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Attention through a Dance Program-Therapy**

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Developing Focusing Attention, Perception and Distributive Attention Through a Dance Program-Therapy

ABSTRACT

Problem statement: ways to increase attention to students aged 13-14, given its forms of manifestation: focused attention, perception of attention and distributive attention through a dance program - therapy. **The purpose of study:** elaboration of an action strategy for increasing the attention capacity of 13-14 year old students, through different dance-therapy techniques. **Methodology:** statistical processing was performed with the program StatsDirect v.2.7.2. The graphical representation of the results was done with the Excel application (from the Microsoft Office 2010 package). The tests used are: AP2 - Perception of attention; MA – Focussing attention; AD - Distributive attention. **Results:** in the statistical analysis of the values for the perception of attention and the spirit of observation (AP2) were observed statistically significantly significant differences between the two times ($p < 0.001$). At the statistical analysis of the values for attention concentration – focusing attention (MA) no statistically significant differences were observed between the two times ($p > 0.05$). **Conclusions:** statistically significant differences were observed in the indicators of the AP2 tests (perception of attention and observation) which indicates, as described above, that our intervention program in the preliminary study had a positive and measurable impact on students in terms of improving negative perceptions as well as increasing attention and observation.

Keywords: distributive attention, focused attention, perception of attention, dans- therapy, gymnasium

Introduction

Music and dance-therapy had a substantial effect on children's sensorimotor development including balance and correct position, locomotion, agility, strength and laterality (Barksdale, 2006). Music motivates and can be a good element for distraction of the attention.

A 16-week educational program, combined with dance therapy, appears to have a positive effect on the quality of life of obese people. (Allet și colab 2017). Dance is more than a therapy, it can offer more than therapeutic benefits, the researchers reaching this conclusion by analyzing Parkinson's disease and applying therapeutic dance to patients. (Rocha și colab., 2017).

In a study by Giovagnoli (2013), entitled *Complementary Therapies in Medicine*, the effects of active music therapy (AMT) in knowledge and behavior in chronic vascular encephalopathy are described. Many studies on students show positive changes in their behavior. Italian researchers have investigated the role of dance in the educational process. Because dance reflects either the physical and mental aspect, or the emotional and cognitive one, it can teach children to discover their still untapped potential, raising their self-awareness. In addition, the flexibility that dance brings allows the connection primarily with music, but also with other disciplines, thus facilitating their connection and contributing to the achievement of a global vision of knowledge. (Candela și colab., 2013).

Literature Review

Experienced dancers reported significantly greater physical, cognitive, and social benefits than novice dancers. They also showed signs of improving their mood. Traditional Scottish dance can have the effect of delaying the signs of aging functional abilities in women, and simple physical activity can help maintain a correct posture. In both groups the balance and body composition remained the same (Dewhurst și colab., 2014).

The practice of dance activates both motor and sensory circuits. Therefore, when an individual dances, the brain is stimulated by both the sound of music and dance movements. PET scanning showed regions of the brain that become activated during dance learning, including the motor cortex, somatosensory cortex, and cerebellum. (Duberg, 2012). The benefits of dancing on the brain include improved memory and neural connections. Consequently, dancing not only helps patients with dementia, but can also help reduce the risk of developing this disease. (<http://socialdance.stanford.edu/>).

Cognitive performance, mood, interpersonal interaction and perceived abilities were assessed using neuropsychological and psycho-behavioral measures. After AMT, cognitive profile was improved in attention, visuomotor coordination, and verbal and spatial memory. These positive changes were confirmed after 3 months. Also, an increase in interpersonal interaction and consistent reductions in anxiety were observed (Giovagnoli et al., 2013), in an article by (Hackett,

2013), we find that music therapy provides conditions that can intentionally stimulate communication and to increase opportunities for social interaction.

Rhythmic stimulations help to form balance for patients with severe brain damage (Stanley and colab., 2012). In his article entitled *The effect of music therapy during vaginal birth on postpartum pain relief and mental health*, Simalvi (2013) evaluated the effects of music therapy on postnatal pain, anxiety and postnatal depression. Postnatal pain intensity, anxiety level and satisfaction were measured using the visual analog scale (VAS), the rate of postnatal depression was assessed with the Edinburgh Postpartum Depression Scale (EPDS) on day one and day eight after birth. Using Music Therapy During Pregnancy Decreased Postnatal Anxiety and Pain, Increased Birth Satisfaction, and Decreased Postnatal Depression (Simalvi și colab., 2013).

By uniting body, mind and spirit, dance therapy provides a sense of integrity for all individuals. The body discharges energy through musculoskeletal reactions to stimuli received from the brain. The mind refers to mental activities such as memory, imagery, perception, attention, reasoning and decision making. Spirit refers to the state of feelings subjectively experienced in engaging or empathetically observing of the dance (Hanna, 2007).

Research Questions

It is proposed to develop a dance-therapy action strategy for measuring the items of attention: concentration, distributivity and perception, in students aged 13-14. It is assumed that different indicators of attention (concentrated, destructive, perception of attention) are dependent variables (modifiable), which can be improved by applying an independent variable, as in our case the dance-therapy program. These changes in attention are thought to be observable and measurable through the use of tests: AM, AD, AP₂.

Methodology

This study aims to test attention in students aged 13-14 years, as well as changes in the forms of attention after the application of dance therapy. In everyday life, stress and anxiety can have negative effects on human physical and mental health, constantly looking for ways to reduce them through various methods and techniques. Bitang, V., Andrei, V., L., Ardelean, V., P., Bitang, A. (2017).

Applying artistic techniques improves students' results and optimizes their behavior. Therefore, as a general goal in conducting this research, it is proposed to develop an action strategy, Bryman, (2009) to reduce stress through various artistic techniques, and evaluate the effectiveness of applied research methods. At the same time, we should determine the opportunity and efficiency of dancing in students aged 13-14 in order to improve attention and coordination.

Duration and Place of Study

The preliminary (pilot) study took place between October 2016 and March 2017, in Cluj-Napoca, in the gym of the “George Baritiu” National College.

Subjects, Place and Duration of the Study

The research was attended by students, members of the National College "George Baritiu" Cluj-Napoca, between October 2016 - March 2017. For this intervention we had an experimental group of students, all aged 13-14 and a control group.

The objectives of the study, verification of tests and tools used in assessment and ways to increase attention to students aged 13-14, given its forms of manifestation: focused attention, perception of attention and distributive attention and the introduction of our dance program - therapy in the program school, in the future.

These tests and assessment tools can be consulted in detail, below, in the Experimental Group - 30 students aged 13-14 years (intervention period 3 months).

Research Methods

Knowing the multiple therapies that help to achieve the physical and mental well-being of man, we chose the intervention through dance as a method to help increase the parameters of attention and improve school results for young people aged 13-14. Therefore, we proposed an action system, an intervention plan that can be applied during physical education and sports classes, using the specific means of dance. The tests used in the research were the Attention Tests, which were administered to the experimental and control group as follows: AP2 - Perception of attention and observation; MA - Concentration of attention - Focussing attention; AD - Distributive attention

Intervention program - Dance Internship - Therapy, music, "Cry" Afterlife

Work in pairs in the mirror with sitting movements, bending your knees to the sitting position.

1. Connect with yourself and other colleagues! From a distance sitting, bend the side kit with the arms outstretched in the same direction or in different directions (Figures 1 and 2).

Figure 1. Work in Pairs



Figure 2. Movements for Harmonization



Source: <https://www.youtube.com/watch?v=JOvcWFNzgdgk>.

2. Communicate, harmonize! Communication is achieved through spontaneous movements.
3. Finding pleasure, vitality, spontaneity.
4. Jumping like a ball, holding in hand with one foot forward
<https://www.youtube.com/watch?v=JOvcWFNzgdgk>.
5. Tension relief - with shouts of joy, organized in small or larger groups, with the touch of colleagues and with an emphasis on humanizing the participants in the lesson: exercises with clapping. It develops through these exercises: vitality, energization, optimism...
<https://www.youtube.com/watch?v=JOvcWFNzgdgk>.
<https://www.youtube.com/watch?v=l8K4cqI6OUk>.
6. The proposed exercises aim to eliminate fear, self-doubt and sadness.

The persons engage with the rhythm and are guided by the rhythm, in the same way that the rider engages with the rhythm of the horse (Figures 3 and 4).

Figure 3. Eliminate Fear and Increase Self-Confidence

Figure 4. Rhythm-Guided Movements



Source: <https://www.youtube.com/watch?v=EyhjIVBLU5g>.

7. In dance therapy, through the performed exercises, in addition to rhythm, balance develops with the awareness of its symmetrical or asymmetrical swings, rhythm-guided movements (Figure 5).
8. The awareness of group work also develops. People are grouped into different groups according to their personal rhythms. "Gather and spread!", where the strings are used to keep in touch with other colleagues or to move away by breaking the link (Figure 6).

- Dance-therapy exercises have a playful and exploratory way of performing (Figure 7).

Figure 5. Group Work



Figure 6. Game Type Exercises



Source: <https://www.youtube.com/watch?v=l8K4cqI6OUk>,
<https://www.youtube.com/watch?v=JOvcWFNzgdK>.

- Release (Figures 7 and 8)

Figure 7. Group Work



Figure 8. 1 Group Work



Source: <https://www.youtube.com/watch?v=JOvcWFNzgdK>.

- To be able all the participants to listen to each other, all the others (Figure 9).

- Confidence, self-confidence (Figure 10)

Figure 9. Exercises for Developing Listening

Figure 10. Developing Self-Confidence



13. Let yourself, get caught! (Figures 11 and 12)

Figure 11. *Developing Trust in Others*

Figure 12. *Exercises for Expression*



14. Express yourself and integrate! (Figures 13 and 14)

Figure 13. *Exercises for Expression and Integration*

Figure 14. *Exercises for Expression and Integration*



Source: <https://www.youtube.com/watch?v=JOvcWFNzgdk>.

Results

Statistical indicators for AP2, MA, and AD tests.

Statistical indicators - Elements of descriptive statistics were calculated, the data being presented using indicators of centrality, location and distribution.

Statistical analysis - The Shapiro-Wilk test was used to test the normal distribution. The variance was tested with the F or Levene and / or Bartlett tests. In the case of data with normal distribution, the t (Student) test was used, and in the case of non-uniform distribution values or ranks, non-parametric Mann-Whitney (U) tests were used for two unpaired samples, or Wilcoxon in the case of two paired samples. For the analysis of three or more samples, the ANOVA test was used in the case of data with normal distribution or the non-parametric Kruskal-Wallis test, in the case of values with uneven distribution or ranks. The significance threshold for the tests used was $\alpha=0.05$ (5%), $\alpha=0.01$ (1%) or $\alpha=0.001$, as follows: $0.01 < p < 0.05$ - statistically significant difference; $0.001 < p < 0.01$ - very statistically significant difference; $p < 0.001$ - statistically significant

high difference; $p > 0.05$ - statistically insignificant difference.

The Pearson correlation coefficient (r) was used to detect the correlation between two continuous quantitative variables with normal (uniform) distribution. In the case of variables with uneven distribution, the correlation coefficient of the Spearman ranks (ρ) was used.

The analysis of the correlation coefficients was performed using Colton's rule. Thus, starting from the properties of the correlation coefficient that say that this is a number between -1 and 1 and that the "intensity" of the linear relationship between the two variables will be even higher as the correlation coefficient approaches 1 in absolute value, Colton (1974) suggested the following empirical rules for interpreting the correlation coefficient:

- weak/zero correlation if $r \in [-0,25, +0,25]$ – noted *
- acceptable correlation if $r \in (+0,25, +0,5] \cup [-0,5, -0,25)$ – noted **
- good correlation if $r \in (+0,5, +0,75] \cup [-0,75, -0,5)$ – noted ***
- very good correlation if $r \in (+0,75, +1] \cup [-1, -0,75)$ – noted ****

Polynomial regression was the method used to obtain the mathematical equation of the dependence of one continuous variable on another variable.

Statistical processing was performed with the Excel application (from the Microsoft Office 2007 package), with the StatsDirect v.2.7.2 program. The graphical representation of the results was done with the Excel application (from the Microsoft Office 2007 package).

Test Results and Statistical Analysis

T1 = initial test and T2 = final test

In the table below we can see the results of the test items, following the statistical analyzes:

Table 1. *AP2, MA, AD Tests and Statistical Significance*

Indicators	Time	Average	ES	Mediana	DS	Min	Max	Statistical Significance (p)
AP2	1	19.53	0.4173	19	2.2854	16	24	< 0.0001
	2	22.83	0.4042	23.5	2.2141	17	25	
MA	1	0.97	0.3088	0	1.6914	0	7	0.7823
	2	0.77	0.2430	0	1.3309	0	6	
AD	1	0.17	0.0140	0.2	0.0769	0.05	0.38	0.9696
	2	0.17	0.0148	0.1505	0.0808	0.05	0.38	

Comparing the results of the two measurements (from the beginning and the end of the intervention period) we managed to record in the tests used certain values that mean statistically significant changes between the two time points. These results, together with the statistical explanation, are presented in

the tables and graphs below. At the end, the correlations between the indicators of the tests applied in the study will be presented.

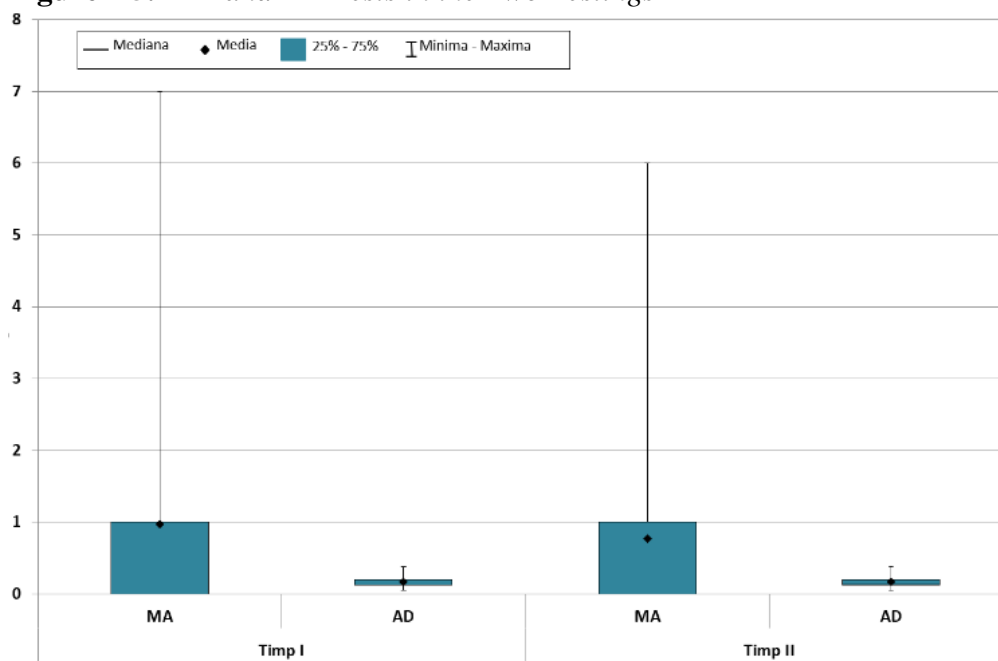
In the statistical analysis of the values **for the perception of attention and the spirit of observation (AP2)** were observed statistically significant differences between the two times ($p < 0.001$). The figures in Table 1, marked in purple, show that the perception of attention and the spirit of observation increased significantly in students, after benefiting from the dance program within the intervention program.

At the statistical analysis of the values **for attention concentration – focussing attention (MA)** no statistically significant differences were observed between the two times ($p > 0.05$).

At the statistical analysis of the values for **distributive attention (AD)** no statistically significant differences were observed between the two times ($p > 0.05$).

Statistically significant differences were observed in the indicators of the AP2 tests (perception of attention and observation) which indicates, as described above, that our intervention program in the preliminary study had a positive and measurable impact on students in terms of improving negative perceptions as well as increasing attention and observation.

Figure 15. MA and AD Tests in the Two Testings



As Figure 1 shows, there were no statistically significant differences in the values of concentration of attention – focussing attention (MA) and distributive attention (AD). From Table 1 we can see that even the results of the measurements from the two times are almost identical or very close in value. We can deduce from these results that in order to increase the concentration of attention or to improve the distributive attention we would need intervention programs that

are otherwise elaborated or of a different nature.

Statistical Correlation Analysis for Test Values

- at the initial testing (T1)
 - an acceptable but opposite correlation with AP2 - **an interesting result that shows that the perception of attention and the spirit of observation diminishes. It is possible, however, that in the long run this correlation will be of the same meaning.**

Statistical correlation analysis for **Jacobson test** values showed:

- at the initial testing (T1) - a weak / zero correlation with the AP2, MA, AD tests
 - at the final testing (T2) - an acceptable correlation and the same meaning as the AD test - **As the level of relaxation increases, the level of distributive attention (AD) may also increase**
- an acceptable correlation and the same meaning with the MA test - **This result shows us a link between improving the perception of negative emotions such as "fear" or "sadness" and between increasing the concentration of attention - focussing attention (MA)**
- a weak / zero correlation with the AP2 and AD tests.

Statistical correlation analysis for **AP2 test** values showed:

On initial testing (T1)

- an acceptable but opposite correlation with the AD test - **We can deduce from this result that the perception of attention and the spirit of observation is directly correlated with the abilities of distributive attention**
- a weak / zero correlation with the MA test

On final testing (T2)

- a good correlation but of the opposite direction with the MA test - **The values show us that if the perception of attention and the spirit of observation will increase, the power of concentration will decrease.**
- a weak/zero correlation with the AD test

Statistical correlation analysis for MA test values showed a weak / zero correlation with the AD test at both times.

Table 2. *Statistical Analysis of Correlation Between Test Values AP2, MA, AD*

Indicators		T1		T2	
AP2 -	MA	0.0503	*	-0.6451	***
	AD	-0.4327	**	-0.0287	*
MA -	AD	-0.1366	*	-0.1202	*

Discussion

In order to meet the requirements of the Helsinki Declaration, Directive 86/609/EEC and the regulations of the Ethics Commission of the institutions where the studies were carried out, we have previously obtained the informal agreement from the school, required in the research for studies on children and the agreement, respectively the collaboration of the sports teacher in the development without risks and impediments, of any nature, of the research. The research took place in a relaxing and trusting atmosphere.

No matter where we live in this world, we are all part of *dances* that reflect more or less culture. (Kassing, 2007).

After analyzing the postnatal quality of life of an experimental group of 30 women, the researchers concluded that the Jacobson technique is beneficial and should be recommended to women who are admitted to obstetrics and ambulatory clinics, and home visits should include this program. (Goksin & colab., 2018).

Researchers in Japan have investigated changes in brain activity in association with progressive muscle relaxation, using functional magnetic resonance imaging. A change in brain activity has been observed in several areas, which means that the technique can suppress brain activity. Researchers suggest using the state of mental concentration even by novices (Kobayashi & colab., 2016). At the initial testing, an acceptable correlation was obtained, but in the opposite direction with the AD test - We can deduce from this result that the perception of attention and the spirit of observation is directly correlated with the abilities of distributive attention. In the final test, a good correlation was obtained, but in the opposite direction with the MA test - The values show that if the perception of attention and the spirit of observation increase, the power of attention concentration – focussing attention, will decrease.

Statistically significant differences were observed in the indicators of the AP2 tests (perception of attention and observation) which indicates, as described above, that our intervention program in the preliminary study had a positive and measurable impact on students in terms of improving negative perceptions as well as increasing attention and observation.

Conclusions

The obtained results justify us to conclude that the advanced hypotheses in the preliminary research are validated, which gives us the opportunity to

continue the research.

The results underline the importance of using psychological tests to detect the type of attention of each student in order to reduce its intensity and awareness of well-being. The obtained results confirm the hypothesis of the study. Following the results obtained, we conclude that students need a special intervention program created by us to determine the increase of attention items in order to improve the quality of life.

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