

## THE EFFICIENCY OF PANEURHYTHMY IN IMPROVING THE INTELLECTUAL FACULTIES OF PUPILS FROM GENERAL SCHOOL AND SCHOOL FOR MENTALLY RETARDED

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### SUMMARY

The research work evaluates the influence of Paneurhythmy on intellectual faculties of pupils from general school and school for mentally retarded. Pupils were divided in experimental and control groups, who do not play Paneurhythmy. We tested imagination (Warteg test), stability, and switching over of attention and visual memory in the general school. In the school for mentally retarded children research is carried over stability and switching over of attention, and general intellectual level (Raven test). Results are processed with variation analysis. We find strong and verified improvement of the indicators attention (stability and switching over), and imagination for general school and attention (stability and switching over), and the intellectual development as a whole for the mentally retarded school children. Paneurhythmy emerges as a successful corrective and compensatory method.

**Key words:** Intellectual functioning, mentally retarded,  
Paneurhythmy, exercise

### ÖZET

PANÖRİTMİNİN İLKOKUL VE ZEKA ÖZÜRLÜLER OKULU  
ÖĞRENCİLERİNDE BİLİŞSEL YETİLERİN GELİŞTİRİLMESİNE ETKİLERİ

*Bu çalışma panörİtminin ilkokul ve zeka özÜrlÜler için okul öğrencilerinde bilişsel yetilerin üzerine etkilerini deęerlendirmektedir. Öğrenciler*

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*deney ve panöritmi uygulamayan kontrol gruplarına ayrıldı. İlkokul öğrencilerinde hayal gücü (Warteg testi), kararlılık, dikkatin değişik odaklanması ve görsel bellek test edildi. Zeka özürllüler için okul öğrencilerinde ise kararlılık, dikkatin değişik odaklanması ve genel bilişsel düzey (Raven testi) araştırıldı. Sonuçlar varyasyon analizi ile değerlendirildi. İlkokul öğrencilerinde dikkate ilişkin kararlılık ve değişikliğe odaklanma ile hayal gücü; zekâ özürllüler için okul öğrencilerinde ise dikkate ilişkin kararlılık ve değişikliğe odaklanma ile genel bilişsel gelişim parametrelerinde güçlü ve anlamlı gelişim gözlemlendi. Panöritmi bu grup çocuklarda başarılı bir düzeltme ve destekleme yöntemi olarak kendini göstermektedir.*

**Anahtar sözcükler:** *Bilişsel işlevler, zeka özürllülüğü, panöritmi, egzersiz*

## INTRODUCTION

In times of global changes and growing experiments of nature and science, humanity is in a period of crises and renovation. Age segregation, television, computers, drugs, education and communication crises all have negative impact on the complex and unstable psychic life of young people. The only possibility to overcome the crises in education is to use new alternatives that meet the needs of the present day. One such alternative is Paneurhythmy: a dance created in Bulgaria in the beginning of the 30-ies of the 20th century by Peter Dunov. In Paneurhythmy we find music, poetic text and dance movements. This original combination affects simultaneously various brain centers and produces a many-sided influence effect.

The intellectual faculties of normal children are characterized by "improvement of the analytical and synthetic activity of the brain cortex and of the cognitive processes where sensory knowledge is of high importance. Development of the child's attention is needed for effective school work. Attention is limited, unstable, and with weak distribution capacity. Imagination is reproductive. Thinking is concrete-emotional" (2).

Intellectual retardation diagnosis depends on genetic and psychological signs and the social and adaptation skills of the individual. The American Association defines mental retardation as permanent limitation of functions. Intellectual functioning is significantly below average level. It is accompanied by limitation of two or more of the following adaptive abilities: communication, intercourse, self-service, daily life skills, social skills and ability to use society to meet one's own needs, self-direction, health and safety, knowledge, sports activity, physical activity and work.

UNESCO experts distinguish two basic signs of mental retardation: slow down of general development and limitation of the ability for education and training.

Contemporary concepts define intellect as a set of specific abilities and not as a single characteristic. The term "mental retardation" unites a big group of abnormalities of the psychic development where the intellectual status suffers to different extent.

### **MATERIAL AND METHODS**

Our hypothesis is that systematic exercising of Paneurhythmy will improve the intellectual functioning of 3rd grade pupils from general school and school for mentally retarded.

**Subjects of research:** Thirty 3rd grade pupils, aged 9 years, from a general primary school in the town of Yambol and thirty 3rd grade pupils, aged 9-10 years, from a school for mentally retarded in the town of Elhovo, Bulgaria. Children played Paneurhythmy for three and two years correspondingly. They are divided in experimental and control groups, the latter not performing Paneurhythmy.

**Methods and organization of research:** Methods of influence are: study of Paneurhythmy; literature studies; observation and conversation; psychological tests in the beginning and at the end of the period of training for imagination (Warteg test), stability of attention, switching over of attention, visual memory and general intellectual level (Raven test); statistical methods: variational analysis.

### **RESULTS**

#### **General School**

The control group revealed no verified changes for the indicators stability and shifting of attention, visual memory and imagination (Table 1). The significance factor is  $p > 0.05$ .

The experimental group displayed significant changes of the indicators (Table 2),  $p < 0.05$ , which proves that the method of influence is effective. Switching over of attention has increased by 83 %. Visual memory has grown by 21 %. Imagination has grown by 56 %. Stability of attention has increased by 41 %, but this is only a tendency because  $p = 0.108$ .

Comparison of results between the two groups proves the efficiency of Paneurhythmy (Table 3). At the end of the training period, there were verified changes in the experimental group. Stability of attention has improved significantly from 26.3 % to 42.5 %,  $t=2.40$ ,  $p=0.037$ . Imagination has improved greatly and reliably,  $p=0.016$ . Switching over of attention and visual memory show a tendency of improvement with  $p=0.150$  and  $p=0.177$  respectively. Summary of the results on the four indicators of the cognitive structure proves that Paneurhythmy training has improved the psychic structure of the pupils in a positive and significant way.

### School for Mentally Retarded

Paneurhythmy has influenced positively the basic cognitive processes as well as the intellectual development of the pupils from school for

**Table 1.** Student t-criterion for dependant extracts: control group in general school.

Indicator	1st testing		2nd testing		d	t	P(t)
	$\bar{X}_1$	S	$\bar{X}_2$	S			
1 Attention: Stability	21.03	11.66	26.33	11.91	5.30	0.75	0.489
2 Attention: Switching	40.83	11.87	47.33	23.24	6.50	0.86	0.427
3 Visual Memory	7.67	1.21	7.83	0.98	0.16	1.00	0.363
4 Imagination (Warteg)	0.29	0.13	0.24	0.05	-0.05	1.11	0.316

**Table 2.** Student t-criterion for dependant extracts: experimental group in general school.

Indicator	1st testing		2nd testing		d	t	P(t)
	$\bar{X}_1$	S	$\bar{X}_2$	S			
1 Attention: Stability	30.22	12.02	42.50	11.41	12.28	1.95	0.108
2 Attention: Switching	36.25	16.00	66.33	18.58	30.08	3.01	0.030
3 Visual Memory	7.00	1.26	8.50	0.55	1.50	2.67	0.045
4 Imagination (Warteg)	0.25	0.11	0.39	0.12	0.14	3.16	0.025

**Table 3.** Student t-criterion for independent extracts: control and experimental groups in general school.

Indicator	Experimental		Control		d	t	P(t)
	$\bar{X}_1$	S	$\bar{X}_2$	S			
1 Attention: Stability	26.33	11.91	42.50	11.41	16.17	2.40	0.037
2 Attention: Switching	47.33	23.24	66.33	18.58	19.00	1.56	0.149
3 Visual Memory	7.83	0.98	8.50	0.55	0.67	1.45	0.177
4 Imagination (Warteg)	0.24	0.05	0.39	0.12	0.15	2.88	0.016

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**Table 4.** Student t-criterion for dependent extracts: experimental group in school for mentally retarded.

Indicator	1st testing		2nd testing		d	t	P(t)
	$\bar{X}_1$	S	$\bar{X}_2$	S			
1 Attention: Stability	4.82	3.94	9.22	6.62	4.40	1.94	0.124
2 Attention: Switching	19.34	25.29	57.40	17.83	38.06	5.03	0.007
3 Raven Test	20.40	8.50	37.60	19.26	17.20	2.90	0.044

**Table 5.** Student t-criterion for independent extracts: control and experimental group in school for mentally retarded.

Indicator	Experimental		Control		d	t	P(t)
	$\bar{X}_1$	S	$\bar{X}_2$	S			
1 Attention: Stability	17.26	8.67	9.22	6.62	-8.04	1.65	0.138
2 Attention: Switching	30.38	26.98	57.40	17.83	27.02	1.87	0.099
3 Raven Test	20.60	8.17	37.60	19.26	17.00	1.82	0.107

mentally retarded (Table 4). Stability of attention shows only a tendency of improvement,  $p=0.124$ . Switching over of attention reveals a positive change of 99.30 %, indicating strong influence of Paneurhythmy. Intellectual activity of children improves significantly  $t=2.90$  and  $p=0.044$ . This proves significant influence on the intellect of the pupils, their training, and development.

In the beginning of the experiment there were no significant changes between the experimental and control groups: both groups had equal cognitive abilities,  $p>0.05$  (Table 5). However, there were differences at the end of the experiment. The experimental group displayed significant changes, which is due to the systematic Paneurhythmy training. The experimental group revealed a high significance factor  $p=0.011$  in comparison with the control group. This proves the hypothesis that regular Paneurhythmy training influences positively the general cognitive development of pupils from schools for mentally retarded.

**CONCLUSIONS**

1. Paneurhythmy improves significantly stability of attention, switching over of attention and imagination of general school pupils as a result of systematic training.
2. Paneurhythmy improves significantly stability of attention, switching over of attention and the intellectual development as a whole of school for mentally retarded pupils.

We can seriously claim that Paneurhythmy is a successful corrective and compensatory method.

### **Recommendations**

1. We recommend that Paneurhythmy is included in the extracurricular education programs of general school pupils.
2. We recommend continuation of the research on the influence of Paneurhythmy on the psychic structures and on the moral and ethic values of young people.
3. We recommend that Paneurhythmy is included in the obligatory programs of schools for mentally retarded children.

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