WAYS OF IMPROVING PERCEPTION-SPEED, MOTOR-COORDINATION, SELF-REGULATION, USING MODERN DANCE AT UNIVERSITY STUDENTS

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Abstract: *We used in this article Psychological Screening Inventory, to improve the coordination of students, expressed by the speed indexes of perception, motor coordination and reduced stress expressed by self-regulation. Hypothesis following the application of the intervention program for one year, we assume that it will result in improvement of indexes of perception, coordination, and self-regulation. We apply a dance program from one year on the students of Music Academy. The results we have noticed statistically significant differences between the two times (p <0.05), between first and second registration, for perception speed. Analyzing the values for self-regulation, very statistically significant differences were observed between the two times (p <0.01). Conclusions the importance of using psychological tests to detect and analyze the values for the perception speed, motor coordination, and for self-regulation, for the stress level in order to decrease its intensity and to raise awareness of a well-being.*

Key words: *perception-speed, motor-coordination, self-regulation, modern dance, coordinative capacity, stress, corporal techniques.*

1. Introduction

This PSI Test (Psychological Screening Inventory) aims to obtain the indicators that configure safe behavior postulated by Lahy, Bremond and Bonnardel in the following directions: self-regulation, execution, and informational capacity [2].

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The method evaluates, by examining in front of the monitor, interactively, psychological components essential for the evaluation of some motor and psycho-cognitive abilities: operational efficiency of thinking, attention (distributivity and concentration), perception (accuracy and speed). The parameters listed are useful in highlighting the aspects of retroactive inhibition, reactivity and reaction speed, proper coordination, reorganization of responses, suitability and synchronization of movements, motor learning capacity [9].

2. The Objectives of Study

Are to improve the coordination of students, expressed by the speed indexes of perception (VP), motor coordination (CMC) and self-regulation (AR), following the application of the intervention program. We used Psychological Screening Inventory (PSI) [4], [10].

3. Hypothesis

Following the application of the intervention program for one year, we assume that it will result in reducing stress. After the two tests (at the beginning and at the end of the program) followed the interpretation of the results, comparing the data assimilated to the two batches, analyzing, discussing them through the prism of the theories and formulating the results.

4. Organizing the Research

In this phase of our research, we have applied the methods of stress reduction and special tools, for 1 universities student, in the period October 15, 2018 - June 15, 2019. The two batches (control and experimental) were tested at the beginning and end of the school year (initial testing and final testing). The subjects of the two groups are students of the National Music Academy "Gheorghe Dima", from Cluj-Napoca, boys, and girls, equally divided in the two groups. The 30 students - experimental group, has been subjected regularly (twice weekly) to dance, in order to relax and reach an optimal positive balance between the cardiac, emotional and psycho-mental elements in order to be well-being but also in sight improving coordination. The 30 students - control group   did not benefit from the dance routine, only from the physical education and sports classes, and they were tested in the two recording moments (the initial phase and the final phase), with the same used devices, as in the case of the experimental group. A major advantage of the experimental research is the use of the control group, which has the role of ensuring that the effects of the experiment are clearly caused by the independent variable and not by other variables.

5. The Intervention Program

Is based on specific movements taken from dance routine. These intervention programs consist of a sequence of movements that involve both balances, arching exercises and body wave structures. In the learning methodology it will be insisted on strictly maintaining the direction, degree of strain and amplitude required by the process in any position or displacement of the body segments. The music chosen for the execution of the program was "Gardenia" by Nikos Ignatiadis in slow tempo (8x8), performed for 3 months during the experiment period.

While exercising we insisted on: the correct position of the body and head, the correct holding of the hands on the bar, the transition of the body from one position to another correctly.

The 8-time structures will be randomly linked to develop creativity of students.

(1x8)
1-2 Side body wave finished by standing on the tips.
3-4 standing, lunging on the left foot with the left arm oblique up and the right arm in a lower oblique position,
5-6 the body weight is centered on both legs, bended knees, simultaneously with a large bending of the torso in front, rounded back and head flexed.
7 lateral lunge on the right foot with the right arm oblique up and the left arm in a lower oblique position.
8 Body wave forward with passé-developpé.

(2x8)
1-4 Temps - lie forward, raising the arms forward up,
5-8 Temps - lie back, lowering the arm back down.

(3x8)
1-4 Temps - lay right side, swinging the arms in front to the right,
5-8 Temps - lay left side, swinging the arms in front to the left

(4x8)
1-2 Turn to the left, 360° by successive steps, arms up, hands crowned up,
3-4 Turn to the right, 360° by successive steps, arms up, hands crowned up,
5-6 Maintaining the static balance in the "attitude" position, with the right leg

in front, left arm up and right arm to the side,
7-8 Maintaining the static balance in the "attitude" position, with the left leg in front, right arm up and left arm to the side see figure no. 1.

Fig. 1**.** *Attitude*
https://ro.pinterest.com/pin/8530099856
57476226/

(5x8)
1-4 2-Chains to the right, raising the arms up,
5-8 2-Chains to the right, raising the arms up.

(6x8)
1-4 Turn with arched steps to the left, right arm straight in front, left arm to the side,
5-8 Turn with arched steps to the left, right arm straight in front, left arm to the side.

(7x8)
1-4 Body wave in front finalized on the tips, arms up,
5-8 Body wave in front finalized on the tips, arms back, knees bended.

(8x8)
1-4 Body wave sideways to the right, step with the right leg, fixing the arabesque position on the right leg, left leg back raised up 90°,
5-8 Body wave sideways to the left, step

with the left leg, fixing the arabesque position on the left leg, right leg back, raised up 90°,

During the pilot study, these models of structures were chosen randomly and repeated by the experiment group 3 times, at the beginning of the sports classes, after warming up, and at the end of the sports classes, in the last minutes. The classes took place twice a week (Tuesdays and Fridays). The control group benefited only from the sports classes.

Following we will present some models of balances structures

A. *Complexes of exercises performed from standing.*
  ***Standing*:**
1. standing.
2. lunging on the right leg, right arm oblique up and left arm oblique down
3. passing the weight on both legs, bended knees, simultaneously bending the torso in front, rounded back, flexed head.
4. lunging on the left leg, left arm oblique up and right arm oblique down by port de bras.

  Standing: arms lateral to the right:
1. Step sideway to the right followed by a swing of the trunk and arms in a horizontal arch, from the right to the left, slightly bending the knees,
2. finalized by 90° turn to the left on the left leg, right leg back on the tips, by temps-lie.
3. 3-4 return to the standing position by temps-lie.

On the knees: arms laterally to the right
1. sitting on heels,
2. torso balance in a form of a horizontal

arch, from right to left and return on the knees along with completing the balance.

Seated on the left rib side: support on the left forearm*.*
1–2 balance of the right leg up to the ear level,
3–4 lifting the body from the ground and resting on the left arm and on the tip of the right foot, with the right arm leading upward. Repeat the structure to the left.

B. Moving structures
  Standing:
1–2: Chasse to the right (added steps),
3–4: 360° turn on the right leg, and then left.
5:    cross steps with the left foot in front,
6:    grand - battement with the right leg, (balancing the right leg sideways),
7:    cross step with the right foot in front,
8:    return to the standing position.

Standing:
1-2: grape–wine to the right, arms up oriented to the left leg,
3:    grape – wine to the left, with the left arm oblique up and the right arm oblique down,
4:    return to the standing position.

Standing:
1–2: chasse in front with the left leg, rotating the arms in sagittal plan from down to back up, ending on the right foot, left leg stretched back,
3–4: return, chasse back with the left leg, rotating the arms forward, down to the back.

6. The Results and Statistical interpretation

  By administering the **PSI (Psychological**

Screening Inventory) test, we sought to study the essential psychological components to evaluate the motor and psycho-cognitive abilities of the students. The indicators targeted were **VP – perception speed; CMC - motor coordination; AR - self-regulation.**

Analyzing the values for the **perception speed (VP)** we have noticed statistically significant differences between the two times ($p < 0.05$). As we can see in Table 1, the values of this indicator have changed to a considerable extent between the two moments of time.

Table 1

PSI test for the studied lots and statistical significance

Indicators	Time	Media	ES	Median	DS	Min	Max	Statistical significance (p)
VP	I	14,63	1,9818	12,5	10,8548	1	47	0,0269
	II	9,23	1,4204	8	7,7801	0	32	
CMC	I	68,50	2,3492	71	12,8674	37	90	0,0554
	II	76,47	2,6526	76,5	14,5288	37	107	
AR	I	68,97	2,6852	67,5	14,7075	46	100	0,0058
	II	78,53	2,1897	82	11,9935	49	94	

Analyzing the values for **motor coordination (CMC)** no statistically significant differences were observed between the two times ($p > 0.05$). Although if we analyze the results in figures, we can observe an increase of this indicator (CMC = 68.50 in T1 and CMC = 76.47 in T2), the differences between the two moments of

time are not measurable to make a statistically significant difference.

Figure no. 2 shows the graphical illustration of the values of the PSI test indicators in Time 1 and Time 2. We can observe the statistically significant increase for **self-regulating** indicator (AR).
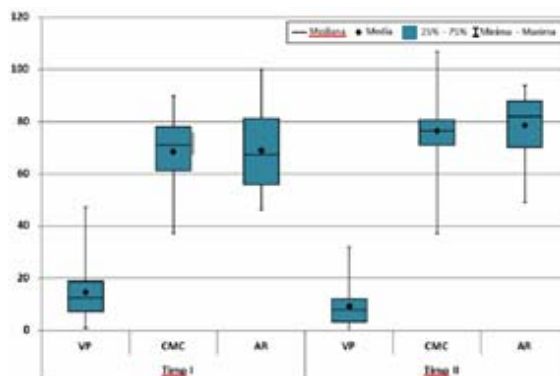

Fig. 2. *The items in PSI test for the studied lots*

Analyzing the values for **self-regulation (AR),** very statistically significant differences were observed between the two times ($p < 0.01$). The figures shown in blue in Table 1 indicate a significant impact of the intervention program on

improving self-regulation in students (AR = 68.97 in Q1 and AR = 78.53 in Q2, $p = 0.0058$).

Statistical correlation analysis between the values of the PSI test items showed:

The Ist test:

- an acceptable but opposite correlation among VP-CMC (perception-speed – motor coordination), VP – AR (perception-speed – self-regulation). This correlation shows that motor self-regulation and coordination decreases as the perception speed increases.

- a good and similar correlation between CMC-AR (motor coordination - self-regulation). Motor coordination increases

directly with the perception speed, see table no 2.

The IInd test:

- a good but opposite correlation between VP-AR. The perception speed (VP) increases as the self-regulation (AR) decreases.

- a good and similar correlation between CMC-AR. After the intervention program the motor coordination increases directly with self-regulation, see table no 2.

Statistical correlation analysis among the PSI items   Table 2

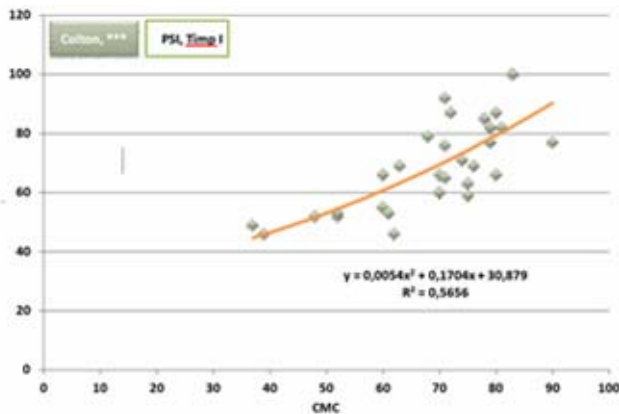|			
First testing	VP-CMC	-0,3350	**
	VP-AR	-0,2880	**
	CMC-AR	0,7464	***
Second testing	VP-CMC	-0,0759	*
	VP-AR	-0,3013	**
	CMC-AR	0,5886	***

Fig. 3. *Good correlation among CMC and AR in T1*

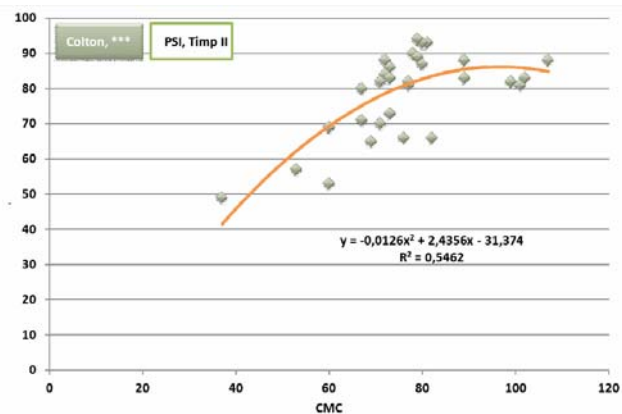Fig. 4. *Good correlation among CMC and AR in T2*

Figure no. 3, and figure no.4 show the good correlation of the PSI items, noticing an increased level for self-regulation (AR) in T1.

7. Discussions

The obtained results have two directions: to increase values for the perception speed (VP) and motor coordination (CMC) and to reduce stress, measuring self-regulation (AR) of the exercises of relaxation. The objectivity of the results is demonstrated by measuring the results through PSI Test (Psychological Screening Inventory).

Our results are reinforced by the results obtained by other researchers with different categories of subjects, following the application of various relaxation techniques.

Relaxation has a favorable impact on the self-efficacy on cancer patients and can be adopted as a simple, inexpensive and accessible strategy for them [6].

A study on people with stress symptoms, anxiety and depression showed significant changes between the experiment group (30 people) and the control group (20 people). The intervention group showed a decrease in symptoms of depression, anxiety and stress. There was also an improvement of the quality of life related to health in terms of mental health and improvement of well-being [4].

Researchers in Japan investigated changes in brain activity in association with progressive muscle relaxation using magnetic resonance imaging. A change in brain activity has been observed in several areas, which means that the technique can suppress brain activity. The researchers suggest the use of mental concentration even by novices [2].

8. Conclusions

Our results underline the importance of using psychological tests to detect and analyze the values for the perception speed (VP), motor coordination (CMC), and for self-regulation (AR): The stress level in order to decrease its intensity and to raise awareness of a well-being. Based on the results obtained we conclude that students need a specially designed intervention program that reduces the accumulated stress. We have observed in our study how certain indicators can be improved by practicing a dance moment with art-therapy effect.

In last years, scientific interest has focused on relaxation techniques as a tool for managing anxiety and psychosomatic symptoms. Progressive muscle relaxation (PMR) is a representative relaxation technique used in a wide range of disorders [3].

A study by American researchers made to examine self-esteem showed that those who dance swing regularly have higher self-esteem than those who do not dance [8].

Another study, conducted in 2012 showed that obese patients who participated in a dance program, showed a significant improvement of the quality of life related to health, body awareness, mental representations related to body image, but also, self-esteem. The dance allowed the patients to restore their somatic and psychic consciousness of their body image [5].

Verbal communication can be difficult for children and even more difficult for aggressive ones. A 2014 study investigated how art therapy can reduce anger and improve self-esteem in children aged 7-11. 30 children participated in the study, and anger and self-esteem were measured with the help of instruments: Cooper

Smith Self-esteem Inventory and Nelson & Finch Inventory of Anger. After the 10-week period, the experimental group showed a significant reduction in anger and a considerable improvement in self-esteem. The results suggested that art therapy can reduce anger and improve self-esteem [1].

The dance had incredibly positive effects on the pupils of a school in Greece. Their social and emotional abilities were improved, and their self-esteem increased during twelve meetings [7].

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