Abstract

The organisation of physical education lesson represents a major objective in order to obtain an increased level of involvement among the students in the educational-training process. In case of physical education, choose the methods and the convenient ways to manage the class, as expressions of professionalism and creativity of the teacher, they defining in determining its quality.

To that effect, we started from the premise that using the differentiated instruction as a method which upholds the features of each individual student leads to the accomplishment of the specific objectives of physical education in schools.

The experimental study carries out a comparative analysis of the results obtained between the initial testing and the final testing of the experimental group. Also, there are emphasize the differences between the performances obtain by the students from the experimental and the control group at the final testing for speed.

Keywords: Differentiated instruction, Speed, Operational modules.

JEL classification: I20, I25

1. Introduction

One of the challenges that teacher's meet in physical education lessons is to provide the student's possibility to improve the biomotor potential different depending on the individual characteristics of each. The subjects are not characterized by the same possibilities. Therefore, the organization within the class of groups of students, with differentiated abilities offers equal opportunities to develop motor skills subjects. This issue can be countered by using the differentiated instruction. In physical education, the differentiated instruction is a methodological guidance, which organized and developed the activity on differentiated groups after the biomotor potential of subjects (Șerbănoiu, Tudor, 2013). These value groups are formed from the initial assessment. The application of this method in the physical education...
education lessons ensure the streamline of process, by generating appropriate content level shown by each subject (Șerbănoiu, Tudor, 2013).

This is explained by the fact that all students will not always find the same lesson equally engaging. What one student finds to be a challenge might be incredibly boring for another. (Tomlinson, 2001). The differentiated instruction is student centered.

2. **Purpose, objectiv, hypothesis**

*Purpose.* The main aim of the experimental study is to streamline the physical education lessons by using the differentiated instruction.

*Objectiv.* The objectiv of the research is to improve the motor ability speed by developing practical programs that follow the individual’s own characteristics.

*Hypothesis.* Using differentiated instruction in the physical education lessons leads to an improvement of student's performances at motor ability speed.

3. **Methods and materials**

To elaborate the theoretical and practical study, we used the following methods research: bibliographic documentation, the conversation, the observation, experimental method, statistical and mathematical methods (statistical indicators: the arithmetic average, standard deviation, coefficient of variation, Spearman correlation, "t" test significance).

The experimental study was conducted during 2008 - 2009 school year. The subjects were 5th grade, girls and boys from “Grupul Școlar Constantin Brâncoveanu” – Horezu, Vâlcea. To verify the hypothesis were establish two classes: the 5th C (experiment group) and the 5th D (control group), totaling a number of 46 students (table 1). The both groups were independent one from the other.

<table>
<thead>
<tr>
<th>Classe</th>
<th>Girls</th>
<th>Boys</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th C</td>
<td>17</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>5th D</td>
<td>12</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>17</td>
<td>46</td>
</tr>
</tbody>
</table>

The study was organized at the physical education classes. It took place twice a week, with a duration of 50 minutes each.
We organized an initial assessment for both groups (experiment and control), consisting in the specific physical tasks for the determination of speed. We used "25 meters Shuttle Run Test" and "50 m sprint". The experiment group was divided by gender into boys and girls.

Using The National School Assessment System in Physical Education and Sport for each control test we divided the class into value groups, according to their motor performance. The motor performance was transformed into notes, according to the same system. The students have obtained two notes: one for "25 meters Shuttle Run Test" and one for "Running Speed 50 meters". To determine the value group which every student was part, we realized the arithmetic average of the two notes. The National School Assessment System in Physical Education and Sport sets the performance for note 5 (in a scale from 1 to 5). The performances for notes 6, 7, 8, 9 and 10 are sets according to physical education teacher's autonomy.

The initial assessment divided the experiment group in three value groups for each gender (figure 1):

![Figure 1 Dividing the value groups](image)

For each value group we applied operational modules according to their gender and motor potential. For value group I, the modules consisted in increasing the repetitions, increasing the exercise complexity, its intensity and hardening certain tasks. For value group II the demand were lighter. We lessened the execution by dividing the tasks and helping them.

The use of the differentiated instruction at the experimental group lead to a migration of student from the value group III to value group II or I on the final assessment. (table 2).

The control group has the same evaluation tests, but the students did not benefit by the application of the operational modules. Also, the students have the initial assessment and the final assessment.
Table 2 Number of girls and boys at the initial and final assessments

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Gendre</th>
<th>I</th>
<th>Value group II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial assessment</td>
<td>Girls</td>
<td>4</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Final assessment</td>
<td>Girls</td>
<td>9</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>6</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Range of values</td>
<td></td>
<td>10-9.00</td>
<td>8.99-7</td>
<td>6.99-5</td>
</tr>
</tbody>
</table>

4. Results

The analysis and interpretation of results achieved by the experimental group in the initial and final assessment – girls

- The average of the notes increase with 1.36 points, from 7.11 at the initial assessment to 8.47 at the final assessment;
- The Spearman correlation coefficient $r = 0.91$ while the significance “t” test is: $T=5.35$;
- The table value read at n-2 in Fischer’s Table is 2.13 for the significance landmark $p< 0.05$. The “t” value calculated for speed is 5.35. Therefore we may notice that “t” value is higher than $p<0.05$, thus the correlation coefficient is significant for the motor quality speed. The hypothesis is validated.

The analysis and interpretation of results achieved by the experimental group in the initial and final assessment – boys.

- The average of the notes increase with 1.08 points, from 7.35 at the initial assessment to 8.43 at the final assessment;
- The Spearman correlation coefficient $r = 0.92$ while the significance “t” test is: $T=5.61$;
- The table value read at n-2 in Fischer’s Table is 2.44 for the significance landmark $p< 0.05$. The “t” value calculated for speed is 5.61. Therefore we may notice that “t” value is higher than $p<0.05$, thus the correlation coefficient is significant for the motor quality speed. The hypothesis is validated.

The analysis and interpretation of results achieved by the experimental and control group at the final assessment – girls (table 3).

Comparing the girl's results achieved by the experimental and control group at the final assessment, we discovered the following:
- For the experimental group, the mean at the final assessment was 8.47;
- For the control group, the mean at the final assessment was 7.45;
- Making a comparative analysis, we see a difference of 1.02 points in favour of experimental group.
The analysis and interpretation of results achieved by the experimental and control group at the final assessment – boys (table 3).

Comparing the boy's results achieved by the experimental and control group at the final assessment, we discovered the following:
- For the experimental group, the mean at the final assessment was 8.43;
- For the control group, the mean at the final assessment was 7.27;
- Making a comparative analysis, we see a difference of 1.16 points in favour of experimental group.

<table>
<thead>
<tr>
<th>Classes</th>
<th>Tests</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>Arithmetic average</td>
<td>8.47</td>
<td>8.43</td>
</tr>
<tr>
<td>group</td>
<td>Homogeneity</td>
<td>19%</td>
<td>8.43%</td>
</tr>
<tr>
<td>Control</td>
<td>Arithmetic average</td>
<td>7.45</td>
<td>7.27</td>
</tr>
<tr>
<td>group</td>
<td>Homogeneity</td>
<td>27.78%</td>
<td>28%</td>
</tr>
</tbody>
</table>

5. Conclusions

- Application of the differentiated instruction involves specific training for the teacher of physical education;
- We can not conceive the differentiated instruction without knowing the specifics somatic motor, functional and psychological characteristics of students;
- The knowledge of the particulars of students is not an purpose but is a guide in selecting the most effective ways and means of physical education.
- The experimental study demonstrated that the work on homogeneous group is more effective than the frontal work;
- The experimental groups have better results comparing with the control group;
- The density of physical education lessons grows up;

REFERENCES