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SUPPLENESS DEVELOPMENT STUDY FOR 12-13 YEARS OLD PUPILS WITH VISUAL IMPAIRMENT THROUGH THE USE OF DIFFERENTIATED INSTRUCTION

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Abstract: *This paper proposes to make an analysis of the effectiveness of applying differentiated instruction into the physical education lessons, for 12-13 years old pupils with visual impairments. In this regard, two groups were formed: an experimental group and a control group. An initial evaluation was applied, which established the value groups, followed by the administration of a differentiated instruction program and in the end the subjects were tested again. A significant progress was recorded regarding suppleness for the pupils included in the experimental group of this research.*

Key words: *differentiated instruction, suppleness, visual impairments, evaluation tests.*

1. Introduction

One of the main goals in motoric plan of physical education is the improvement of fitness components [6, p. 31]. One of these components refers to suppleness and therefore is the focus on this study. Renato Manno (1987, 1992) quoted by Tudor, [7, p. 78], fulfilled a classification of motor capacities and framed suppleness as being an intermediary capacity, situated between conditional capacities and coordinative capacities. Suppleness is that capacity, that quality of a person to perform movements with amplitude of its own or under the pressure of external forces, in one or more joints [9, p. 273].

Flexibility and mobility are categories of suppleness. Joint suppleness (it refers to joint's structure) and the ability to stretch (refers to muscles, tendons, fascia) must be taken into consideration as suppleness categories [2, p. 351]. The most appropriate exercises for suppleness improvement are stretching exercises [4, p. 114]. Domain's experts consider that suppleness is one of the main conditions necessary for realisation of quantitative and qualitative movements. Its optimal development generates positive effects on the improvement of physical factors that determine performance (strength, speed) and on motor skills, namely technique [9, p. 274]. This is one of the reasons why this research has as main purpose the improvement of suppleness.

In the present research differentiated instruction is used, and this implies value groups work according to pupils' motoric potential and in this case also according to visual impairments. Differentiated instruction is a methodological guidance

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based on content's accessibility principle and age and individual peculiarities principle [6, p.109].

In physical education from special schools a main condition of conducting a successful motor activity is adapting the content to subjects' needs involved in the educational process. Visually impaired pupils are special persons, that <can do anything anyone else can> [1, p. 12].

2. Purpose

The purpose of paper aims the optimisation of physical education lesson at pupils of 12 – 13 years old, with visual impairments through the application of differentiated instruction. Differentiated instruction targets composing of some operational modules folded on individual capacity of visually impaired pupils.

3. Hypothesis

Through the use of differentiated instruction in the physical education lessons will achieve an improvement of the suppleness al pupils of 12 – 13 years old with visual impairments.

4. Research methods

Methods: in order to achieve the experimental study we used the following research methods: bibliographic study, observation method, statistical-mathematical method and graphical method, using the bar-type graph.

Subjects: the research subjects were 6th grade students, boys and girls from "Şcoala Gimnazială Specială pentru Deficienți de Vedere", Bucharest. To validate the hypothesis were established two samples, totalling 20 subjects. Two of subject did not participate of differentiated program.

The subjects included in the research have both amblyopia and blindness. The most founded ophthalmic diseases are represented by: myopia, retinal detachment, nystagmus, strabismus, hypermetropia, cataracta, optic atrophy, Stargardt syndrome.

Tests used in the research: the initial and final assessments tests used in this study are represented by Dynamic Flexibility Test, Flexibility Test, Elsensohn Test, Static Flexibility Test – Shoulder and Wrist, Static Flexibility Test – Ankle.

Dynamic Flexibility Test (Bend, Twist and Touch) proposed to measure the mobility of spine through active movements. The subject stood with his back to the wall. An "X" is placed on the wall behind the middle of the subject's back and at shoulder height. Another "X" is made on the floor between the subject's feet. The subject bent forward and touched the "X" between his feet with both hands and then straightened up and touched the "X" on the wall with both hands. This represented one cycle. Then he twist to his right and continued to alternate the side, successively. The subject's score is the number of cycles completed in 20 seconds [3, p. 79-80].

Flexibility Test proposed to measure the mobility of spine through a passive movement. The subject raises on a surface, bend the trunk forward without bending his knees. The subject's score is the number of centimetres between fingers and toes. We note positives values when fingers are beyond toes [8, p. 150].

Elsensohn test proposed to measure the mobility of thoracolumbar spine. The subject, facing a wall, with anterior superior iliac spine stuck, performs the trunk extension. We measure the distance between the sternal manubrium and fixed plan [10].

Static Flexibility Test – Shoulder and Wrist propose to measure the shoulder and wrist flexibility. The subject lay prone on the floor with the arms fully extended

holding a stick. The subject raises the stick as high possible, keeping the nose on the ground. We measure the vertical distance the stick raise from the floor to the nearest ½ inch [5, p. 79].

Static Flexibility Test – Ankle propose to measure the ankle flexibility. The subject facing a wall, slowly slide the feet back from the wall as far as possible. Body and knees are fully extended and the chest in contact with the wall. The subject's score is the distance between the toe line and the wall [5, p. 85-86].

Research content: evaluations were applied to both of the samples, the tests being identical. The tests were applied during the physical education lessons, with the help of the physical education teacher. The lesson lasted 50 minutes.

For the evaluation, there were used materials from the school equipment, such us: gym mat, measuring tape, ruler or metric tape, marking cones, timer, stick gymnastics, gymnastics bench.

During the research, individual records were made for each tested pupil.

Pupils benefited from the utilisation of differentiated instruction, depending on their motor potential and on ophthalmological deficiency during the lessons, the work was done on groups of values. The groups of values have a closed character, which does not allow the pupils to migrate from one status to another while the preparation programme is in progress.

The classrooms were applied the same trials: Dynamic Flexibility Test, Flexibility

Test, Elsensohn Test, Static Flexibility Test – Shoulder and Wrist, Static Flexibility Test – Ankle.

The distribution on groups of values was made depending on the performances achieved by the pupils at the applied trials. For each trial separately, some evaluation standards have been conceived, prior to the application of initial evaluation, thus (Table 1).

Scale of assessment for suppleness Table 1

Sample	Points and range of values									
	1	2	3	4	5	6	7	8	9	10
Dynamic Flexibility Test (number of execution)	<1	2	3	4	5	6	7	8	9	>10
Flexibility Test (centimetres)	<-5-4.1	-4:-3.1	-3:-2.1	-2:-1.1	-1:1	1-1.5	1.6-2	2.1-2.5	2.6-3	3.1>3.5
Static Flexibility Test – Ankle (centimetres)	<21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66->70
Static Flexibility Test – Shoulder and Wrist (centimetres)	<21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66->70
Elsensohn Test (centimetres)	<11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56->60

According to the scales, the performances were converted into points, which had determined the value group in which each pupil of the experimental group was a part. The split was possible after calculating the mean of the points obtained for suppleness: value group I (50-26) and value group II (25-0). Value group I was characterized by increasing the complexity of the means, by increasing motor tasks, while second value group benefited of decreasing of practice conditions, through the provision of mutual help.

5. Results

From the point of view of results obtained by the experimental group, an analysis was conducted that targeted the initial and final data. (Figures 1 and 2).

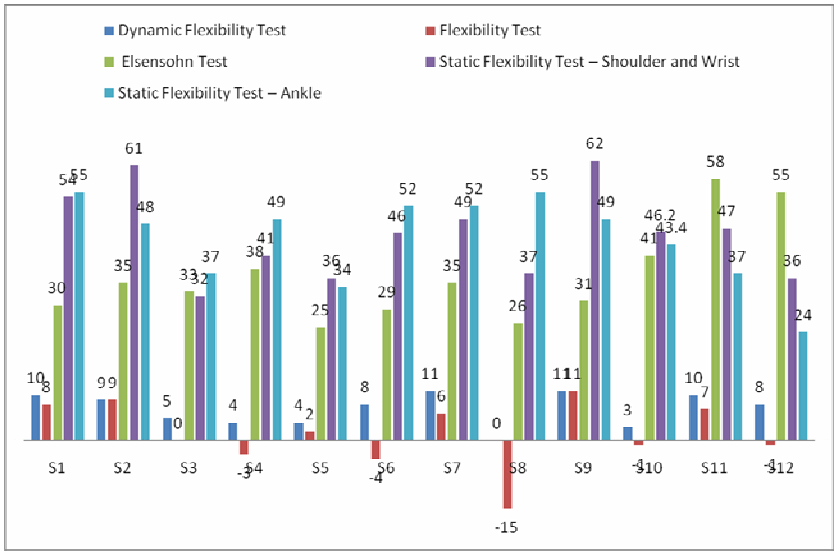

Fig. 1. *Initial assessment – experimental group*

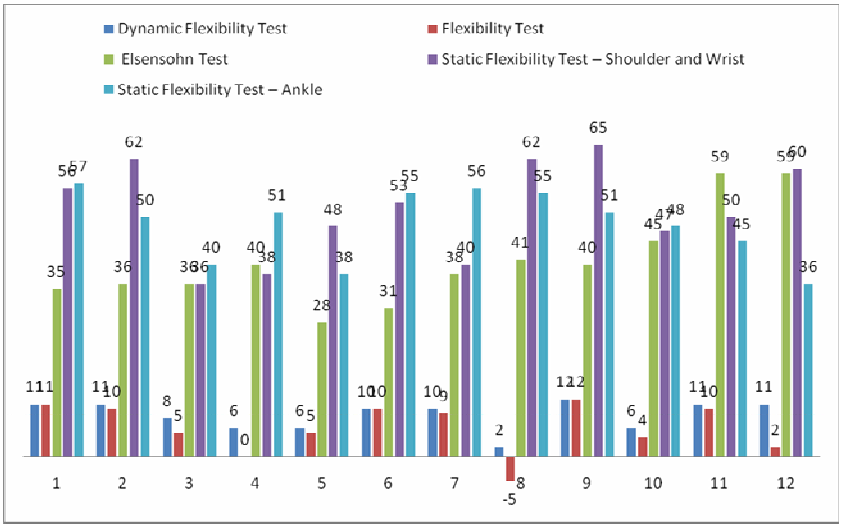

Fig. 2. *Final assessment – experimental group*

Comparing the initial and final assessments of experimental groups we concluded the following:

- Dynamic Flexibility Test: mean of the group is 6.91 executions at initial assessment and 8.66 executions at final assessment. We can observe an improvement in favour of final assessment by 1.75 executions.
- Flexibility Test: mean of group is 1.58 centimetres at initial assessment and 6.08 at final assessment. We notice an improvement equal with 4.5 centimetres in favour of final assessment.
- Elsensohn Test: mean of group is 36.33 centimetres at initial assessment and 40.66 at final assessment. We notice an improvement equal with 4.33 centimetres in favour of final assessment.
- Static Flexibility Test – Shoulder and Wrist: mean of group is 45.61 centimetres and 51.41 at final assessment. We can observe an improvement in favour of final assessment by 5.8 centimetres.
- Static Flexibility Test – Ankle: mean of group is 44.61 centimetres and 48.5 centimetres at final assessment. We can observe an improvement in favour of final assessment by 3.89 centimetres.

Comparing the final assessments of experimental group and control group we can establish that the performances of first group are better than the control group (Fig. 3).

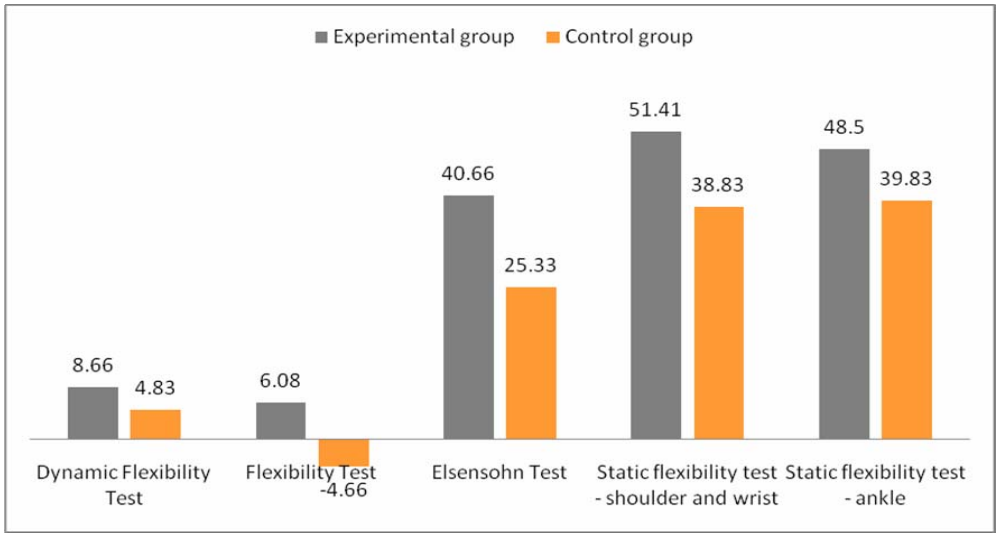

Fig. 3. *Final assessment – experimental and control group*

6. Conclusions

Based on analysis and interpretation of results obtained, it was revealed the fact that hypothesis was confirmed, in the sense of improvement achievements in terms of suppleness.

Differentiated instruction is a method that leads to the optimization of physical education lesson, a fact demonstrated also by visibly higher values inside of the experimental groups, in comparison with control group.

Value group's work, with closed character requires special attention from the side of physical education teacher, regarding organizing lesson.

Operational modules' selection and establishment, that underlies the planning of the differentiated program planning,

reflects teacher's creativity and originality. It is strongly recommended that these operational modules should be conceived according to functional requirements of visually impaired pupils.

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