 - 32 \cdot 100)^2}{130} + \frac{(15 \cdot 100 - 19 \cdot 100)^2}{87} + \frac{(3 \cdot 100 - 6 \cdot 100)^2}{22}\right) = 17{,}7$$

$$\chi^2_{куз} = 17{,}7 > \chi^2_{кр} = 7{,}815$$

The reliability of the result $\chi^2$was also confirmed in the criterion.

B. A boy in the experimental and control groups **before the experiment** The variation series of the 1st and 2nd selections **of children's** assessment results is formed as follows (Table 3):

Table 3

	1st choice					
Experimental group	x_i	5(excellent)	4(good)	3 (satisfactory)	2 (unsatisfactory)	**General average number**
	n_i	47	47	4	2	n =100
	2nd competition					
Control group	he/ she/it	5	4	3	2	**General average number**
	m_j	39	36	19	6	m =100

Pearson's χ^2distribution:

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i = \frac{1}{100}(47 \cdot 5 + 47 \cdot 4 + 4 \cdot 3 + 2 \cdot 2) \approx 4{,}39$$

$$\overline{Y} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j = \frac{1}{100}(39 \cdot 5 + 36 \cdot 4 + 19 \cdot 3 + 6. \cdot 2) \approx 4{,}08$$

This value indicates that the average learning in the experimental group was higher than in the control group, i.e. $\overline{X} > \overline{Y}$.

Now let's calculate the variances for both groups:

$$\overline{X^2} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i^2 = \frac{1}{100}(47 \cdot 5^2 + 47 \cdot 4^2 + 4 \cdot 3^2 + 2 \cdot 2^2) \approx 19{,}83$$

$$\overline{Y^2} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j^2 = \frac{1}{100}(39 \cdot 5^2 + 36 \cdot 4^2 + 19 \cdot 3^2 + 6 \cdot 2^2) \approx 17{,}46$$

$$D_n = \overline{X^2} - (\overline{X})^2 = 19{,}83 - 19{,}27 = 0{,}56$$

$D_m = \overline{Y^2} - (\overline{Y})^2 = 17{,}46 - 16{,}64 = 0{,}82,$

$D_n < D_m,$

$$\chi^2 = \frac{1}{n_1 n_2}\sum_{j=1}^{4} \frac{(n_{1j} n_2 - n_{2j} n_1)^2}{n_{1j} + n_{2j}}$$

$$= \frac{1}{100 \cdot 100}\left(\frac{(47 \cdot 100 - 39 \cdot 100)^2}{90} + \frac{(47 \cdot 100 - 36 \cdot 100)^2}{130} + \frac{(4 \cdot 100 - 19 \cdot 100)^2}{23} + \frac{(2 \cdot 100 - 6 \cdot 150)^2}{8}\right) = 13{,}98$$

$$\chi^2_{\text{куз}} = 13{,}98 > \chi^2_{\text{кр}} = 7{,}815$$

Reliability of the result χ^2 It was also confirmed in the criterion.

Thus, $\alpha$with a significance level of = 0.05, it can be said that the average score of the experimental group is higher than the average score of the control group.

After the experiment , the variation series of the 1st and 2nd selections of the evaluation results of girls in the experimental and control groups are as follows (Table 4):

Table 4

	1st choice					
Experimental group	x_i	5(excellent)	4(good)	3 (satisfactory)	2 (unsatisfied)	**General average number**
	n_i	44	36	14	6	n =100
	2nd competition					
Control group	he/ she/it	5	4	3	2	**General average number**
	m_j	34	40	19	7	m =100

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i = \frac{1}{100}(44 \cdot 5 + 36 \cdot 4 + 14 \cdot 3 + 6 \cdot 2) \approx 4{,}18$$

$$\overline{Y} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j = \frac{1}{100}(34 \cdot 5 + 40 \cdot 4 + 19 \cdot 3 + 7.\cdot 2) \approx 4{,}01$$

It can be seen that the average mastery in the experimental group is higher than in the control group, i.e $\overline{X} > \overline{Y}$.

Now let's calculate the variances for both groups:

$$\overline{X^2} = \frac{1}{n}\sum_{i=1}^{4} n_i x_i^2 = \frac{1}{100}(44 \cdot 5^2 + 36 \cdot 4^2 + 14 \cdot 3^2 + 6 \cdot 2^2) \approx 18{,}26$$

$$\overline{Y^2} = \frac{1}{m}\sum_{j=1}^{4} m_j y_j^2 = \frac{1}{100}(34 \cdot 5^2 + 40 \cdot 4^2 + 19 \cdot 3^2 + 7 \cdot 2^2) \approx 16{,}89$$

$$D_n = \overline{X^2} - (\overline{X})^2 = 18{,}26 - 17{,}47 = 0{,}79$$

$D_m = \overline{Y^2} - (\overline{Y})^2 = 16{,}89 - 16{,}08 = 0{,}81,$

$D_n < D_m,$

$$\chi^2 = \frac{1}{n_1 n_2}\sum_{j=1}^{4} \frac{(n_{1j} n_2 - n_{2j} n_1)^2}{n_{1j} + n_{2j}}$$

$$= \frac{1}{100 \cdot 100}\left(\frac{(44 \cdot 179 - 34 \cdot 100)^2}{78} + \frac{(36 \cdot 100 - 40 \cdot 100)^2}{76} + \frac{(14 \cdot 100 - 19 \cdot 100)^2}{33} + \frac{(6 \cdot 100 - 7 \cdot 100)^2}{13}\right) = 9{,}327$$

$\chi^2_{куз} = 9{,}327 > \chi^2_{кр} = 7{,}815.$

When the results of the experimental work in the studies conducted to study the level of formation of the BMCs of boys and girls educated in the MTM were mathematically and statistically analyzed, $\chi^2$the reliability of the results obtained using the Pearson distribution criterion was theoretically confirmed.

Conclusions

Based on the above, one of the important factors in the educational process is the organization of educational and upbringing processes taking into account the gender characteristics of preschool children. At preschool age, the brain development of most boys is somewhat slower than that of girls, and their central nervous systems are not ready to assimilate information at the same speed. Therefore, during the socialization process, the speech and thinking of boys and girls develop at different speeds and volumes. This should be paid special attention. The development of differences in the physiology of children is also influenced by the attitude of the social environment towards them during their growth. In general, the main goal of research on gender equality and differences in pedagogy, and in particular in the field of preschool education, is to study the similarities and differences in the social behavior of the sexes and take them into account in the educational process. In this regard, the gender approach to the educational process is aimed at ensuring that the socialization process of children is easy and comfortable, and involves the selection and practical application of the necessary means, methods, and techniques of education and upbringing to help them identify themselves as girls or boys.

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