Abstract:

This paper deals with a quality of continuous planning of physical education lessons using didactical resources from Web based data bases. The research was conducted with the purpose of finding out some differences between the effect of continued planning and realization of physical education contents and the effect of standard planning and realization of physical education contents which are done in cycles and with certain number of classes at the level of theoretical knowledge about physical education and body movement - practice of high school students. The theoretical knowledge was established by the special knowledge online test which was created for the purpose of this research. With the purpose of testing the validity of the test a pilot research was done with 178 high school students. The factorial analyses according to the method of major components were done for the purpose of rough factorial validity evaluation of a used research instrument. Roy’s test proved the significant statistical difference in theoretical knowledge about physical education, group practices (sports) and the knowledge of individual practice between the groups. In physical education students do not get enough theoretical knowledge which was given by the curriculum and that is something which has the influence onto their activity during physical education classes and individual body movement - practice. We created Educational WEB portal with all necessary didactical resources.

Key-Words:  Data bases, Physical education, Web portal, Internet technologies

1. Introduction

Introduction of new information technologies in teaching includes: knowledge transfer, check (self-checking) their adoption and presentation of illustrative material in statics and dynamics; compare biometric characteristic movements performed by athletes (pupils, students) are making recommendations on further training depending on the observed disagreement with form to perform; storing information in databases consisting of scripts, planning papers, cards mobile games, lists, literature, teaching and testing programs, annual and final papers, descriptions of exercises for the complex development, control, recording and analysis of the physical development of children (monitoring ) mathematical and statistical analysis of research results of the teaching process modeling and so on. New information technology training include: program-methodical providing students didactic material of new type, the existence of modern technical equipment (computerized unit,
training system based on computer technology, multimedia projects, Internet technologies, etc.), the distribution of cognitive functions of management activities between teachers, students and computers. All this requires new approaches to professional and pedagogical training of students. That’s why they need: Bank of didactic content and qualified teachers who can create such content, and apply them in the learning process. In the professional and educational preparation it is necessary to ask such a task whose solution in which students can gain an idea of the main directions of ICT in teaching and training process, to create programming and pedagogical resources and use them for mastering the knowledge and skills from the cycle of general professional disciplines. [1]

The analysis of literature and experience of using the program and pedagogical resources applied to the training institutes and colleges of physical education in basic and new disciplines of Physical Education and Sport established the following types of such materials: testing and instructional multimedia programs, programs for training, demonstration events, expert systems multifunctional (with more goals) multimedia systems for teaching [2]. They deserve the attention of the structure and features of testing and multimedia teaching programs. Each on-line test program includes a complete set of test assets: issues (tasks), variants of answers to each question, codes of correct answers. The test program on a computer can be made using various programs and tools. Due to the specifics of individual sports and pedagogical disciplines can be distinguished two main types of such programs [4].

During the school year they can continually use evaluation forms to measure the effects of the exercises in order to improve the quality of sport education. Certain skills and exercises cannot be taught by developing only physical abilities, if there is no sport technical knowledge. The technique of making exercises will condition the effects of exercises on student’s organism. Sport technical education represents a device for realizing goals and tasks of physical education. [3]

2. Research in physical education

The case study is an element of physical education students followed through physical education, ie. the subject of theoretical knowledge in the field of physical education and physical exercise. The aim of this study was to determine possible differences between the effects of continuous planning and implementation of programs of physical education and the effects of the standard planning and implementation of programs of physical education, which is usually carried out in cycles with a number of hours to the level of theoretical knowledge of physical education and physical practice of pupils of secondary age. Longitudinal study was experimental in character (pedagogical experiment with parallel groups) realized in a period of one academic year. Teaching physical education is planned and implemented in 60 school classes. The experimental treatment was carried out with 50 women of the first grade of Agriculture and Veterinary School in Belgrade. The control treatment was carried out with 42 respondents of the first class high school in...
Belgrade
The control group worked under the standard plan of physical education (teaching content of the official program of physical education, in cycles). The experimental group worked with the same programming, but different (continuous) planned. The experimental group worked all 60 hours on the system - one hour of the election of sport with a ball (handball), a season of athletics, an hour of handball and athletics and so on until the cycle is complete fifteen hours of athletics. Then he realized with a hand ball gymnastics classes on the same principle - one hour of handball, one hour of gymnastics and so continuously until the complete cycle of fifteen hours of gymnastics. Throughout the school year was a constant positive influence of sports games (handball), which did not stop the completion of a given cycle. A variable that is used in the study is students' knowledge. It is a pedagogical character and the original nature is qualitative. The applied instrument is a test which consisted of twenty questions drafted to cover the complex area of children's general knowledge of physical education and physical exercise. Tasks are defined in the form of questions with answers offered the alternative of varying severity. The maximum score of test points was the 100th For every tested is determined by the number of points on every issue, and the total test score. In order to determine the validity of the test is a test done on a sample survey of 178 students of first and second year of high school. For a rough estimate of the factor validity of the applied instruments (knowledge test) on the complete sample, factor analysis was applied by the method of principal components solution with Warimah rotation of the main components. Factor analysis extracted nine major components of which are characteristic roots (Egenvalue) were greater than one (1). The same matrix structure is retained even after the rotation of principal components, indicating that there was a final Pirson, test has a stable factor structure. Extracted factors are relatively evenly saturated (saturated). The large number of factors derived from just twenty variables appears to indicate the relative independence of the issues, that the good validity. This conclusion is supported by two facts: first, a small number of questions was showing simultaneous projection of multiple factors and, second, communally calculated for all the questions were greater than 0.5, indicating that each of them carries a substantial amount of information to be retained in the test. Communalities biggest issues have been identified for the eight and nine. Because of the large number of factors, and their geographic dispersion, it is difficult for anyone of them assign a logical name of the complex. All this indicates that the applied test seems possesses sufficient factor validity. It can be applied as an instrument to determine students' general knowledge of physical education and physical exercise. In processing the data obtained by empirical research, in addition to numerical and percentage of indicators to test the significance of differences of experimental and control groups of students in relation to the theoretical knowledge is applied: multivariate analysis of variance, discriminant analysis and Roy’s-test. For the purposes of this study is a questionnaire consisting of twenty questions which the preliminary investigation determined a stable factor structure. Nine factors were extracted relatively evenly saturated. The large number of factors obtained from twenty questions indicating the relative independence of the issues, that the good validity. The test can be applied as an instrument to determine students' general knowledge of physical education and physical exercise. All twenty questions grouped into three areas, namely: knowledge of physical education, knowledge of team sports and individual sports knowledge. Knowledge of physical education has five modes: enough, enough, good, very good and fluent. Knowledge of team sports has four modes: enough, enough, good and excellent knowledge. Knowledge of individual sports has five modes: enough, enough, good, very good and fluent . [4]

3. The results of research

The analysis that follows shows significant differences between levels of theoretical knowledge of respondents about physical education and physical exercise on the initial and final assessment. Based on the parameters we can see that is not enough and a good knowledge of physical education the most common in the experimental group. In the control group of patients, the most common is lack of knowledge and very good. Lack of knowledge is represented in the control group, it has 28 participants, representing 26.90%. Sufficient
knowledge is represented in the experimental group, it has 21 respondents, representing 20.20%. Good knowledge is represented in the experimental group, it has 23 participants, representing 22.10%. Very good knowledge is represented in the control group, it has 26 participants, representing 25.00%. Excellent knowledge of physical education is represented in the experimental group, it has 28 participants, representing 26.90%. Excellent knowledge of physical education is represented in the experimental group. The space group of experimental knowledge of physical education has the properties of sufficient, good and excellent knowledge. The control group has insufficient properties and very good knowledge in the areas of knowledge about physical education. Lack of knowledge is represented in the control group and the initial and the final assessment. Sufficient knowledge is represented in the control group, it has the initial eighteen respondents, and 25 subjects in the final assessment. Good knowledge is represented in the control group at both assessments. Very good knowledge is represented in the experimental group, the final assessment it has 41 respondents, representing 39.40%. Excellent knowledge of team sports is more prevalent in the experimental group at both assessments. The space group of experimental knowledge about the individual sports have very good properties and excellent knowledge. The control group has the properties: insufficient, sufficient and good knowledge in the areas of knowledge about the individual sports. Further analysis should reveal whether there are differences between the experimental and control groups of the initial assessment in relation to three areas of theoretical knowledge of physical education and physical exercise. Table 1: Significant differences between the experimental and control groups of the initial and final evaluation of the level of theoretical knowledge of physical education and physical exercise.

<table>
<thead>
<tr>
<th>Analysis</th>
<th>n</th>
<th>F</th>
<th>p</th>
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<tbody>
<tr>
<td>Manova i</td>
<td>3</td>
<td>5.997</td>
<td>.001</td>
</tr>
<tr>
<td>Discriminant i</td>
<td>3</td>
<td>5.997</td>
<td>.001</td>
</tr>
<tr>
<td>Manova ϕ</td>
<td>3</td>
<td>28.054</td>
<td>.000</td>
</tr>
<tr>
<td>Discriminant - ϕ</td>
<td>3</td>
<td>28.054</td>
<td>.000</td>
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</tbody>
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Multivariate analysis of variance indicates a statistically significant difference between experimental and control groups of the initial and final assessment, compared to the level of theoretical knowledge of physical education and physical exercise. On the basis of discriminant analysis we can safely conclude statistical significance and a clearly defined border between the experimental and control groups of the initial and final assessment in relation to the level of theoretical knowledge of physical education and physical exercise to the level of statistical significance of \( p = .001 \) in the initial and \( p = .000 \) in the final assessment.
A significant difference between experimental and control groups of the initial assessment is the knowledge of individual sports to the level of statistical significance of $p = .012$, and the knowledge of team sports to the level of statistical significance of $p = .000$. A statistically significant difference between groups was not observed in knowledge about physical education, which indicates that respondents from primary schools come from relatively the same level of knowledge.

The final assessment between the experimental and control groups is statistically significant for all three skills, the level of statistical significance of $p = .000$. Statistically significant differences in favor of experimental groups of subjects.

### Table 3: Coefficients of discrimination between the experimental and control groups respondents to the initial and final assessment compared to the level of theoretical knowledge

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficients of discrimination</th>
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<tbody>
<tr>
<td>team sports - Η</td>
<td>.053</td>
</tr>
<tr>
<td>Individual sports - Η</td>
<td>.006</td>
</tr>
<tr>
<td>team sports - Φ</td>
<td>.172</td>
</tr>
<tr>
<td>Individual sports - Φ</td>
<td>.106</td>
</tr>
</tbody>
</table>

The two largest differences between experimental and control groups at initial assessment in the knowledge of team sports and individual sports. Compared to the initial assessment of the difference in the final assessment and to increase in team sports with a .053 to .172, and in individual sports with a .006 to .106.

### Table 4: The homogeneity of the experimental and control groups of the initial and final assessment compared to the level of theoretical knowledge of physical education and physical exercise

<table>
<thead>
<tr>
<th>Групі</th>
<th>m/n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental - Η</td>
<td>68/104</td>
<td>65.38</td>
</tr>
</tbody>
</table>

The homogeneity of the subjects in the experimental group is larger and amounts to 65.38%. In the control group, on the other hand, 36 subjects had other characteristics, and characteristics of their group. Homogeneity is 58.65%. The final assessment of homogeneity was increased in both groups, but the larger increase in the experimental group. [5]

Graph 1 and 2: Ellipses (confidence interval) of experimental and control groups of the initial and final assessment in relation to the most discriminative state level of theoretical knowledge of physical education and physical exercise

Graph 1.

Graph 2.

**Legend:** Legend: experimental (1) and control (2), insufficient (Coles - 1); enough (Coles - 2), good (Coles - 3) and excellent (Coles - 5), insufficient (inds - 1); enough (inds - 2), good (inds - 3); very well (inds - 4) and excellent (inds - 5).

The abscissa is the knowledge of team sports with a five rating, while the ordinate is the knowledge of individual sports with grades four and five on the initial score on the final assessment. The fifth chart we can see that the axis of the knowledge of team sports in the control group of patients is the most under-represented, and in the experimental group fluency. In relation to the axis of the knowledge of individual sports in the control group of patients is the most under-represented, while the experimental
group, a very good knowledge. The graph of six for both knowledge in the experimental group of respondents from the five most common, and in the control group score one

4. Conclusion
The level of theoretical knowledge of physical education and physical exercise, subjects in the final estimate suggests that the knowledge of physical education in the experimental group of patients, the most common - very good knowledge, and the initial assessment - good knowledge. In the control group of patients in the final estimate is the most common - very good knowledge, and the initial estimate - insufficient knowledge. There is an evident increase in the level of theoretical knowledge of subjects with very good or excellent knowledge of the final assessment.

For the collective knowledge of the exercises - sports in the experimental group subjects in the final and initial assessment of the most common - excellent knowledge. In the control group of patients in the final estimate is the most common and well enough, and the initial assessment - the most common - lack of knowledge. For the knowledge of the individual exercises - sports in the experimental group subjects in the final and initial assessment of the most common - a good knowledge. In the control group of patients in the final and initial assessment of the most common - a good knowledge In the experimental group of patients has improved knowledge of physical education and knowledge of the collective exercises - sports. In the control group of patients, there was only an improvement of knowledge about physical education.

The experimental treatment caused positive changes in the level of theoretical knowledge of physical education and physical exercise in women experimental group compared to the control treatment in the control group patients. Multivariate analysis of variance and discriminant analysis to the level of statistical significance of r = 0.00, was found statistically significant differences between experimental and control group subjects at the final assessment, compared to the level of theoretical knowledge of physical education and physical exercise. According to Roy’s test we found out statistically significant differences between experimental and control groups of the final assessment, in all three areas of knowledge. A statistically significant difference in knowledge of physical education did not exist at the initial assessment. Statistically significant differences in the final evaluation shows positive impact of experimental treatments that caused the greatest changes in the space of knowledge about physical education. The biggest difference in the final assessment of the level of theoretical knowledge of physical education and physical exercise between the experimental and control group, the collective knowledge of the exercise (sports) with a coefficient of 0.172 discrimination.

Based on the results and the differences among the respondents of experimental and control groups, the general conclusion could be expressed by the following statement: Teaching physical education, continuous training and professional development programming, caused a statistically significant impact on increasing the level of theoretical knowledge of physical education and physical exercise, subjects in experimental group and as such can be a reliable basis and recommendations for teachers of physical education in contemporary physical education with a permanent upgrade of current knowledge. Teachers can use WEB based software for planning, realization and measuring the results of student’s work in the area of physical education. Planning of physical education lessons, using informational technology, with a continuous realization of programme contents had significant positive effects on improving the results of sport technical education.

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