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Cognition as an efficient way of training in physical education activities
Elena Lupu* 

*Petroleum-Gas University, Bucharest Blvd., no. 39, Ploiești, 100520 Romania

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Abstract

To get to shape the behavior, a transition through the cognitive subsystem is required, which is operational and improvable through accumulating, adapting and fully assimilating information. Being aware of these aspects we will witness the implications of cognition on training students in the non-profile activity of Physical Education. Given our real possibilities, the initial research referred to the reflection of the psycho-behavioural aspects of students from the Petroleum-Gas University of Ploiești, enrolled in the 1st and 2nd years of non-profile faculties, with regard to: the practice of physical exercise and how the global effect of introducing cognitive objectives among other objectives improved, the way in which their attitude changed under the influence of a special designed program during the training. The backgrounds taken into consideration for determining the hypotheses derived from the reference literature and the experience gained during the course of the training process.

Keywords: Cognition, training, motion, physical education, students.

1. Hypothesis

I started the research from the assumption that: by explicitly introducing cognitive objectives with motion and affective objectives in the Physical Education lessons with students the efficiency of the training process increases.

2. Duties of the research

• Composing the design of the research, the way of operating the cognitive, affective, psychological and motion objective in Physical Education activities with students;

• Implementing the proposed program and assessing the effects of the proposed training methods;

• Composing a questionnaire "Topics for examination" to verify the knowledge gained during two years of training;

* Elena Lupu . Tel.: 0040722718827; fax: 0040 0344103270.
E-mail address: lupu_lnn@yahoo.com.
• Assessing the cognitive aspects studied: at the level of the Experimental Group and Control Group, the knowledge, the number of answers to questions in the questionnaire "Topics for examination" specially designed for evaluation;

• Recording data in tables, processing and statistical interpretation;

• Graphical presentation of the key indices of the studied phenomenon.

2.1. Subjects

The survey was conducted on a group of 88 students from the Petroleum-Gas University of Ploiesti, enrolled in year I and II of non-profile faculties. To prove the claim that the informed students are made aware of the lesson, thus taking place a quality leap in knowledge, from the Experiment Group – EG, I randomly chose a group, composed of 30 students, which was compared with another randomly chosen group of 29 students from the Control Group – CG.

2.2. Research methods

Bibliographic study method; observation method; investigation method (dialogue, questionnaires, etc.); the method of pedagogical experiment; statistical and mathematical method; graphical method.

2.3. Purpose of the research

The aim of this research was to learn the aspects concerned with the scientific organization of Physical Education lesson with students, taking into account the cognitive and affective component of training and how their approach will lead to improving the process.

2.4. Objectives of the research

• Completing of specialized information regarding the importance of the introduction and use of cognitive and affective objectives in education;

• Designing a training program to enable the introduction and use of cognitive objectives with other objectives and their practical application;

• Eliminating the negative attitudes towards Physical Education, making use of cognitive and affective objectives in education;

• Assessing the results of the experiment performed.

3. Content of the research

I searched for solutions to produce effective changes in order to achieve the main objectives of the Physical Education class (cognitive, affective, motion) thus providing a new image for our activity. The intervention consisted of applying a new training program with cognitive objectives: sport games - basketball 30’ in each class during a period of two years, providing verbal knowledge, written or by means of the media about physical education and sports, psychology, anatomy, history of Physical Education, personal hygiene with the help of a newspaper for the written information called "Student", through language, through sports competitions, through literature, through videos, CDs and use of the Citation Machine: address- http://www.gov-sport.ro/.

The manipulative factor was called the independent variable, and the modified factor was called the dependent variable. In our case, the cognitive and affective objectives introduced in the lesson through the proposed program
become independent experimental variables, and the answers, the results, the performances, the effects of the interventions in knowledge, are dependent variables.
The cognitive variables (perceptive and logical) that were needed to verify the cognitive objectives cannot be separated, all being important. We therefore aimed to memory. Even though it seems restrictive it was the way that allowed us to modify the students’ ability to response to the stimulus and update according to their necessities the transmitted information (for example, updating the received information can be done during: the Physical Education lesson, the sport competition, in leisure activities; in everyday life).
I verified this assumption with the questionnaire “Topics for verification” and through the motion activities performed during the classes. Whether the students have internalised the theoretical and practical aspects it has been demonstrated by testing and evaluating of their knowledge based on the questions of the survey entitled “Topics for examination”. Each of them was structured on three questions: 1. Motion structures from sport activities; 2. Sports Games – Regulation; 3. General knowledge of sports - historical data.
The performance achieved by students of I and II (Faculty of Letters and Sciences - Specialization Public Administration) to whom we provided data of Physical Education history, educated their aesthetic sense and the wish for physical exercise, the need for self-knowledge, the emotion of competing, their desire to know have been presented in tables and plotted in graphs.
The evaluation of their knowledge was conducted, at the beginning, on a group of 88 students (I year of study), of which 62 were present at the moment of the evaluation of their knowledge of Physical Education and Sport, meaning 70, 45%. The results are as outlined in the data from Table 1 and Graph 1:

Table 1. The performances recorded from the I year students at the evaluation of their knowledge of Physical Education

<table>
<thead>
<tr>
<th>Faculty/group</th>
<th>Year</th>
<th>Total no. of students</th>
<th>Attending Students</th>
<th>Absent Students</th>
<th>No. of answer to the questions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 Answer</td>
</tr>
<tr>
<td>3 groups of</td>
<td>I</td>
<td>88</td>
<td>62</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>General total</td>
<td></td>
<td>% 70,45</td>
<td>% 29,66</td>
<td>% 12,90</td>
<td>% 59,68</td>
</tr>
</tbody>
</table>

Figure 1. The recorded performances of the I year students at the evaluation of their knowledge of Physical Education

These were the recorded test results for students of I year at the beginning. They were monitored and trained for two years, then were again tested. I compared the results achieved by them in the first year with those obtained in the second year and found that: in the first year 88 students were enrolled, of whom 4 lost the year or went to other
universities, this explains the number of students in year II – 84 students; at the time when the knowledge test was given, there were 82 students present, meaning a rate of 97.61%, with 27.16% more than in year I. Through testing the knowledge gained by students in the second year, I observed a radical change compared with the figures recorded in the first year, as specified in Table no. 2, and Graph no. 2:

Table 2. The recorded performances of the II year students at the evaluation of their knowledge of Physical Education

<table>
<thead>
<tr>
<th>Faculty/group</th>
<th>Year</th>
<th>Total no. of students</th>
<th>Attending students</th>
<th>Absent students</th>
<th>No. of answer to the questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 groups of students</td>
<td>II</td>
<td>84</td>
<td>82</td>
<td>2</td>
<td>2Answer 2Answers 3Answers</td>
</tr>
<tr>
<td>General Total</td>
<td></td>
<td>%</td>
<td>97,61</td>
<td>2.39</td>
<td>2.43 29.27 68.30</td>
</tr>
</tbody>
</table>

As it can be observed, the level of knowledge gained in the two years of the training process increased, as in the second year a higher percentage of training students has been recorded – conscious. To sustain this statement, we brought the undertaken study on a sample of students, beginning with year I and continuing with year II at the Faculty of Letters and Sciences – specialization Public Administration: Group Experiment – 30 students attending the Physical Education and Sport lessons – year I; Control Group – 29 enrolled students in the Physical Education and Sport lessons – year I.

I applied the same technique, the same tickets with 3 variants of questions. You have to keep in mind that the control group students are trained by another teacher, after the current program. At first, in year I all students seem to enter into the university life and Physical Education activities with the same knowledge base and level of training, at least in theory.

Although students were told early on the day, date, place of examination, the experimental group were present 80% and 20% were absent. In the case of the control group, the situation is different – 55.17% were present at screening and 44, 83% were absent. Looking at Table no. 3 Group Experiment-GE / Group Control-GC and Graph no.3, remarkable results were recorded for the given questions:

Table 3. The recorded performances of the I year students at the evaluation of their knowledge of Physical Education – Group Experiment-GE / Group Control-GC

<table>
<thead>
<tr>
<th>Faculty/group</th>
<th>Year</th>
<th>Total no. of students</th>
<th>Attending students</th>
<th>Absent students</th>
<th>No. of answer to the questions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%</td>
<td></td>
<td></td>
<td>1Answer 2Answers 3Answers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>2.39</td>
<td>2.43 29.27 68.30</td>
</tr>
</tbody>
</table>
In the second year of study I applied the same tickets on the same sample (Table no. 4); no.4 Graph. The answers at the knowledge test are recorded according to the Table no. 4 and Graph no. 4:

Table 4. The recorded performances of the II year students at the evaluation of their knowledge of Physical Education

<table>
<thead>
<tr>
<th>Faculty/GROUP</th>
<th>Year</th>
<th>Total no. of students</th>
<th>Attending students</th>
<th>Absent Students</th>
<th>No. of answer to the questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Group</td>
<td>II</td>
<td>31</td>
<td>26</td>
<td>29</td>
<td>13</td>
</tr>
<tr>
<td>General total</td>
<td>II</td>
<td>%</td>
<td>93,54</td>
<td>50</td>
<td>6,46</td>
</tr>
</tbody>
</table>
The difference was that while students in the Experimental Group – GE had separate informational and training program. Students in Group Control – GC were trained by another teacher after the current program, with emphasis on preparing their body motion abilities, ignoring the cognitive objectives. In these conditions: students of year II, the Experimental Group – GE were present in a proportion of 93.54%, students from Group Control – GC were present in 50% of total at the evaluation. The performance recorded confirms that students need knowledge and have the ability to store and to update the information as needed; by this point, the existence of cognitive objectives in Physical Education activities demonstrating their application to the issue of training students.


• Based on the hypothesis, we emphasized that the cognitive objectives are undeniably related to the affective and motion objectives and can offer teachers the possibility of their implementation in the training process, thus becoming a working method in raising awareness.

• Very often there are emotional contrasts and all have a cognitive basis, the border line between them being subtle but essential for conducting the research as the combination between pure emotional functions is impossible.

• The main objective which was the basis of the research achievement was to help transforming the young students from objects of the teacher’s work in subjects consciously participating in their own training and development.

• Implementing the cognitive and affective mechanisms in the process of training presupposes a previous knowledge of the factor which influences them. Important in their achievement are the particularities which modify them, in other words the existence of a model (in our case the special training program), and the characteristics of the group involved in the research.

• We believe that if we build and adapt a teaching strategy (a new working program with cognitive objectives), then the quality of the training will improve and a positive behaviour will be spontaneously triggered towards the activity of Physical Education and leisure.

• The positive completion of the proposed experiment was done by means of cognitive, affective, psychological and motion objectives and the validation of the hypotheses, in other words through the achievement of the anticipated results.

• Recommendations. It will be necessary to insist on some of the conditions to be fulfilled in order to achieve the cognitive objectives in the physical education lessons:
  - The adopted strategy in achieving the cognitive and affective objectives along with the motion ones has to be accessible to the students;
  - The level of motivation for their achievement has to be clear, with a precise purpose, only then cognition becoming a way of improving the process of training in physical education activities, thus confirming the hypothesis.

References


Moscovici, S., (1994). *Social Psychology or the Machines which Manufactures Gods*. Iaşi, the “Al. I. Cuza” University Publishing House, 21, 91


