



## The Optimisation of The Superior Cognitive Processes Through The Application of Psychoton Training in The Physical Education Lesson

### KEYWORDS

psychoton training, cognitive processes, optimisation

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### ABSTRACT

*The purpose of this article is to provide solutions meant to optimise the physical education lessons in the higher education, by applying psychoton training at the end of the physical education lesson, in order to improve the psychical processes involved in the professional activity of the economics students. The research stands out through two especially important aspects: the amplification of the effects that physical education has in the higher education, through simultaneous amelioration of the psychical and physical spheres, thus contributing to a positive transfer towards the professional side; the assurance, as a support, of a training regime which the student can use in the future as well, to counterbalance the intense demands, especially the intellectual ones, which they efficiently need to cope with.*

### Introduction

The scientific approach of the paper represents an important measure in the research activity, because it aims to implement in an original manner a physical and mental relaxation program and to objectify the effects that it produces.

The psyche is a hyper complex system which consists of processes, states or functions, like the sensation, perception, thought, will power, sentiments etc., which are subjective phenomena with a reflective character, with a psychoregulatory in comparison with the behaviour, conducting it in the direction of assuring an active equilibrium with the ambiance, by means of the reception, processing and interception of the information (Epuran, 1980).

### Hypothesis

The introduction of the psychoton training in the physical education lesson from the higher education institutions results in a positive transfer of the optimisation of the psychical cognitive processes, which are involved in the professional activity of the economics students.

### The variables of the study

The application of the psychoton treatment used throughout the physical education lesson after the higher intensity training is over, represents the independent variable of the experiment.

The psychoton training is based on relaxation, targeting the realisation of a muscular and psychical ease, in order to obtain as efficient a pause as possible and a conservation of the psychical energy of the individual. The research conducted by Cabot and Vanek has shown that the psychoton training has a series of positive effects on sportspeople, which manifest themselves through an equilibration of muscular tension, an increase in concentration capacity, the fast and efficient recovery following effort, a better control of emotiveness, a domination of anxiety and an increased endurance to stress.

### The content of the control parameters

The control parameters which made up the dependent variable of the study were:

- intelligence – evaluated through the verbal general aptitude test
- memory – evaluated through auditory and visual memory tests
- distributive and concentrated attention – evaluated through the Prague and the CIA tests
- imagination – evaluated through a figural creativity test

### The objectives and tasks of the research

- The development of the biologic and psychological potential; the evaluation of the physical condition of the students by measuring the somatic and motor parameters; the evaluation of the quality of the cognitive processes: intelligence, attention, memory and creativity; the acquiring of theoretical and practical knowledge to serve the independent undertaking of the psychoton training, for compensative and ameliorative purposes;
- The organisation of the informational fund, for theoretical and methodological settling; the elaboration of the working hypothesis; the selecting the means of the research method and of the efficient action in the instructive and educational process, like the independent experimental variables; deciding upon the sample, upon the group to be experimented on and upon the control group; deciding upon the organisational parts of the experiment; deciding upon and applying the measurements and tests which are most appropriate when it comes to highlighting and confirming the general hypotheses; storing, processing, analysing, handling and interpreting the results of the research; the capitalisation of the results obtained by finalising the researches and applying them in the physical education classes in the higher education.

### The research methods and techniques applied

The method of the informational bibliographic study; the method of the pedagogic observation, the experimental method; organisational methods, data analysis and presentation; the statistical mathematical method.

### The stages of the experimental research

The research was carried out on the sportive complex of the Academy of Economic Sciences in Bucharest, which comprises of 10 rooms properly equipped with the equipment needed to support the instructive-educational process.

The experimental part of the paper has lasted a year. In the first half of October, the registration for the research groups was made, thus forming two groups of 40 students each. Afterwards, the actual experiment took place, which began with the initial testing, whose purpose was establishing the initial level of the psychical cognitive processes. The control group undertook a regular physical education lesson, and the experimental group, after the high intensity part of the training was done, undertook the psychoton training, with the purpose of improving the psychical cognitive processes and the personality traits of the individuals involved in the research. The experiment ended with the final testing, whose

job was highlighting effects as well as changes which appeared at the level of the psychical cognitive processes and of the personality traits, following the application of the psychoton training.

**Table number 1 The statistical interpretation of the synthesis results of the control and experimental groups**

	Testing methods	Final testing	Average	E-C difference	Standard deviation	Cv (%)	F	p
1	General aptitude tests							
1.1	Correct answers	C E	21.03 23.13	2.10	4.48 3.97	21.31% 17.16%	4.92	0.029
1.2	Wrong answers	C E	6.98 5.87	-1.10	1.86 2.84	26.67% 48.36%	4.19	0.034
1.3	Total answers	C E	28.00 28.85	0.85	4.54 4.19	16.22% 14.53%	4.74	0.020
2	Prague test							
2.1	Total numbers per column	C E	82.58 92.33	9.75	10.16 6.57	12.30% 7.11%	20.47	0.001
2.2	Numbers in 4 minutes: minute 4	C E	20.80 22.03	1.23	4.25 4.15	20.43% 18.83%	1.52	0.196
2.3	Numbers in 4 minutes: minute 8	C E	22.93 27.45	4.53	3.86 5.38	16.83% 19.61%	18.67	0.001
2.4	Numbers in 4 minutes: minute 12	C E	20.70 23.23	2.53	4.2 4.25	23.29% 18.28%	4.48	0.015
2.5	Numbers in 4 minutes: minute 16	C E	18.33 20.05	1.73	3.72 3.78	20.32% 18.87%	4.18	0.044
2.6	Numbers in 4 minutes: total no.	C E	82.48 92.30	9.83	10.10 6.61	12.25% 7.17%	20.86	0.001
3	Attention test							
3.1	Letter crossing	C E	19.60 22.00	2.40	3.47 3.79	17.70% 17.22%	8.73	0.004
4	Auditory memory test							
4.1	Remembered words	C E	11.93 13.82	1.90	2.25 2.27	18.84% 16.45%	20.81	0.001
5	Visual memory test							
5.1	Number of rows	C E	11.93 8.23	-3.70	2.25 1.93	18.84% 16.45%	6.70	0.012
6	Creativity test							
6.1	Number of recomposed figures	C E	11.93 15.65	3.73	2.25 4.26	18.84% 27.25%	4.77	0.020
6.2	Total of figures	C	53.35	9.25	17.80	33.37%	4.79	0.020

### The interpretation of the results

The values of the parameters recorded at the two final tests, have significant statistical differences for 13 out of the 14 parameters, thus representing 93% of the tests. In the case of these parameters, following the verification process of the statistical hypotheses realised by means of the ANOVA test, the null hypothesis was rejected, the p value being calculated at a smaller value than 0.05. In the case of a single parameter, for the Prague test, the differences between the groups were not statistically significant, and the null hypothesis was accepted. The averages of the calculated parameters indicate, in all cases apart from the Prague test, wrong answers and better results than the control group. Taking into account the values of the statistical dispersion indicators, namely the standard deviation, amplitude and variation coefficient, the control group in 50% of the tests is not homogenous, in 43% of the tests is relatively homogenous, and at 7% of the tests is homogenous. The experimental group in 64% of the tests is relatively homogenous, in 21% of the tests is not homogenous, and in 15% of the tests is homogenous. A better grouping of the results can be observed around the respective averages for the experimental group.

### Conclusions

Following the application of the attention tests (concentrated and distributive), memory tests (visual and auditory), creativity test and general aptitude test, the values of the parameters registered by the control and experiment have significant statistical differences for 13 out of the 14 parameters, thus representing 93% of the tests. In the case of these parameters, following the verification process of the statistical hypotheses done with the help of the ANOVA test, the null hypothesis was rejected, the p value being calculated at a lower figure than 0.05.

### Therefore:

- at the general aptitude test, the F value is 4.92, and the p value is 0.029
- at the Prague test, the F value is 20.86, the confidence level is 0.001
- at the concentrated attention test, the Fischer value is 8.73, and the p value is 0.004
- at the auditory memory test, F is 20.81 and p is 0.001
- at the visual memory test, the Fischer value is 6.70 and p is 0.012
- at the figural creativity test, F is 4.77 and the confidence level is 0.020
- at a single parameter, the differences between the two groups are not statistically significant, F being 1.52 and p being 0.196, the null hypothesis being accepted

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Overall, the statistical indicators which were calculated and presented above sustain the idea that the results obtained by the members of the experimental group are better than the ones obtained by the control group in most tests. This fact confirms the purpose of the hypotheses of the research.

The null hypothesis is rejected for the experiment group at the general aptitude test, the Prague test, the concentrated

attention test, the auditory and visual memory test and the figural creativity test.

Due to the fact that the superior cognitive processes (intelligence, memory, imagination) and the regulatory process (attention) are directly involved in the optimal behaviour of the students, in their professional activity, in the fact that they have improved following a special approach of the physical education lesson, which offers us the support to declare that by introducing a judicious relaxation lesson which is correctly conceived and applied, the physical education lesson in the higher education can ensure a significant positive transfer for the amelioration of the professional activity of the students.

#### Proposals

In all the activities involving physical education, the psycho-ton treatment can be used in the recovery phase with great success.

Judiciously selected and correctly executed, the relaxation techniques, by means of a simultaneous impact upon the physical and the psychical parts, can increase the efficiency and the involvement in the physical education lesson of higher education institutions, and it contributes to the optimisation of the professional performances of the economics students.

The results should be taken into account and applied by the teachers in the physical education lessons in the higher education institutions.

#### REFERENCE

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