PSYCHOMOTOR PARTICULARITIES OF THE PUPILS FROM PRIMARY FORMS WITH GRAPHIC DISORDERS AND WITHOUT GRAPHIC DISORDERS

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Abstract
The actuality of the theme investigated in this study is determined by the argumentation of the influence of psychomotor development on the correction of graphic disorders. In accordance with the studied problem we supposed that it had been attested a lower level in the development of the psychomotricity of the pupils with graphic disorders. In order to argue this theory it was realized a comparative study of the pupils with graphic disorders and without graphic disorders.
Key words*: psychomotricity, graphic disorder, smooth motricity, psycho-pedagogical model.*

INTRODUCTION

Nowadays it is attested a huge number of primary education pupils with different psychomotor development problems, which generate as a consequence study disorders and especially graphic ones. Graphic disorder is a disturbance of written language learning with negative effects on the pupil's personality formation in the primary forms which have a clear effect in gymnasium and lyceum forms (9, p.114).

Physical education in the primary school, as a component of the teaching- learning school process has a goal to contribute on: physical and intellectual development improvement; motricity capability of the pupils that is a fundamental category of the physical exercises practices system in the formation of psychomotor skills (8, .p. 13).

The process of writing needs abilities, difficult skills, which are difficult to assimilate and practice correctly. They involve a large degree of symbolization and abstracting, an intellectual activity and a high level of a psychomotor development (1; 2; 4).

In this context we should emphasize the fact that positively emotional motor instrumentality, with an active character of the psychomotor development accelerate the formation of a stable psychic, coordinate the activity from the motor centers of the sensory receptors, interpret and create motor presentations. At the same time, and it is very important, it normalizes and stabilizes the process of excitement and inhibition of the nervous system which are so important for the graphical images formation (3; 5; 6; 7).

Although there are a lot of studies about the role of the Physical education classes for the correction of graphic disorders by the development of psychomotor sphere of the pupils in the primary school, they need a proper interpretation and a larger experimental study.

The result of the research will guide us to the elaboration of the program for the graphical disorders correction and setting the objectives for the Physical education lessons centered on graphical disorders in primary forms.

RESEARCH OBJECTIVE

1. The analysis of the scientific-methodical literature on the psychomotor aspect of the graphical disorders.
2. Theoretical argumentation of the Physical education classes role for graphical disorders correction.
3. A comparative analysis of the psychomotor indices of the primary classes pupils with graphical disorders and without them.

RESEARCH METHODS

The methods that were used in this investigation: specialized literature analysis, tests for the determination of the psychomotor development level, pedagogical experiment, statistical and mathematical method.

For the appreciation of the psychomotor state of the primary form pupils with graphical disorders the most indicated test were the following:

9. **Motor reaction to sound and light.** For the measuring was used a reflex measuring device **DP -1** (fig. 1).

Fig. 1. The outer appearance of the reflex measuring device DR -1

The testing of the motor reaction to the light and sound excitation was used due to the special method which consists of the following procedure: the examiner pushes the button "trainer" and as a result launches a process of emission of sounds or light spots with the duration of 0.5 sec.

After an indeterminate time for the examined person, the device launches a light or sound signal, on which the examined person should react by touching the button. At the same time the examiner fixes using a stopwatch the time from the beginning of the excitant impulse till the reaction of the examined person. There were given 5 attempts to the examined person and the best result was chosen. The reaction time was measured in milliseconds with an accuracy of 0.05 sec.

Complex motor reaction to a moving object. The measuring was made by a reaction measuring device **DP-1.** In this method the moving object was time. The measuring procedure consisted of the following instructions: a stopwatch is included in the device that counts time in 15 sec limit; the examined one has a task to push the button on his console and to fix the stopwatch on command for 10 sec.; the examined one has 10 attempts in this test, with the further average significance measuring; there are counted "on time" reactions by the exact stopping the stopwatch at 10 sec index and also "ahead of time" reaction (the pushing was made ahead of time - up to 10 sec) and "delayed" reactions (the button was pushed after the indication – up to 10 sec). The reaction time was measured in milliseconds with an accuracy of 0.05 sec.

10. **"Tapping" test.** For the measuring was used **TT-1** device that is presented in fig. 2.

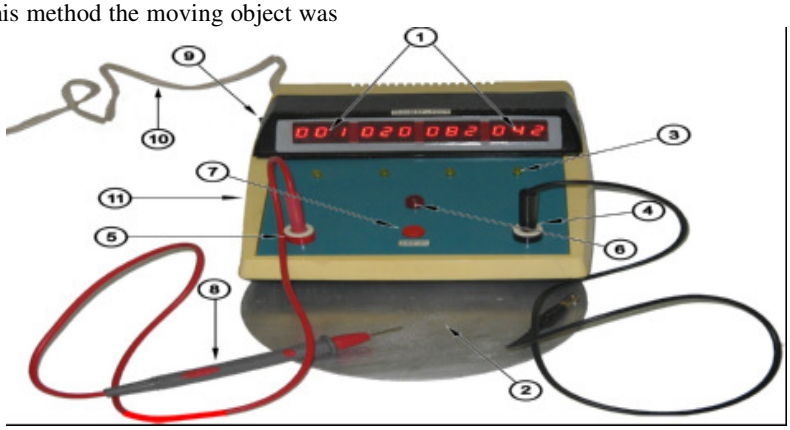

Fig. 2 The outer appearance of the "TT-1" device

The measuring on this device was made by using a proper method which consists of the following test: in 4 time periods (10 sec each), the device will measure the maximum number of the board touches by the needle probe that is in the examinee's hand. By this one the examinee should touch as many times as he can in each time period without any retention. The result of this test shows us the functional stability of the neuromuscular system. A small number of the elementary motor movements, from the 1st till the 4th quadrate, determine the distress level of the psychomotor processes. The device counts the number of touches in each period of time. It is chosen the best result from 5 attempts.

From the wide variety of tests were selected only those that had the biggest level of validity, security and informational content.

In this way the selected tests allowed us to examine the psychomotor particularities of the pupils without graphical disorders and with them.

The testing was organized in primary school conditions, on a sample formed of 2 experimental

groups, 15 boys from second form each. The specialized literature (9, 3) asserts that writing disorders are more often attested at boys. Taking into consideration those observations we included in our research only boys from primary forms. In the study was chosen the second form because in this period writing disorders tend to worsen.

The obtained results of the testing and the comparative analysis are presented in the table 1. As it is seen in the Table 1, the comparative analysis of the tests' values shows us a scratchy character of the differences.

Table 1. Comparative analysis of the testing results of two groups of boys from the second form, with graphic disorders and without them

№ d/o	Tests	Group of boys without graphical disorders	Group of boys with graphical disorders	t	P
		$\bar{X} \pm m$	$\bar{X} \pm m$		
II	Psychomotor state				
1.	Motor reaction to sound (ms)	0,33 ± 0,01	0,40 ± 0,03	2,31	<0,05
2.	Motor reaction to light (ms)	0,32 ± 0,01	0,37 ± 0,02	2,48	<0,05
3.	Motor reaction to the moving object (ms)	10,25 ± 0,31	11,33 ± 0,36	2,30	<0,05
3.1.	Number of reaction to time (%)	27	6	Δ -21	
3.2.	Number of reaction ahead of time (%)	20	27	Δ +7	
3.3.	Number of late reactions (%)	53	67	Δ +14	
4.	Tapping test 40 sec (number of repetitions)	186,00 ± 6,20	166,50 ± 6,88	2,10	<0,05
4.1.	Decrease of the touches from 1 to 4 (%)	31	43	Δ +12	

Note: f- 28 P - 0,05; 0,01; 0,001.
t = 2,048 2,763 3,67

The analysis of the psychomotor particularities of the examined pupils demonstrates that the average indices of the pupils with graphical disorders are significantly lower in comparison with the pupils without graphical disorders. Thereby, average indices of the light and sound reactions of the pupils with graphical disorders are significantly lower that of the group of pupils without graphical disorders. (P<0,05) (Fig. 1).

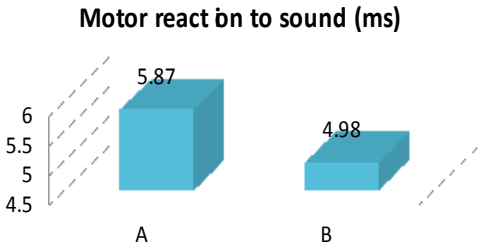

Fig. 1. The differences of average indices of simple motor reactions to the sound between the experimental groups.

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders

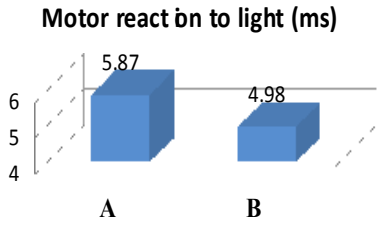

Fig. 2. The differences of average indices of simple motor reactions to the light between the experimental groups

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders

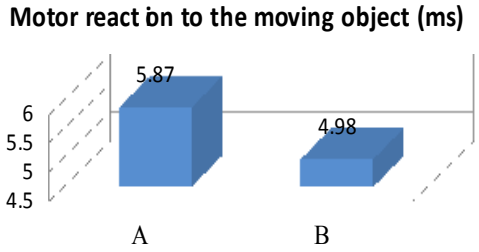

Fig.3. The differences of average indices of motor reactions to the moving object between the experimental groups.

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders.

The most significant differences were highlighted at the "Complex motor reaction to the moving object" test that reflects indices "on time" in the table 1 and fig. 3. It also appears a significant difference between the groups with graphical disorders and without them in "on time" reactions that are 21 % lower in the group with graphical disorders that tells us about the instability of nervous system in comparison with their colleagues without graphical disorders.

At the same time, the number of early reactions of the pupils with graphical disorders had increased with 7 % and those with a late reaction with 14 % (Table 1 and Fig 4 and 5) that confirms in our opinion a prevalence of a braking at the excitation of the nervous system in comparison with the pupils without graphical disorders.

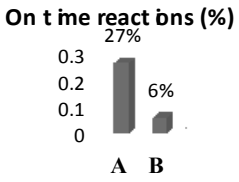

Fig. 4 The differences of average indices of on time reactions in Tapping test between the experimental groups

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders.

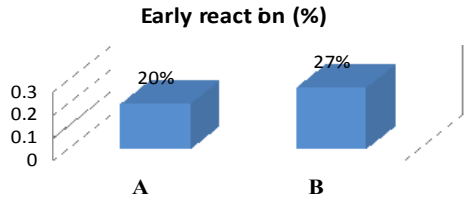

Fig. 5 The differences of average indices of early reactions in Tapping test between the experimental groups

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders..

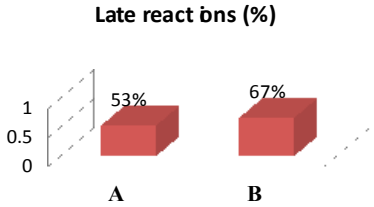

Fig. 6 The differences of average indices of late reactions in Tapping test between the experimental groups

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders..

Average results of the Tapping test from the Table 1 and Fig. 7 which characterize the speed of elementary motor reactions and the power of the nervous system, shows us that at the pupils with graphical disorders form the first quadrate till the fourth quadrate the significance had decreased ($P<0.05$) in comparison with their peers without graphical disorders, which by the number of touches correspond to norm of their age. Thus, in the group of pupils without graphical disorders the decrease of touches was produced at 31 % level and in the group of pupils with graphical disorders this index reached 43 % that is 12 % higher than at their peers without such disorders.

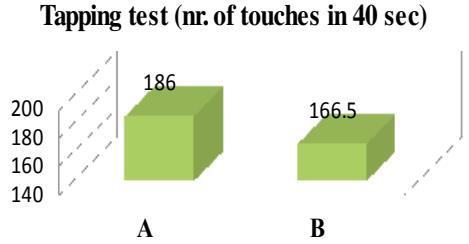

Fig. 7 The differences of average indices of number of touches in Tapping test between the experimental groups

Note: A – group of pupils without graphical disorders;
B – group of pupils with graphical disorders..

In our opinion this fact confirms that the exertion of the nervous processes during the fulfilling of such tasks is much higher at the pupils with graphical disorders than at their peers without them.

CONCLUSIONS

By generalizing the analytic process of the psychomotor particularities of the pupils with graphical disorders and without them at the II form pupils we determine the following conclusions:

1. The results of the pupils with graphical disorders are significantly, up to 30 %, lower than at their colleagues without graphical disorders.
2. Along with insufficiency in psychomotor development at the pupils with graphical

disorders it is attested a low level of nervous processes reactivity and distress in which dominates inhibition on the excitation.

3. Among the main objectives of the primary forms teachers in teaching-learning process should not be missing psychomotor development.

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