WEB portals for supporting relations between physical condition and learning abilities

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Abstract:

In this paper we will present the results of our research about children's condition related to their academic success (which is also important for assessing their readiness to go to school). In our Web based software we include many tests for indicating physical condition and factors essential for school's success. Research also deals with a child lateralization. Indicators of lateralization are associated with the school's success in most of its components. This means that the lateralization is inseparable from the physical development and its components, which is important when examining readiness for school. There is evidence that the true hypothesis that lateralization is an important component of children's overall readiness and factor in their success in school. This means that some indicators of lateralization at the same time indicators of readiness for school with more implications of this conclusion. The most important implication is that the usual procedure of checking the children's readiness for school should be supplemented by indicators of lateralization, we've found. We found out that it is very important to increase quality of continuous planning of physical education lessons using didactical resources, plans and programs. That's why we created Web portal for teacher training, practice and complex evaluating using intelligent software. In physical education pupils 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..

Key-Words: Knowledge representation, Artificial intelligence, Physical education, Educational software,

1. Introduction

Recently, Serbia is in the process of forming the information society, thus promoting the task of computerization of the education system. This task involves improving the quality of general education and professional qualifications of experts, based on wide use of information and communication technologies

Also, based on the study of the contemporary
situation related to the application of ICT in teaching different subjects and professions can be concluded that there are general methodological approaches oriented to their systematic use in training with the aim of the teaching process, the expansion of autonomy in educational training, and in order to approach the teaching modern scientific methods of learning. In relation to this methodological development aimed at the realization of the settings in the teaching of pedagogical technologies, which are based on the means of modern information and communication technologies for each specific subject area, including the sphere of physical culture and sport, is one of the current problems of modern pedagogy. However, it should be noted that the system of training specialists for physical culture and sports have not made specific programs that would reflect the characteristics of the application of modern information and communication technologies. [2] This situation is mainly explained by the complexity of the specific physical culture and sports development problems of applied programs, lack of scientific and methodological basis for the use of information and communications technologies aimed at improving education experts in the field of physical culture and sports.

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 [5]

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. We created hybrid expert system for complex evaluation [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 preschool education

The aim of this study was to collect scientific data that can answer the following question: Is there, and which is reflected in the association between indicators of lateralization in children before entering school and their success in school. Lateralization in psychomotor refers to the sensory receptors in the peripheral part, and the dominance of the central nervous system and limbs. The structures of the central nervous system in some children during the seventh year of his reach maturity, so that the development of the cortex in terms of developing nerve ending structure, although, in some children, the whole process may take longer, sometimes until 12 years of age. This final phase is related to the gnostic regions of single event that occurs during this period, and identify lateralization of body and space. Thus it is concluded that the recognition of lateralization of the body and space (personal and spatial lateralization) at the end of this development was conditional upon completion of maturation of the central nervous system structures that carry the process of recognizing objects by means of one of the senses. [5]

Concretization and operationalization of objective research resulted in the following research tasks: First collect data testing lateralization Second collect data on student performance at the end of the first class. The study of lateralization of indicators should allow for: determining the status of basic indicators of lateralization, determining the parameters of the tested connections to students achievement at the end of first grade, compare the results with findings of other researchers who phenomena referred to previously studied in the framework of other tasks and in other populations.

The case studies are indicators of lateralization in children before entering school who are supposed to be connecting with their academic achievement at the end of first grade.

Problems of this research, in addition to theoretical analysis, views, ideas and results of previous research from other relevant papers, dictated the need to use descriptive method to describe the actual phenomena, interpretation of results and drawing conclusions. Statistical procedure was used to determine the size of the phenomenon being investigated and their relationships. In the phase of collecting data on student performance was used to record files where the recorded success of each student's individual assessments of attainment and evaluating the overall success of the school at the end of first grade. For a number of possible movements that occur in some batteries for the assessment of lateralization, in the study were taken following four tests. The batteries are installed, we are four elements to be observed in addition to personal and spatial lateralization. Instructions for the test lateralization Results of descriptive statistical parameters lateralization are shown in Table 1

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Number of respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>16</td>
<td>11.3</td>
</tr>
<tr>
<td>Personal</td>
<td>42</td>
<td>30.50</td>
</tr>
<tr>
<td>Personal and space</td>
<td>82</td>
<td>58.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>141</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The table shows that 141 children tested lateralization test. Assessment of developmental level lateralization in children who start in first grade was based on test batteries for personal and spatial lateralization, shows that 82 children (58.2%) has only the lateralization or the government's personal and physical lateralization, 42 children (30.50%) know only personal lateralization, and 16 children (11.3%) has no built that lateralization. not the government nor any personal physical lateralization. This assessment leads us to conclude that half of the children examined lateralization and built to a more detailed analysis of individual lateralization and spatial ability to point out the organization of the senses and voluntary movement in the function of motor activity (small and large motor skills). In children with harmonious lateralization, psychomotor
activity takes place in the field of harmony between lateralization and its neurobiological basis of motor functions that allows the child to his own flesh lateralization (personal) and spatial experience as a clear and stable experience of mastering the concepts of lateralization. Children at that lateralization have built a better control of their voluntary movement, and adjustment to identity models [3]

Table 2: Correlation between lateralization to the general success

<table>
<thead>
<tr>
<th></th>
<th>no</th>
<th>personal</th>
<th>Personal and space</th>
</tr>
</thead>
<tbody>
<tr>
<td>good</td>
<td>3  (18,8%)</td>
<td>4 (9,3%)</td>
<td>3 (3,7%)</td>
</tr>
<tr>
<td>very good</td>
<td>5  (31,3%)</td>
<td>17 (39,5%)</td>
<td>14 (17,1%)</td>
</tr>
<tr>
<td>excel lent</td>
<td>8  (50%)</td>
<td>22  (51,2%)</td>
<td>65  (79,3%)</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 14.65; \quad \phi 4; \quad n=0.005; \quad c=0.31 \]

From table 2, shows that 140 children tested lateralization test. Of these 16 children does not govern any personal or physical lateralization, and achieved the following success: a good child's success 3, 5 AC grades children 8 children and a great success. Personal lateralization government 43 children, of whom, 4 the child has a good success, five children very good results and 22 children a great success. Personal and Physical government lateralization 82 children, of which, three children have good results, 14 children very good results and 65 children a great success. Through the Pearson correlation coefficient was carried out correlation. The resulting value \( \chi^2 = 14.65, \quad \phi 4 \) for the \( p = 0.005 \). Relation between lateralization and success of children at the end of first grade was tested c-coefficient of contingency. The resulting value of c-coefficient (c = 0.30) indicates a statistically significant association. Children who have built personal and spatial lateralization achieving better grades in school. From the presented results of research can be concluded that lateralization in some way linked to their overall success in school. According to this we made research about pupils condition and school success and there is very great correlation. It means that teachers will have to plan carefully and realize classes of physical education. Thus, for example, professional researchers and educators (teachers directly organized and carried out educational work and do some research tasks: construct informal measuring instruments, applied them in the research, collect data from their students, etc.) Teachers can use plans, didactical materials, pictures, movies for all exercises according the program of physical education. These materials are located in WEB portal and could be saved on DVD, USB disk etc.

3. Conclusion

In the system of education experts in physical culture and sports have not made specific programs that would reflect the characteristics of the application of modern information and communication technologies. At best such a curious study of technology teachers on their own initiative. This situation is mainly explained by the complexity of the specific physical culture and sports development problems of applied programs, lack of scientific and methodological basis for the use of information and communications technologies aimed at improving education experts in the field of physical culture and sports. Therefore, the opening of the course "Information technologies in physical education and sport", adjusted to the needs of professionals for physical culture and sports, came at the right time. In order to orient freely in information streams, contemporary profile of any expert should know how to receive, process and use information through computers, telecommunications and other means of information technology. In this way, the question of mastering modern information and telecommunication technologies and their use is becoming one of the basic components of professional training of each professional, including specialists in the field of physical culture and sports. All this requires the development and introduction of teaching at universities and institutes of physical education programs and professional-oriented programming and pedagogical resources and courses aimed at the adoption of the necessary knowledge and to acquire personal experience in
their application in the professional, education and sports activities.
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.

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