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REVIEW OF LEADERSHIP LEVELS OF THE EMPLOYEES WORKING AT THE COORDINATION CENTER FOR WORLD UNIVERSITY WINTER GAMES

Emre BELLİ, Ali GÜRBÜZ, M. Alparslan KURUDİREK, Dursun KATKAT, Petronel MOISESCU

1School of Physical Education and Sports, Atatürk University, TURKEY
2Department of Physical Education and Sports, Mimar Sinan Fine Arts University, TURKEY
3Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract: The aim of this research paper is to determine the leadership dimensions of the staff who work in the organization committee of the 25th World University winter games and to inquire whether this dimension differs based on demographic characteristics. In order to gain data regarding the leadership behaviors, the “Scale to Describe Leadership Behaviors” was applied throughout the research to 223 people, 79 of whom were female and 144 male. In the research, frequency analysis was used to determine the demographic attributes; descriptive statistics to find the general average of the participants; t-test to determine the leadership levels based on gender, statue and marital status in independent groups; and unilateral variance (Anova) analysis to determine the leadership levels based on the education level. It has been concluded that male employees have higher averages regarding leadership behaviors in both dimensions compared to women. Considerable differences were not seen in the comparisons of leadership behaviors and statue, marital status and gender (p>0.05).

Key words: Leadership, behavior, winter games

INTRODUCTION
Universiade, also known as university games, is an international sports organization where only university students can join and represent their countries as athletes. The word “universiade” is formed by combining the words “university” and “olympiad”. Universiade activities, where many branches of sports are performed, take place twice a year, as summer and winter games, in countries determined by the International University Sports Federation (FISU). One of the main responsibilities of FISU, founded in 1949 and known as the second most important sports organization after the Olympics, is to oversee university games. University summer games include ten compulsory sports (thirteen compulsory disciplines) (athletics, basketball, flatwater speed race, fencing, soccer, gymnastics, swimming, diving, water polo, tennis and volleyball), and up to three optional sports, at the choice of the host country. The number of compulsory sports in winter games is six: alpine skiing, figure skating, biathlon, ice hockey, speed skating and cross-country skiing. 11 disciplines were performed in the 25th World University Winter Games that took place at Erzurum/Turkey between 27 January and 6 February, 2011, with the participation of 57 countries. The institutions involved in the World University Winter Games Erzurum 11, the biggest sports activity that was organized by Turkey in terms of investment, are FISU, GSGM, TUSF, Erzurum 2011 General Coordinatorship. Our research focuses on the leadership of the staff of Erzurum 2011 General Coordinatorship.

Leadership is a notion that has been discussed for decades, defined in different ways and that is still open to examination. The lack of a common definition of “leadership” is related to the global settings of the institutions and to the fact that the functions expected from the leaders are changing (Macbeath, Moos and Riley, 1996). In this context, the definitions found in the literature try to address the phenomenon of leadership under many different aspects. Etzioni (1964) defines leadership as a force that is related to personal attributes. According to Graen (1976), leadership is the bilateral communication process between a leader and his/her followers. Leadership is the ability to find people and lead them to a common goal as a united force (Koçel,
procedures (Monahan and Henges, 1982). Given the definitions, it is possible to describe leadership as the force to effect people and lead them to a goal with the help of this effect. The attitude of the leader towards his/her followers generally differs based on the attributes of the leader and the quality of the followers. Attempts have been made to classify this situation as the behavior types of leaders. In the period when management scientists started to discuss leadership as a notion, behavior types of leaders have been roughly distinguished from each other and, in time, new approaches have further diversified the leader behaviors in this general framework. The perception and expectations of the followers are determinative in identifying the leadership behaviors (Duke 1996). The researches that have been conducted try to define existing leadership applications rather than directing them (Sergiovanni 1992). In this context, leadership behavior types can be explained as we attempted to do below.

In autocratic leadership, the followers are excluded from the management. All the decisions regarding the organisation belong to the leader and the followers only carry out the directions. The leader has all the authority. The followers’ feelings and thoughts do not mean anything to the leader. There are strict disciplinary rules in the organisation. The organizational commitment of the followers is low. The attitudes of these leaders towards the followers can be defined as establishing a structure. Establishing a structure refers to the behaviors of the leader in describing the relationship between the members and the leader and in forming the patterns of well-defining the organisation, communication rules and process procedures (Monahan and Henges, 1982).

In democratic leadership, the decisions taken are presented to the followers in a certain level. The institutional commitment of the followers who can partake in the decisions regarding the management is high. There is a strong communication between the leaders and the followers. The attitude of the democratic leaders towards their followers is indulgence. Indulgence refers to trust, mutual respect, friendship, support and care for the demands of group members. The researches have designated the leadership type in which behaviors defined in the dimensions of establishing a structure and indulgence are on the upmost level, as the most proper equilibrium point (Erçetin, 1998). It is crucial to mark organisation stages, their degree of authority and responsibility and the relationship between them, in order to establish an organisation structure. It is also necessary to harmonize interpersonal relationships which constitute the informal side of the structure (Jaguès, 1991).

The role of the leader is clearly defined in the dimension of establishing a structure and it is assured that followers are aware of what is expected of them (Hoy and Miskel, 1987).

The leadership model in which there is no significant distance between the leader and the followers, the decisions regarding the organisation are given by the members and leaders generally have a supportive role is the liberal leadership approach. The leaders share almost the entire management power with the followers. Hence, it is known as a behavior model that can be used in groups where each follower is well-educated and an expert. This research analyzes the democratic and autocratic leadership tendencies of the employees of the 25th World University Winter Games Erzurum 2011 General Coordinatorship.

MATERIAL AND METHOD
The aim of this research is to determine the leadership dimensions of the staff working in the organization committee of 25th World University Winter Games and to inquire whether this dimension differs based on demographic attributes.

While the research is on the employees of the 25th World University Winter Games Erzurum 2011 General Coordinatorship, the sample group is made up of 233 randomly chosen people, 79 of whom were female and 144 male.

The “Scale to Describe Leadership Behaviors” was used as the data gathering tool. The survey consists of two sub-dimensions; establishing a structure (first 15 questions) and indulgence (last 15 questions). The score intervals, determined in relation to the degree of students’ agreeing on the attitude items, are determined as follows: always - 4.21-5.00, often - 3.41-4.20, sometimes - 2.61-3.40, seldom - 1.81-2.60, never - 1.00-1.80. SPSS 16.0 Statistics Package Program was utilized in analyzing the data and the expressiveness level was taken as P<0.05.

In the research, frequency analysis was used to determine the demographic characteristics; descriptive statistics, to find the general average of the participants; t-test, to determine the leadership levels based on gender, statue and marital status in independent groups; and unilateral variance (Anova) analysis, to determine the leadership levels based on the education level.
FINDINGS

Table 1. Information related to demographic characteristics of participants

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>79</td>
<td>35.4</td>
</tr>
<tr>
<td>Male</td>
<td>144</td>
<td>64.6</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>44</td>
<td>19.7</td>
</tr>
<tr>
<td>Single</td>
<td>179</td>
<td>80.3</td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director</td>
<td>43</td>
<td>19.3</td>
</tr>
<tr>
<td>Staff</td>
<td>180</td>
<td>80.7</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor</td>
<td>107</td>
<td>48</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>58</td>
<td>26</td>
</tr>
<tr>
<td>Under-graduate Student</td>
<td>40</td>
<td>17.9</td>
</tr>
<tr>
<td>Primary School Graduated</td>
<td>18</td>
<td>8.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>223</td>
<td>100</td>
</tr>
</tbody>
</table>

In relation to the gender distribution, 35.4% (79 people) are female; 64.6% (144) are male; in relation to the marital statuses, 19.7% (44) are married; 80.3% (179) are single; in relation to statute, 19.3% (43) are managers; 80.7% (180) are personnel; in relation to the education status, 48% (107) are bachelor, 26% (58) are post-graduate, 17.9% (40) are undergraduate; 8.1% (18) are primary school.

Table 2. Comparison of respondents’ opinions regarding the gender dimension of leadership

<table>
<thead>
<tr>
<th>Sub-Dimensions</th>
<th>Sex</th>
<th>N</th>
<th>Average</th>
<th>Std. Dev.</th>
<th>t</th>
<th>P(sig.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To Establish a Structure</strong></td>
<td>Male</td>
<td>144</td>
<td>3.23</td>
<td>.671</td>
<td>-.424</td>
<td>.004*</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>79</td>
<td>3.95</td>
<td>.573</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indulgence</strong></td>
<td>Male</td>
<td>144</td>
<td>3.28</td>
<td>.669</td>
<td>-1.672</td>
<td>.013*</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>79</td>
<td>3.85</td>
<td>.616</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant differences were found between the dimension of establishing a structure and gender (p=0.004) and indulgence and gender (p=0.13) upon data analysis (p<0.05). According to this, it has been observed that in the dimension of establishing a structure, women employees (X = 3.95±.573) have a higher average compared to male employees (X = 3.23±.671). In the indulgence dimension, it is seen that women employees (X = 3.85±.616) once again have a higher average compared to male employees (X = 3.28±.669).

Table 3. Comparison of marital status of the participants’ opinions regarding the dimensions of leadership

<table>
<thead>
<tr>
<th>Sub-Dimensions</th>
<th>Marital Status</th>
<th>N</th>
<th>Average</th>
<th>Std. Dev.</th>
<th>t</th>
<th>P(sig.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To Establish a Structure</strong></td>
<td>Married</td>
<td>44</td>
<td>3.73</td>
<td>.642</td>
<td>-.335</td>
<td>.036*</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>179</td>
<td>3.35</td>
<td>.608</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indulgence</strong></td>
<td>Married</td>
<td>44</td>
<td>3.68</td>
<td>.655</td>
<td>-1.456</td>
<td>.042*</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>179</td>
<td>3.43</td>
<td>.622</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(p<0.05)

It is seen that there are significant differences between marital status and dimension of establishing a structure (p=0.36) and marital status and indulgence dimension (p=0.42) upon data analysis (p>0.05). According to this, it has been observed that in the dimension of establishing a structure, married employees (X = 3.73±.642) have a higher average compared to single employees (X = 3.35±.608). In the indulgence dimension, it is seen that married employees (X = 3.68±.655) once again have a higher average compared to single employees (X = 3.43±.622).
Table 4. Comparison of respondents opinions regarding the dimensions of leadership according to their status

<table>
<thead>
<tr>
<th>Sub-Dimensions</th>
<th>Status</th>
<th>N</th>
<th>Average</th>
<th>Std. Dev.</th>
<th>t</th>
<th>P(sig.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To Establish a Structure</strong></td>
<td>Director</td>
<td>43</td>
<td>3.96</td>
<td>.579</td>
<td>-.345</td>
<td>.038*</td>
</tr>
<tr>
<td></td>
<td>Staff</td>
<td>180</td>
<td>3.42</td>
<td>.527</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indulgence</strong></td>
<td>Director</td>
<td>43</td>
<td>3.44</td>
<td>.572</td>
<td>-1.153</td>
<td>.037*</td>
</tr>
<tr>
<td></td>
<td>Staff</td>
<td>180</td>
<td>3.89</td>
<td>.534</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(p<0.05)

It is seen that there are significant differences between status and dimension of establishing a structure (p=0.38) and status and indulgence dimension (p=0.37) upon data analysis (p>0.05).

According to this, it has been observed that in the dimension of establishing a structure, employees working as personnel (\(\bar{X}=3.42\pm .527\)) have a higher average compared to employees working as managers (\(\bar{X}=3.96\pm .579\)). In the indulgence dimension, it is seen that employees working as personnel (\(\bar{X}=3.89\pm .534\)) have a higher average compared to employees working as managers (\(\bar{X}=3.44\pm .572\)).

Table 5. Structure of participants by level of education to establish rapport and to compare the views of size

<table>
<thead>
<tr>
<th>Sub-Dimensions</th>
<th>Education Level</th>
<th>N</th>
<th>Average</th>
<th>Std. Dev.</th>
<th>f</th>
<th>P(sig.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To Establish a Structure</strong></td>
<td>Primary</td>
<td>18</td>
<td>3.03</td>
<td>.613</td>
<td>.473</td>
<td>.001*</td>
</tr>
<tr>
<td></td>
<td>Under-grad.</td>
<td>40</td>
<td>3.63</td>
<td>.645</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>107</td>
<td>4.03</td>
<td>.526</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-grad.</td>
<td>58</td>
<td>4.24</td>
<td>.639</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indulgence</strong></td>
<td>Primary</td>
<td>18</td>
<td>3.34</td>
<td>.622</td>
<td>1.346</td>
<td>.000*</td>
</tr>
<tr>
<td></td>
<td>Under-grad.</td>
<td>40</td>
<td>3.45</td>
<td>.644</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>107</td>
<td>4.00</td>
<td>.519</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-grad.</td>
<td>58</td>
<td>4.09</td>
<td>.617</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(p<0.05)

As is shown in Table 5, there is a significant difference in the dimensions of establishing a structure (p=0.01) and indulgence (p=0.000)(p<0.05).

Multiple comparison results were given in the Table 6.

Table 6. Structure of participants by level of education to establish rapport and multiple comparison results of differences in size

<table>
<thead>
<tr>
<th>Sub-Dimensions</th>
<th>Post Hoc (Tukey Test)</th>
<th>The average difference</th>
<th>Expressiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To Establish a Structure</strong></td>
<td>Comparison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>Under-grad.</td>
<td>.405</td>
<td>.145</td>
</tr>
<tr>
<td></td>
<td>Post-grad.</td>
<td>-.209</td>
<td>.712</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>.540</td>
<td>.039*</td>
</tr>
<tr>
<td>Under-graduate</td>
<td>Post-graduate</td>
<td>.195</td>
<td>.008*</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>.195</td>
<td>.456</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>Primary</td>
<td>.750</td>
<td>.001*</td>
</tr>
<tr>
<td><strong>Understanding</strong></td>
<td>Post-graduate</td>
<td>.751</td>
<td>.001*</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>.089</td>
<td>.756</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>.633</td>
<td>.007*</td>
</tr>
<tr>
<td>Primary</td>
<td>Bachelor</td>
<td>-.661</td>
<td>.004*</td>
</tr>
<tr>
<td></td>
<td>Under-grad.</td>
<td>-.118</td>
<td>.818</td>
</tr>
<tr>
<td>Bachelor</td>
<td>Under-grad.</td>
<td>.543</td>
<td>.027*</td>
</tr>
</tbody>
</table>

*(p<0.05)
According to multiple comparison results, in the sub-dimension of establishing a structure, there are significant differences between bachelor and primary school graduate, under-graduate and post-graduate and post-graduate and primary school graduate employees.

According to this, it has been observed that in the dimension of establishing a structure, post-graduate \((\bar{X}=4.24\pm6.39)\) and bachelor \((\bar{X}=4.03\pm5.26)\) employees have a higher average compared to primary school \((\bar{X}=3.03\pm6.13)\) and under-graduate \((\bar{X}=3.63\pm6.45)\) employees.

In the indulgence dimension, there are significant differences between post-graduate and primary school graduate \((p=0.01)\), post-graduate and under-graduate \((p=0.07)\), primary school graduate and bachelor \((p=0.04)\) and bachelor and under-graduate employees \((p=0.27)\).

According to this, it has been observed that post-graduate \((\bar{X}=4.09\pm6.17)\) and bachelor \((\bar{X}=4.00\pm5.19)\) employees have a higher average compared to under-graduate \((\bar{X}=3.45\pm6.44)\) and primary school \((\bar{X}=3.34\pm6.22)\) employees.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>The Opinions on Setting up the Structure Size</th>
<th>Female (n: 79)</th>
<th>Male (n: 144)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(\bar{X})</td>
<td>(ss)</td>
<td>(\bar{X})</td>
<td>(ss)</td>
</tr>
<tr>
<td>1</td>
<td>I put clearly my personal attitudes.</td>
<td>4.11</td>
<td>.872</td>
<td>4.16</td>
<td>.954</td>
</tr>
<tr>
<td>2</td>
<td>I try new ideas with students.</td>
<td>3.57</td>
<td>1.033</td>
<td>3.50</td>
<td>1.046</td>
</tr>
<tr>
<td>3</td>
<td>I see myself as the only arbiter.</td>
<td>2.59</td>
<td>1.248</td>
<td>2.50</td>
<td>1.251</td>
</tr>
<tr>
<td>4</td>
<td>I criticize incomplete and inadequate work.</td>
<td>3.86</td>
<td>1.059</td>
<td>3.83</td>
<td>1.155</td>
</tr>
<tr>
<td>5</td>
<td>I express my ideas without any doubt.</td>
<td>3.78</td>
<td>.980</td>
<td>3.86</td>
<td>.981</td>
</tr>
<tr>
<td>6</td>
<td>I decide who will do the tasks in the organizations.</td>
<td>3.04</td>
<td>1.136</td>
<td>2.89</td>
<td>1.257</td>
</tr>
<tr>
<td>7</td>
<td>I work without any plan.</td>
<td>2.84</td>
<td>1.263</td>
<td>2.94</td>
<td>1.235</td>
</tr>
<tr>
<td>8</td>
<td>I take care of my tasks according to certain standards.</td>
<td>3.95</td>
<td>1.030</td>
<td>3.95</td>
<td>1.039</td>
</tr>
<tr>
<td>9</td>
<td>I take care of my tasks to complete within the specified time.</td>
<td>4.14</td>
<td>.952</td>
<td>4.09</td>
<td>1.037</td>
</tr>
<tr>
<td>10</td>
<td>I encourage the work to be followed with the same methods.</td>
<td>3.80</td>
<td>.969</td>
<td>3.84</td>
<td>1.029</td>
</tr>
<tr>
<td>11</td>
<td>I try to provide understanding of my place and role as a leader in the organisation.</td>
<td>3.91</td>
<td>1.018</td>
<td>3.88</td>
<td>1.029</td>
</tr>
<tr>
<td>12</td>
<td>I want employees in the organisation to obey the rules and orders.</td>
<td>4.06</td>
<td>.994</td>
<td>4.03</td>
<td>1.104</td>
</tr>
<tr>
<td>13</td>
<td>I state clearly what they’ve waited for the organization of the tasks of employees.</td>
<td>4.09</td>
<td>1.014</td>
<td>4.09</td>
<td>1.088</td>
</tr>
<tr>
<td>14</td>
<td>I do the necessary thing for the employees to give themselves entirely to their duties in the organisation.</td>
<td>4.11</td>
<td>.972</td>
<td>4.10</td>
<td>1.066</td>
</tr>
<tr>
<td>15</td>
<td>I do everything for the employees to cooperate in the organisation.</td>
<td>4.16</td>
<td>.993</td>
<td>4.15</td>
<td>1.079</td>
</tr>
</tbody>
</table>

*(p<0.05)

When the answers regarding the dimension of establishing a structure are compared, we have seen significant differences on the question “I decide on who will carry on the tasks in the organization” \((p=0.34)\). According to this, it has been observed that the averages of women employees \((\bar{X}=3.04\pm1.136)\) are higher compared to male employees \((\bar{X}=2.89\pm1.257)\). It is seen when we look at the averages that the participants in both groups said often to 12 questions \((1,2,4,5,8,9,10,11,12,13,14,15)\), sometimes to 2 questions \((6,7)\) and seldom to 1 \((3)\) question.
Table 8. Opinions on the indulgence dimension

<table>
<thead>
<tr>
<th>Item No</th>
<th>The Opinions on the Indulgence Dimension</th>
<th>Female (n=79)</th>
<th>Male (n=144)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>ss</td>
<td>X</td>
<td>ss</td>
</tr>
<tr>
<td>16</td>
<td>I personally help people work in the organization.</td>
<td>4.15</td>
<td>.964</td>
<td>4.16</td>
<td>1.075</td>
</tr>
<tr>
<td>17</td>
<td>I try to make employees feel comfortable.</td>
<td>4.20</td>
<td>1.035</td>
<td>4.17</td>
<td>1.071</td>
</tr>
<tr>
<td>18</td>
<td>I believe that I am an easygoing and apprehensible leader.</td>
<td>4.00</td>
<td>1.041</td>
<td>3.98</td>
<td>1.093</td>
</tr>
<tr>
<td>19</td>
<td>I allocate time to listen to the people working in the organization.</td>
<td>3.97</td>
<td>1.077</td>
<td>4.02</td>
<td>1.157</td>
</tr>
<tr>
<td>20</td>
<td>I don’t offer explanations to the employees when I set up activities in the organization.</td>
<td>2.79</td>
<td>1.371</td>
<td>2.69</td>
<td>1.396</td>
</tr>
<tr>
<td>21</td>
<td>I care for the personal problems of the employees.</td>
<td>3.82</td>
<td>1.109</td>
<td>3.83</td>
<td>1.206</td>
</tr>
<tr>
<td>22</td>
<td>I don’t explain the reasons for my behaviors.</td>
<td>3.00</td>
<td>1.271</td>
<td>2.90</td>
<td>1.278</td>
</tr>
<tr>
<td>23</td>
<td>I implement the activities without consulting the employees.</td>
<td>3.14</td>
<td>1.182</td>
<td>2.91</td>
<td>1.253</td>
</tr>
<tr>
<td>24</td>
<td>I don’t accept new ideas easily.</td>
<td>2.95</td>
<td>1.250</td>
<td>2.81</td>
<td>1.300</td>
</tr>
<tr>
<td>25</td>
<td>I treat all the employees like friends.</td>
<td>3.92</td>
<td>1.112</td>
<td>3.74</td>
<td>1.252</td>
</tr>
<tr>
<td>26</td>
<td>I am eager to make changes.</td>
<td>4.02</td>
<td>1.014</td>
<td>4.01</td>
<td>1.126</td>
</tr>
<tr>
<td>27</td>
<td>I am apt to have an easy communication with people.</td>
<td>4.20</td>
<td>.957</td>
<td>4.19</td>
<td>1.065</td>
</tr>
<tr>
<td>28</td>
<td>I try to make employees feel comfortable during my interviews.</td>
<td>4.18</td>
<td>.969</td>
<td>4.11</td>
<td>1.118</td>
</tr>
<tr>
<td>29</td>
<td>I try to implement the advice.</td>
<td>4.08</td>
<td>.953</td>
<td>3.96</td>
<td>1.055</td>
</tr>
<tr>
<td>30</td>
<td>I receive approval of the employees before starting to work on activities in the organization.</td>
<td>3.89</td>
<td>1.007</td>
<td>3.77</td>
<td>1.176</td>
</tr>
</tbody>
</table>

*(p<0.05)

When the answers regarding the dimension of indulgence are compared, we have seen significant differences among genders on the questions “I implement the activities without consulting the employees” (p=0.001), “I don’t accept new ideas easily” (p=0.49), and “I treat all the employees like friends” (p=0.07). According to this, it has been observed in three of the questions that women employees have a higher average compared to male employees.

It is seen when we look at the averages that the participants in both groups said often to 11 questions (16, 17, 18, 19, 21, 25, 26, 27, 28, 29, 30), sometimes to 4 questions (6,7) and seldom to 1 (20,22,23,24) question.

**DISCUSSION AND CONCLUSION**

The leadership dimensions of the personnel working in the organization of the 25th World University Winter Games were analyzed and the following conclusions have been reached.

There are significant differences between gender and dimensions of establishing a structure and indulgence (p<0.05).

According to this, it has been observed that in the dimension of establishing a structure, women employees (X̄=3.95±.573) have a higher average than male employees (X̄=3.23±.671). This finding carries similarities with the findings of Turan and Ebiçoğlu; 2002, and Can and Pepe; 2003. Structural functions are very important in the organization. Among leadership dimensions, establishing a structure refers to the behaviors of the leader in describing the relationship between the members and the leader and in forming the patterns of well-defining the organisation, communication rules and process procedures (Dubin, 1986). The task of establishing a structure can be realized by leaders who are embraced...
by the members of the organization rather than appointed or theoretical leaders (Erkal, 1986). Given this definition, we can come to the conclusion that trust and significance given to women in Turkey are increasing every day. Women having higher averages in the dimension of establishing a structure might arise from the fact that women are given much more responsibility in modern, contemporary business life.

In the dimension of indulgence, it has been observed that women employees (\(X = 3.85\pm0.616\)) once more have a higher average than male employees (\(X = 3.28\pm0.669\)). If we were to briefly explain the indulgence dimension of leadership behaviors, we can say that it refers to friendship, mutual trust, respect and friendly relationship between the leader and the staff (Monohan and Hengst; 1982). Given this definition, women participating in the organization committee has an important role in constituting a team spirit and in completing the organization smoothly.

It is seen that there are significant differences between the marital status and dimensions of establishing a structure and indulgence (p<0.05).

It has been observed that in the dimension of establishing a structure, married employees (\(X = 3.73\pm0.642\)) have a higher average compared to single employees (\(X = 3.35\pm0.608\)) and in the indulgence dimension that married employees (\(X = 3.68\pm0.625\)) once again have a higher average compared to single employees (\(X = 3.43\pm0.622\)). This result might stem from the fact that married employees have a more regular life style and they completely concentrate on their works.

It is seen that there are significant differences between the status and dimensions of establishing a structure and indulgence (p<0.05).

It has been observed that in the dimension of establishing a structure, employees working as managers (\(X = 3.96\pm0.579\)) have a higher average compared to employees working as personnel (\(X = 3.42\pm0.527\)). This result might stem from the fact that employees working as managers have a stronger sense of responsibility due to their jobs and that they have to organize the personnel who work in lower levels in a way to have them work towards the common goal.

In the indulgence dimension, it is seen that employees working as personnel (\(X = 3.89\pm0.534\)) have a higher average compared to employees working as managers (\(X = 3.44\pm0.572\)). Given these results, we can conclude that employees working as personnel might have less stress on their shoulders as they are responsible for only their behaviors, so they can be more helpful and caring for other people. Because people working as managers are not only responsible for themselves, but also for the people working in lower levels. The stress they experience due to this situation might be higher and they might be exhibiting a stricter attitude as they don’t want a problem to occur.

It is seen that there are significant differences between education and dimensions of establishing a structure and indulgence (p<0.05).

It has been observed that in the dimension of establishing a structure, post-graduate (\(X = 4.24\pm0.639\)) and bachelor (\(X = 4.03\pm0.526\)) employees have a higher average compared to primary school (\(X = 3.03\pm0.613\)) and undergraduate (\(X = 3.63\pm0.645\)) employees.

It has been observed that in the dimension of indulgence post-graduate (\(X = 4.09\pm0.617\)) and bachelor (\(X = 4.00\pm0.619\)) employees have a higher average compared to undergraduate (\(X = 3.45\pm0.644\)) and primary school (\(X = 3.34\pm0.622\)) employees.

Given these results, we can say that, as the education level increases, so does the leadership level of the employees. This might stem from the fact that employees learn how to cope with stress as a result of their education or that they have gained experience as a result of participating in this type of organizations.

When the answers regarding the dimension of establishing a structure are compared, we have seen significant differences between genders on the question “I decide on who will carry on the tasks in the organization” (p=0.34). According to this, it has been observed that the women employees (\(X = 3.04\pm1.136\)) have a higher average compared to male employees (\(X = 2.89\pm1.257\)). Given this result, we can conclude that women employees desire to work in management position in the organization and that they want more responsibility.

Employees of Erzurum 2011 University Winter Games, among the biggest organization that took place in our country, have taken over an important task in both presenting our country and in the process of being a candidate for the Olympics. The leadership levels of the employees working in this process have been analyzed and the striking conclusion has been reached that the averages of women employees are higher. Given that there has not been an important trouble in the organization, we can emphasize the fact that women employees have a big role in this. It is thought that giving women employees more opportunity in other organizations as both personnel and manager would contribute positively to the structural operation of the organization.

REFERENCES
DE COORDINATION DES JEUX MONDIAUX UNIVERSITAIRES D’HIVER

Résumé
Le but de cette recherche est de déterminer les dimensions du leadership du personnel qui travaillent dans le comité d’organisation des jeux mondiaux d’hiver de l’Université et de 25 pour savoir si cette dimension est différente en fonction des caractéristiques démographiques. Tout au long de la recherche, afin d’obtenir des données concernant les comportements de leadership », à l’échelle pour décrire les comportements de leadership" a été appliqué à 223 personnes, dont 79 étaient de sexe féminin et 144 de sexe masculin. Dans la recherche, l’analyse de fréquence a été utilisé pour déterminer les caractéristiques démographiques, les statistiques descriptives pour trouver la moyenne générale des participants; t-test pour déterminer les niveaux de leadership fondée sur le sexe, la statue et l’état matrimonial dans les groupes indépendants et unilatérale de la variance (Anova ) analyse pour déterminer les niveaux de leadership basées sur le level.It l’éducation a été conclu que les employés de sexe masculin ont des moyennes plus élevées concernant les comportements de leadership dans les deux dimensions par rapport aux femmes. Des différences considérables ont été pas vu dans les comparaisons de comportements de leadership et la statue, l’état matrimonial et le sexe (p> 0,05).

Mots clés: Leadership, Le comportement Jeux d’hiver.

AQUA-GYM – A NEW METHOD OF IMPROVING PHYSICAL CAPACITY

Adela BADAU1, Dragos BONDOC-IONESCU2, Dana BADAU1

1“George Baritiu” University of Brasov, ROMANIA
2“Transilvania” University of Brasov, ROMANIA

Abstract:
Aqua-gym represents an innovative method of motility education technology , can be adapted to particularities specific to age and preparation level, as well as to individual and group preferences, and contributes to the optimal modification of behavioral and physical capacities. In view of the research we have developed and applied a questionnaire through which we wanted to emphasize the effectiveness, the attractiveness, the benefits and the preferences for the exercises specific to aquagym. The research reveals that the results of aqua-gym are complex and the motivation of the people who chose to practice it are different depending on the effects and attractiveness of different types of specific exercises.

Key words: Aqua-gym, methods, educational technology, preferences, motility behavior, recovery.
INTRODUCTION

Biological adjustment in sport represents the body’s answer to a physical or psychical input, which comes out as a modification of organs and of relevant body functions. [2]

Optimizing the training process is possible when teaching, learning and evaluation are interdependent and when these activities create significant changes in the personality structure of educational agents, in general, and of sportsmen or sportswomen, in particular. [1]

In order to allow maximum performance, fatigue limits have to be constantly removed during sportive activity. Effort and recuperation are interconnected, interdependent and they interrelate. [4]

For the purpose of engraining the child to continuously practice physical exercise, educators have to consider the following principles: [3]

- respecting every aspect of human personality;
- soliciting everyone’s capacity to take care of self, to evaluate possibilities and to develop various aspects of own personality in the spirit of self respect and respect to others; supporting sport; practicing as recreation, without neglecting the rigor of the didactical process and taking into consideration the child’s needs;
- developing pedagogies of success, which does not imply easy accomplishment nor failure with heavy effects;
- suggesting a wide range of individual and group activities;
- permission to everyone to choose according to taste, necessity and own pleasure.

THEORETICAL BACKGROUND

The psychical activity of those playing handball is fully solicited: cognitive functions regarding circumstance perception and choosing the best action methods for attack or defense; determination and its qualities to combat fatigue and negative efforts or emotions; affection tightly connected to practical or imagined situations, concerning both game satisfaction and acquired success, and fear of failure or bitterness towards the opponent’s superiority. [4]

Effort in handball is characterized through an alternation of efforts of sub maximal intensity, depending on the practical game conditions, with efforts of maximal or medium intensity and even with breaks. [2]

Aqua-gym can be considered the sum of various exercises, implying precise and efficient moves, within an environment where gravity is reduced to a minimum, thus avoiding trauma which can appear by practicing other physical activities. Aqua-gym represents an important form of fitness, taking into consideration multiple formative and health aspects, by combining the positive effects of water exercise and adapted to music rhythms.

PROBLEM SOLUTION

Research purpose and hypothesis

The purpose of the research was to identify preferences and motivations to practice various aqua-gym exercises with the intention to optimize the subjects’ motility capacity.

In order to set the hypothesis of the research we started from the assumption that identifying the options of the subjects interviewed can contribute to optimizing the motility activity specific to aqua-gym.

MEANS AND TOOLS

The field activity had as objective the interviewing of junior I female handball players included in the test sample. The research population is represented by two teams of handball players, both from Brasov, aged 17-32. The applied questionnaire is administrated to people who, as a result of prior exploratory research, mentioned that they practice this type of activity both as a recovery and as a training method, in the view of optimizing effort capacity.

Question no. 1. Would you like to take part in a study regarding the effects of aqua-gym? Yes/No

Question no. 2. On a scale from 1 to 10, how attractive do you find aqua-gym courses?

Question no. 3. Which are the first three reasons for choosing this type of activity?

- Muscle tone
- Psychical relaxation
- Effort recovery
- Mobility increase
- Health improvement
- Weight loss
- Body shaping
- Trauma recovery
- Lack of discomfort signs during effort (transpiration, excessive heat)
- Other reasons.

Question no. 4. Which three benefits do you consider to gain from aqua-gym? [5]

- Effort capacity increase by defying water resistance with means specific to fitness;
- By floating exploitation, the spine and articulations relax;
- Reducing gravity favors muscular relaxation and neuromuscular axes are less excited;
- Weight loss;
- Muscle tone without the risk of trauma or of incorrect position;
- Improvement of balance perception;
- Increase of muscular grace;
- Quantity reduction of lactic acid which accumulates during intense aerobic trainings;
- Stimulation of blood circulation;

• • •
Respiratory capacity increase;
Efficient training of cardio-vascular system;
Psychical relaxation due to the “placebo” water effect;
Water exercise compared to those on the ground consume with 1-2 more kcal/min, at the same intensity;
Hydrostatic pressure acts on articulations, making them stable;
The massage the water executes on the body has a tone and relaxing effect;
Other reasons.

Question no. 5. On a scale from 1 to 3 (where 1 is the least important and 3 the most important), which of the following do you consider to be the most significant for you: weight loss, muscle tone or psychical relaxation?

Question no. 6. Do you think that the diversity of the means of action used during class is:
Efficient
Not efficient?

Question no. 7. Do you consider the class intensity as being:
Low
Average
High?

Question no. 8. Do you think that the language used is:
Accessible
Not accessible?

Question no. 9. How long have you been frequenting aqua-gym classes?

Question no. 10. Grade the following methodical procedures from 6 to 10 according to attractiveness level:

Table 1. Variants for question no. 10

<table>
<thead>
<tr>
<th>Methodical procedures</th>
<th>Attractiveness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua-gym pliometry</td>
<td></td>
</tr>
<tr>
<td>Stretching</td>
<td></td>
</tr>
<tr>
<td>Jogging</td>
<td></td>
</tr>
<tr>
<td>Adapted swimming</td>
<td></td>
</tr>
<tr>
<td>Circuit</td>
<td></td>
</tr>
<tr>
<td>Exercises with weights</td>
<td></td>
</tr>
</tbody>
</table>

Question no. 11. Grade the following methodical procedures from 1 to 10 (where 1 is the least important, 10 very important) according to efficiency:

Table 2. Variants for question no. 11

<table>
<thead>
<tr>
<th>Methodical procedures</th>
<th>Efficiency level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua-gym pliometry</td>
<td></td>
</tr>
<tr>
<td>Stretching</td>
<td></td>
</tr>
<tr>
<td>Jogging</td>
<td></td>
</tr>
<tr>
<td>Adapted swimming</td>
<td></td>
</tr>
<tr>
<td>Circuit</td>
<td></td>
</tr>
<tr>
<td>Exercises with weights</td>
<td></td>
</tr>
</tbody>
</table>

Question no. 12. Do you consider the number of repeated exercises according to muscular groups to be:
Efficient
Not efficient?

SAMPLE SIZE DETERMINATION
In order to determine the sample size, we used the following formula:

\[ n = \frac{z^2 \cdot p \cdot q}{E^2} \]

Where \( n \)=sample size, \( z^2 \)=square of \( z \) coefficient, adequate to the trust level, \( p \)=percent estimation in case of success, \( q =1-p \)=percent estimation in case of lack of success, \( E^2 \)=square of error level expressed as percent.
We considered an error of \( \pm 3\% \) and the trust interval of 95\% for which \( z \) has a value of 1.96.
Without knowing the proportion of those responding Yes or No, we considered \( p=q=50\% \). Therefore, the sample size will be:

\[ n = \frac{1.96^2 \cdot 50 \cdot 50}{3^2} = 1067 \text{ persons.} \]

Taking into account the educational aspect of this research, as well as the financial reasons, the sample size was not taken into consideration and was therefore reduced to 36 subjects. In this case, the error is:

\[ E = \sqrt{\frac{z^2 \cdot p \cdot q}{n}} \left( \frac{1.96^2 \cdot 50 \cdot 50}{50} \right)^{\frac{1}{2}} = \pm 13.85 \]

The rapport between the sample size and the researched population is:

\[ \frac{n}{N} = \frac{50}{81800} = 0.00061 \]

The sample represents 0.00061\% of the size of the referred population, being under the value of 3\%, therefore the sample size does not need correction.

RESULTS AND INTERPRETATION
Statistics of the relevant questions and of the characterization questions of the subjects.

Question no.1. Would you like to take part in a study regarding the effects of aqua-gym?
All unanimous answers were Yes, which means that the entire selected sample participated in this study, with a percentage of 100 units.

Question no. 2. On a scale from 1 to 10 how attractive do you find aqua-gym courses?

Table 3. Answers question no. 2.

<table>
<thead>
<tr>
<th>Grade</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of persons</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>9</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>
For junior I handball players, from a total of 36, 24 gave the maximum grade, which represents 66.6%, 9 sportswomen graded 9, which represents 25%, and the rest of 3 persons appreciated the activity with 8, representing 8.4%. This indicates that for junior I handball players aqua-gym classes are very attractive.

Question no. 3. Which are the first three reasons for choosing this type of activity?

Table 4. Answers question no. 3.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle tone</td>
<td>6</td>
</tr>
<tr>
<td>Psychical relaxation</td>
<td>2</td>
</tr>
<tr>
<td>Effort recovery</td>
<td>28</td>
</tr>
<tr>
<td>Mobility increase</td>
<td>8</td>
</tr>
<tr>
<td>Health improvement</td>
<td>36</td>
</tr>
<tr>
<td>Weight loss</td>
<td>10</td>
</tr>
<tr>
<td>Body shaping</td>
<td>9</td>
</tr>
<tr>
<td>Trauma recovery</td>
<td>1</td>
</tr>
<tr>
<td>Lack of discomfort signs during effort</td>
<td>8</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
</tr>
</tbody>
</table>

For the collected data appears that the majority made an option for health improvement, due to the beneficial effects of the environment in which the activity takes place. Psychical relaxation registered a low score, namely two options, due to the age of the sportswomen, the accent not being on the psychical aspect. Also a low score was obtained on trauma recovery and this is due to the fact that only one player needed it. In addition to that, we discovered that effort recovery has a very good score (28 units), this also constituting one of the factors taken into account by aqua-gym.

Question no. 4. Which three benefits do you consider to gain from aqua-gym?

Table 5. Answers question no. 4.

| Effort capacity increase | 0 |
| Spine and articulations relaxation | 3 |
| Muscular and neuromuscular relaxation | 8 |
| Weight loss | 14 |
| Muscle tone | 2 |
| Balance perception improvement | 12 |
| Increase of muscular grace | 20 |
| Quantity reduction of lactic acid | 3 |
| Stimulation of blood circulation | 11 |
| Respiratory capacity increase | 4 |
| Psychical relaxation | 2 |
| Increased calory consumption | 4 |
| Mobility of articulations | 4 |
| Hydromassage | 21 |
| Others | 0 |

The highest score for this question is held by hydro massage and increase of muscular grace.

Question no. 5. On a scale from 1 to 3 (where 1 is the least important and 3 the most important), which of the following do you consider to be the most significant for you: weight loss, muscle tone or psychical relaxation?

Table 6. Answers question no. 5.

<table>
<thead>
<tr>
<th>Aspects taken into consideration</th>
<th>Points</th>
<th>Absolute frequencies</th>
<th>Relative frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight loss</td>
<td>1</td>
<td>9</td>
<td>0.25</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>16</td>
<td>0.44</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>11</td>
<td>0.31</td>
<td>30.6</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1.00</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Muscle tone</td>
<td>1</td>
<td>21</td>
<td>0.58</td>
<td>58.3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
<td>0.28</td>
<td>27.8</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>0.14</td>
<td>13.9</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1.00</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Effort</td>
<td>1</td>
<td>6</td>
<td>0.17</td>
<td>16.7</td>
</tr>
</tbody>
</table>
Average scores:
- Weight loss: $1*9+2*16+3*11 = 74$
- Muscle tone: $1*21+2*10+3*5 = 56$
- Effort recovery: $1*6+2*10+3*20 = 86$

In conclusion, effort recovery is one of the most important benefits in practicing aqua-gym, with an average score of 86 units.

**In conclusion, effort recovery is one of the most important benefits in practicing aqua-gym, with an average score of 86 units.**

Question no. 6. Do you think that the diversity of the means of action used during class is efficient/not efficient?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Absolute frequencies</th>
<th>Relative frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient</td>
<td>34</td>
<td>0,94</td>
<td>94%</td>
</tr>
<tr>
<td>Not efficient</td>
<td>2</td>
<td>0,06</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table 7. Answers question no. 6.**

The language of the aqua-gym program is specific to basic gymnastics and with the help of examples given by the trainer sitting on the margin of the pool, language combines with the visual image of the exercise. We consider the 100% relevant, especially because the players have already a sport based terminology which makes their appreciation real.

**In conclusion, effort recovery is one of the most important benefits in practicing aqua-gym, with an average score of 86 units.**

**Question no. 6. Do you think that the diversity of the means of action used during class is efficient/not efficient?**

<table>
<thead>
<tr>
<th>Answers</th>
<th>Absolute frequencies</th>
<th>Relative frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient</td>
<td>34</td>
<td>0,94</td>
<td>94%</td>
</tr>
<tr>
<td>Not efficient</td>
<td>2</td>
<td>0,06</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table 7. Answers question no. 6.**

**In conclusion, effort recovery is one of the most important benefits in practicing aqua-gym, with an average score of 86 units.**

The language of the aqua-gym program is specific to basic gymnastics and with the help of examples given by the trainer sitting on the margin of the pool, language combines with the visual image of the exercise. We consider the 100% relevant, especially because the players have already a sport based terminology which makes their appreciation real.

Question no. 7. Do you consider the class intensity as being: low/average/high?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Absolute frequencies</th>
<th>Relative frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
<td>0,03</td>
<td>2,8%</td>
</tr>
<tr>
<td>Average</td>
<td>7</td>
<td>0,19</td>
<td>19,4%</td>
</tr>
<tr>
<td>High</td>
<td>28</td>
<td>0,78</td>
<td>77,8%</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table 8. Answers question no. 7.**

**In conclusion, effort recovery is one of the most important benefits in practicing aqua-gym, with an average score of 86 units.**

The language of the aqua-gym program is specific to basic gymnastics and with the help of examples given by the trainer sitting on the margin of the pool, language combines with the visual image of the exercise. We consider the 100% relevant, especially because the players have already a sport based terminology which makes their appreciation real.

Question no. 8. Do you think that the language used is: accessible/not accessible?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Absolute frequencies</th>
<th>Relative frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessible</td>
<td>36</td>
<td>1,00</td>
<td>100%</td>
</tr>
<tr>
<td>Not accessible</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table 9. Answers question no. 8.**

**In conclusion, effort recovery is one of the most important benefits in practicing aqua-gym, with an average score of 86 units.**

The language of the aqua-gym program is specific to basic gymnastics and with the help of examples given by the trainer sitting on the margin of the pool, language combines with the visual image of the exercise. We consider the 100% relevant, especially because the players have already a sport based terminology which makes their appreciation real.

Question no. 9. How long have you been frequenting aqua-gym classes?

All players responded that they have been practicing aqua-gym for 4 months, one hour, two times per week.

Question no. 10. Grade the following methodical procedures from 6 to 10, according to attractiveness level

<table>
<thead>
<tr>
<th>Methodical procedures</th>
<th>Atractiveness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua-gym pliometry</td>
<td>328</td>
</tr>
<tr>
<td>Stretching</td>
<td>346</td>
</tr>
<tr>
<td>Jogging</td>
<td>340</td>
</tr>
<tr>
<td>Adapted swimming</td>
<td>332</td>
</tr>
<tr>
<td>Circuit</td>
<td>342</td>
</tr>
<tr>
<td>Exercises with weights</td>
<td>340</td>
</tr>
</tbody>
</table>

**Graphic 5. Graphic representation of the aqua-gym class intensity**

**Graphic 6. Graphic representation of the attractiveness of methodical procedures used in aqua-gym classes**
Table 11. Attractiveness grades

<table>
<thead>
<tr>
<th>Attractiveness grades</th>
<th>F.A.</th>
<th>F.R.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>8</td>
<td>0.037</td>
<td>3.7%</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>0.037</td>
<td>3.7%</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>0.084</td>
<td>8.4%</td>
</tr>
<tr>
<td>9</td>
<td>30</td>
<td>0.140</td>
<td>14.0%</td>
</tr>
<tr>
<td>10</td>
<td>151</td>
<td>0.702</td>
<td>70.2%</td>
</tr>
<tr>
<td>Total</td>
<td>215</td>
<td>1.000</td>
<td>100%</td>
</tr>
</tbody>
</table>

The average for appreciation of aqua-gym program attractiveness is:

\[
\frac{1 \cdot 8 + 2 \cdot 8 + 3 \cdot 18 + 4 \cdot 30 + 5 \cdot 151}{215} = \frac{1 \cdot 8 + 2 \cdot 8 + 3 \cdot 18 + 4 \cdot 30 + 5 \cdot 151}{215} = \frac{215}{215} = 1
\]

Variance:

\[
S^2 = \frac{1}{n-1} \sum_{i=1}^{n} (X_i - \bar{X})^2
\]

\[
S = \sqrt{S^2} = 0.128
\]

In conclusion, the junior I handball players are highly attracted to aqua-gym programs.

Question no. 11. Grade the following methodical procedures from 1 to 10 (where 1 is the least important, 10 is very important), according to efficiency:

Table 12. Answers question no. 11.

<table>
<thead>
<tr>
<th>Methodical procedures</th>
<th>Efficiency level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua-gym pliometry</td>
<td>328</td>
</tr>
<tr>
<td>Stretching</td>
<td>336</td>
</tr>
<tr>
<td>Jogging</td>
<td>342</td>
</tr>
<tr>
<td>Adapted swimming</td>
<td>322</td>
</tr>
<tr>
<td>Circuit</td>
<td>344</td>
</tr>
<tr>
<td>Exercises with weights</td>
<td>332</td>
</tr>
</tbody>
</table>

After analyzing the questionnaires, the most efficient proceeding is the method of the circuit, which has a very well defined structure in aqua-gym, after that water jogging distinguished, which implies running and various steps specific to athletics.

Question no. 12. Do you consider the number of repeated exercises according to muscular groups to be efficient/not efficient?

Table 13. Answers question no. 12.

<table>
<thead>
<tr>
<th>Answers</th>
<th>Absolute frequencies</th>
<th>Relative frequencies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient</td>
<td>36</td>
<td>1,00</td>
<td>100%</td>
</tr>
<tr>
<td>Not efficient</td>
<td>0 0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>

All answers were affirmative and we can thus consider that the measuring exercise based on muscular groups is efficient and accessible.

CONCLUSIONS

The hypothesis of the research was confirmed. The subjects’ preferences and motivations to practice exercises specific to aqua-gym are varied and determined by personal needs.

The application of the questionnaire led to becoming aware of some definite and motivational aspects of practicing aqua-gym. The subjects’ behavior was improved, as a result of delimitation made between personal and group options.

We consider that the diversity of action technology specific to aqua-gym, adjusted to individual and group particularities, will determine optimization regarding motility capacity and effort recovery. The increase of the attractiveness level by using various means and educational materials during aqua-gym programs will enable class optimization, active participation of the subjects and diversity regarding preferences and motivations.

REFERENCES:
[3] Strujan C., Badau D., Badau A. – Physical education and sport , Publisher by University of Transylvania, Brasov 2009, pp. 29

L’AQUAGIM UNE NEUVE METHODE POUR AMELIORATION DE LA CAPACITE PHYSIQUE

Résumé
L’aquagim représente une neuve méthode de la technologie d’éducation motrice en pouvant d’être adaptée on particulements d’âge et an niveau de préparation, ainsi que aux préférences individuelles et de groupe en contribuant an modification optime, des comportements et des capacités phisiques. An cadre de recherche j’ai élaboré et j’ai apliqué un questionnaire dans quel j’ai désiré o distinquer l’efficacité, le degré d’attraction, les bénéfices et les préférences d’aquagim.

La recherche releve le fait que les résultats de pratiquer l’aquagim sont complexes, mais motivations de practiciens sont différents en fonction des effets et d’attraction des différentes types d’exercices spécifiques.

Mats clef: L’aquagim, méthode, technologie d’éducation, préférence, comportement motric, redressement.

MONITORING THE HEART RATE OF TRAINED AND OF UNTRAINED STUDENTS IN PHYSICAL EFFORT

Florian BENEDEK¹, Jacek SOBON ², Mirela BENEDEK ³

¹“Stefan cel Mare” University of Suceava, ROMANIA
²The Technical University of Opole, POLAND,
³“M. Eminescu” HighSchool of Toplita, ROMANIA

Abstract:
During a physical exercise, the heart parameters (systolic volume, heart flow, heart rate and blood pressure) change depending on the amount of oxygen (VO2) needed by the human body.
The cardiovascular assessment aims the morphological and functional state of the cardiovascular apparatus, at rest or in a dynamic situation. The results of this assessment are different, as the subject is an athlete or a person who does not usually practise any sport.
It is good to know these morphological and functional peculiarities to not consider them pathological.
The monitored parameters are numerous and their interpretation requires specialized personnel.
Key words: Effort, heart rate, motrical capacity.

INTRODUCTION
The heart is a ribbed muscle commanded by the autonomic nervous system. It ensures the blood flow, meaning the transport of oxygen and nutrients to the peripheral tissues.

During a physical exercise, the heart parameters (systolic volume, heart flow, heart rate and blood pressure) changes depending on the amount of oxygen (VO2) needed by the human body.
The systolic volume increases when the state of rest is replaced by a moderate effort. In most cases, it is maximum for sub maximal intensity, when the oxygen consumption is about 40% of maximum oxygen consumption.

For the same oxygen consumption, the systolic volume is lower in women than in men. Moreover, due to lower heart volume, the systolic volume reaches a maximum during a sub maximal exercise.
The heart flow is relatively constant during the state of rest and registers values of 5-6 l/min.

During training or a strenuous physical exercise the heart flow increases 4-7 times than in the state of rest, based on the heart rate and the systolic volume.
The systematic exercise is responsible for the heart rate decrease and also the increase effort capacity and maximum oxygen consumption with athletes.

The increase of the systolic volume and of the heart rate indicates an efficient cardiovascular system and can achieve a maximum heart flow with a much lower heart rate. This is observed in highly trained athletes or performed athletes.

According to the World Health Organization, there are no differences between athletes and unsportsmanlike on rest state blood pressure. The systolic blood pressure at rest has values from 100 to 140 mmHg and 60-90 for diastolic mmHg. The average of the arterial blood pressure is about 90-100 mmHg and is an indicator of blood flow in the great circulation.
The cardiovascular assessment aims the morphological and functional state of the
cardiovascular apparatus, at rest or in a dynamic situation.

The effort functional tests confront the subject with efforts of different intensities, with the main objective to detect the dysfunctions or abnormalities of the cardiovascular system, sometimes unnoticed in the state of rest. The values can be taken in the dynamic state and the testing results can be used as benchmarks for each subsequent assessment.

Most current sport activities associate the isometric with the isotonic contractions using the dynamic type effort as well, because it produces significant requests in terms of volumetric and barometric cardiovascular system, being directly proportional to the intensity of effort provided. Under effort, the adaptation of the cardiovascular muscle is proportional to the mass requested, which must be less than 50% of total muscle mass, amounting to no longer produces changes to the cardiovascular stress by adding new muscle groups.

The results of this assessment are different, as the subject is an athlete or a person who does not usually practise any sport.

Intense and regular practice of a sport can induce adaptive cardiovascular changes (clinical, morphological and functional) grouped as “sporting heart”. It is good to know these morphological and functional peculiarities to not consider them pathological.

The monitored parameters are numerous and their interpretation requires specialized personnel.

MATERIAL AND METHOD

We chose for testing a total of six students, four boys and two girls. Two of the boys and a girl are athletes: Ionuț Bâră, volleyball player for four years; Bogdan Ianoși, dancer for five years; Ramona Vodă, football player for six years.

The other three students, Norbert Hăineală, Dragoș Ianoși and Cristina Voica practised different sports for short periods of time, but currently do not practise any sports activity beside the physical education classes.

To show this thing we used the Ruffier test. This is a test for driving ability assessment, and it is easy to achieve without specialized equipment.

The students were trained on the progress of this test and will be taught to measure their heart rate.

This test was applied to three different types of exercises:
1. 50 m speed running;
2. 30 minutes basketball game;
3. strength.

- boys: 16 pushups; 10 leg raises at 90° from hanging at the fixed scale; successive long jumps (minimum 6 m).
- girls: 10 pushups; 16 knee liftings to the chest from hanging at the fixed scale; 10 vertical jumps from squatting in extension with hands stretched above the head.

During the three types of exercises the effort had the following characteristics:
1. at the speed running we have different kinds of effort: professional, dynamic, cyclic, continuous, single, specific, at maximum intensity (0-10 sec.);
2. at the basketball game, we have professional, dynamic, acyclic, discontinuous, unique, specific, at moderate intensity (30 min.) effort;
3. strength: professional, combined (more static), acyclic, unique, specific, at submaximal intensity (1 min.) effort.

DESCRIPTION OF THE RUFFIER TEST

The Ruffier test is a sub maximal exercise test based on the heart rate during the recovery effort.

The pulse is measured in a seated position, the value is put down as P1.

The types of exercises made are: speed running, basketball, strength. Within the first 15 seconds after the end of the exercise, the subject is supine, the pulse is measured and recorded as P2.

The number of pulses are determined after 1 minute of rest in supine, the values obtained are put down as P3.

The Ruffier index is calculated using the following formula: Ruffier INDEX = [(P2-70) + (P3-P1)] / 10

The interpretation is made due to the value of the Ruffier index:
- 0 to 2.9 = good index;
- 3-6 = middle index;
- over 6 = poor index.

The results of the tests have been registered in some summary tables, and then were graphically interpreted. At the first test the subjects had speed run over a distance of 50 m. The times obtained, the heart rate after running and the Ruffier Index values are presented in Table 2.
Table 1. Anthropometric indices

<table>
<thead>
<tr>
<th>Name and surname</th>
<th>Age</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hăineală Norbert</td>
<td>17 years</td>
<td>174 cm</td>
<td>60 kg</td>
</tr>
<tr>
<td>2. Bără Ionuț</td>
<td>17 years</td>
<td>184 cm</td>
<td>61 kg</td>
</tr>
<tr>
<td>3. Ianoși Dragoș</td>
<td>18 years</td>
<td>180 cm</td>
<td>74 kg</td>
</tr>
<tr>
<td>4. Ianoși Bogdan</td>
<td>18 years</td>
<td>177 cm</td>
<td>64 kg</td>
</tr>
<tr>
<td>5. Vodă Ramona</td>
<td>17 years</td>
<td>164 cm</td>
<td>58 kg</td>
</tr>
<tr>
<td>6. Voica Cristina</td>
<td>18 years</td>
<td>168 cm</td>
<td>68 kg</td>
</tr>
</tbody>
</table>

RESULTS AND DISCUSSION

Table 2. Heart rate after speed running and times

<table>
<thead>
<tr>
<th>Name and surname</th>
<th>Time made</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Ruffier Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hăineală Norbert</td>
<td>6.6 sec.</td>
<td>72</td>
<td>110</td>
<td>76</td>
<td>4.4</td>
</tr>
<tr>
<td>Bără Ionuț</td>
<td>7.0 sec.</td>
<td>60</td>
<td>77</td>
<td>62</td>
<td>0.9</td>
</tr>
<tr>
<td>Ianoși Dragoș</td>
<td>6.5 sec.</td>
<td>72</td>
<td>115</td>
<td>78</td>
<td>5.1</td>
</tr>
<tr>
<td>Ianoși Bogdan</td>
<td>6.3 sec.</td>
<td>68</td>
<td>96</td>
<td>70</td>
<td>2.8</td>
</tr>
<tr>
<td>Vodă Ramona</td>
<td>7.2 sec.</td>
<td>70</td>
<td>98</td>
<td>70</td>
<td>2.8</td>
</tr>
<tr>
<td>Voica Cristina</td>
<td>7.7 sec.</td>
<td>66</td>
<td>114</td>
<td>78</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Figure 1. Heart rate after speed running and times

Table 3. Heart rate before and after the game of basketball and the value of the Ruffier Index

<table>
<thead>
<tr>
<th>Name and surname</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Ruffier Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hăineală Norbert</td>
<td>74</td>
<td>120</td>
<td>80</td>
<td>5.6</td>
</tr>
<tr>
<td>Bără Ionuț</td>
<td>66</td>
<td>106</td>
<td>68</td>
<td>3.8</td>
</tr>
<tr>
<td>Ianoși Dragoș</td>
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<td>125</td>
<td>80</td>
<td>5.7</td>
</tr>
<tr>
<td>Ianoși Bogdan</td>
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<td>98</td>
<td>72</td>
<td>2.8</td>
</tr>
<tr>
<td>Vodă Ramona</td>
<td>72</td>
<td>94</td>
<td>70</td>
<td>2.2</td>
</tr>
<tr>
<td>Voica Cristina</td>
<td>74</td>
<td>114</td>
<td>82</td>
<td>5.2</td>
</tr>
</tbody>
</table>
Comparing the results obtained, one can say that the Ruffier Index values depend on the nature of the sport, even for the very well trained athletes.

For instance, the student Ionuț Bără has a better index value for the speed running than for the basketball game.

The average of the Ruffier Index values for the trained athletes involved in speed running is 2.16, while for the untrained athletes is 5.03, the difference between them is 2.87.

The average of the Ruffier Index values for the trained athletes involved in the basketball game is 2.93,
while for the untrained athletes is 5.5, the difference between them is 2.57.

The average of the Ruffier Index values for the trained athletes involved in strength exercises is 2.4, while for the untrained athletes is 4.46, the difference between them is 2.06.

After the results, one can notice that the athletes had better Ruffier Index values than the untrained students, with the exception of Ionuș Bără at the basketball game, where he obtained a middle Ruffier index value.

CONCLUSIONS

We conclude that it is good for the students to practice sports in order to improve their health and harmonious physical development.

The untrained students obtained a middle Ruffier index value for all three types of exercises.

There can also be noticed that, from the tables, the weight of the athletes is smaller in relation to their height, compared to those that are untrained (except for PE classes), who have a bigger body weight in relation to their height.

REFERENCES:


THE COACH’S ROLE AND EFFICIENCY IN THE MANAGEMENT OF THE 9-METER HANDBALL PLAYERS’ TRAINING (JUN. I)

Ioan Teodor CICMA¹, Gloria RAȚĂ²

¹Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA
²Faculty of Movement, Sports and Health Sciences, “Vasile Alecsandri” University of Bacau, ROMANIA

Abstract.
The present work intends to approach, present and show that an efficient management and scientific management methods applied in the training of handball players (in this case, 9-meter players) can lead to the improvement of their efficiency.

Key words: Handball, coach, visual information, memory, observation sheet.

INTRODUCTION
This study presents a few important aspects related to the management of training (here, that of the 9-m players), a study that we hope to be useful for the coaches working in performance sports and for those who train children and juniors.
Handball, a great and harmonious mixture of natural movements of the human body (the same as running, jumping, throwing, simple dodge and specific driving skills), is attractive by its accessibility, and represents both a game and a way of practicing physical education and also a branch of performance sports.

The handball game takes place in conditions of intense mental demands, demands that cover this game both formatively and educationally.

The performance handball game implies some special skills of the players, as they have to face very difficult training tasks that involve the intense use of physical and mental abilities, of mental abilities such as will, motivation, driving intelligence, tenacity, and so on, as well as moral qualities such as fair-play, respect for the competitor, the referees, the public, etc.

The research undertaken by the Romanian school of handball specialists brought to the conclusion that this game may be put into practice from an early age, being introduced in the competitive system and the juniors standard (8-10 years). The purpose of the game is the enrollment goals, more than the competition, this leading to victory, to the obtaining of the success and performance. The victory cannot be obtained unless there is an intense physical training, with special technique and abilities, training that is accomplished by practice.

Nowadays, the term of training is perceived as a complex, difficult and exhausting activity as we speak about physical effort as well as mental effort, a continuous effort, that implies maximum of energy, and in most cases this reaching the physical and mental endurance limit of the sportsmen.

All of this lead us to the idea of an attentive selection, on severe scientific basis, with a responsible medical check, complex and frequent combined also with a special theoretical training, practical and scientific in the field, for those who train performance sportsmen.

In the literature of this domain of activity, training is defined as a pedagogical process taking place systematically, gradually and continuously, aimed at adapting the human body to intense physical and mental effort, part of contests organised on different aspects” (Dragnea, 1996: 9).

Out of the characteristics of training, the one that ought to be addressed synthetically is the quality of training as an informational process referring to the human body, as a bio-mental-social individual represents a complex informational system, a person leading his existence in a space that permanently requires adapting and learning.

The interaction and relationship between the individual and the rest of the world cannot be established without a communication network in which, in turns, the component parts make the transmitter-receiver couple and vice versa.

The training, as a complex process, establishes a relation between subject and object and requires an informational exchange of representative messages of groups of sememes (material-object, natural phenomenon, of attitude, conventional-linguistic). (my translation) S. Teodorescu, 2009: 17

As an active subject and as a hyper-complex and dynamic system, the athlete gets different kind of information and stimuli, gives them meanings and interpretations, and this leads to their assimilation and accommodation:

The adjustment of motor behavior takes place in a cyclic process, between movement and perception; in this “space”, the exchange of information between the body and the environment takes place. The cyclic movement process in which the body is situated covers the following moments: information receipt → data processing → decision → action → self regulation - self organization. (my translation) (Teodorescu, 2009:18)

THE PURPOSE of this work is to demonstrate that an efficient training management leads to the increase of efficiency of the gate bounce throw from 9 m.

THE WORK HYPOTHESIS is to highlight the efficiency and the important role of the coach in the training process mainly if there is progress in the training of the athletes.

METHODS
The experiment took place in Brăila, at the Sports High School, on a total number of 4 subjects, components of juniors I group boys.

The testing consisted in 20 successive throw bounce to the gate from 9 m.

The methods used in the experiment were: study of the sports literature, the conversation method, the tables method, the experimental method, the mathematical-statistical method and the interpretation of the recorded data, the graphical method.

CONTENT RESEARCH
This entire complex process of training is led and accomplished with the work of the coach without whom the training process would not have taken place.

The scientific leadership of the training process, accomplished with efficiency, can be also called the training management.

The management has become a science because it represents a set of knowledge, concepts, principles, methods and techniques that explain in a systematic way the phenomenon and the process that take place in the leadership of the organisations, the companies, in our case, the teams, the science being also called “management science”.

Management, as science, implies a sum of characteristics, one of which is the action that can be defined as a process or a group of coordinating activities, a sum of leading activities having the purpose of adopting the best decisions regarding the optimum design and adjustment of the processes in organisations.

Another characteristic is represented by the practical part, such as art, requiring talent and the manager’s skills in applying all the scientific knowledge, in using the appropriate means and techniques adapted to the concrete reality of the organisation/team, in order to make it easier, this characteristic being also called “the art of leadership”.

The management in a performance team also asks for a set of tasks related to the leadership and the team’s management, and also to the group of persons entrusted with management responsibilities (second coach, masseur, the team’s doctor and so on).

Etymologically, “management” means “to manage-to lead, to administer”, “management-leadership, administration”, “manager-leader, person in charge”.

In specialised literature “management” is in fact the coordination process of the human resources, materials, information and finance in order to reach the organisation’s/team’s goals.

The manager is that person who executes the management’s function taking into account the objectives, tasks, abilities and certain responsibilities characteristic to the position he is in charge with.

Along with the previously used terms there are other three more terms in use also in English, but with different meanings: “to lead-to manage, to direct, to order”, “leadership-management”, “leader-head, commander, guide”.

The leader is the head or commander of an informal or formal group, whose activity takes place in the field of interpersonal relations. If the manager leads people and structures, the leader is, by any means, the head of the groups of people.

Leadership represents the process of co-optation from the leader towards a person or a group of persons in order to make them act or “fight” in order to obtain the organisation’s/team’s goals and that requires a leadership at a group level, towards people, “face to face”.

The studies in the field have shown that the main factors of efficient leadership are the native qualities of the leader (intelligence, charisma, ambition), the leader’s training (general training, the management training), on this training depending the ability to make decisions, to communicate and the social abilities of the leader, the management situation, given by the communication characteristics and by the leader’s role, as a person having a management position.

Leadership expresses a leader’s ability, in our case the coach’s ability, to determine the team’s components to work together in order to reach a goal, in this case the appropriate training of the 9-meter players, by having an emotional and operational involvement.

The leadership’s main feature is and has to be the team spirit, the state of mind that reflects the players’ desire to think, feel and react as one in order to accomplish the target and to have the best training for the players; without this team spirit we cannot discuss about leadership at all.

The activity of leadership follows the management’s human dimension in the involvement or training level of the team by the leader.

Leadership has in the same time a formal and an informal basis; the first, the formal one, is given by the formal authority, gained by the investment in the management position, whereas the informal one is given by the strong knowledge and by the leader’s abilities.

Management is a sum of processes defined by all the coach’s actions and functions (foresight, organisation, order, coordination, evaluation -control), whereas leadership is defined mainly by the command/control function of the training (the training component).

From the facts listed above, we may say that leadership is a management component, but their areas of coverage do not fully overlap, although they have the same translation “control”.

Training management implies institutionalized, formal leadership, meaning an administrative leadership of the athletes and of the material they have in, while leadership regularly implies leading the team or a group of athletes, but not the responsibility of administering the base.

These two terms form the components or the dimensions of the managers’ activities which materialize in the management’s purposes.
In order to be efficient and to have a well determined role in the training process, the leader must have a set of qualities, the most important of which are easy to identify: he is active, motivated in obtaining the victory, confident in himself, convincing, optimistic, etc.

Although there are people who, despite having these qualities, they are not leaders, we draw the conclusion that these qualities are necessary but not sufficient, leaders/coaches having other qualities, such as empathy.

Efficient leaders/trainers have the capacity to perceive the facts from the other’s point of view, from the opponent’s point of view when it comes to performance sport, understanding the emotions and reactions in different tactical actions of his own team.

This quality is also called empathy, this being the most important quality for a person to practice this job in an efficient manner.

When we talk about empathy, the essence is represented by the attachment towards the others, with roots in the communication field techniques and especially in listening, the main characteristic of this action being the help given.

Empathy involves going through some stages such as recognizing the need to be empathetic, great knowledge from any point of view of the team’s components, the main actions of this understanding, in order to help all the members of the team to reach the objectives in the matter.

Productive leaders have also other qualities such as the fact that they tend to act as leaders not being capable of being confused to the others, someone who solves the problems, and they have the opportunity to identify in an early stage and to make necessary corrections, that gains the others’ confidence through seriousness and perseverance, have a very good self control, are constantly striving to enhance their own techniques stimulating the others, helping to treasure themselves, are always on time and preoccupied by this fact, flexible and pragmatic, never rigid and narrow-minded.

The team’s or a group of sportsmen’s leadership, represent a function that ensures the stability and the balance of the team, the maintenance of a personal mode of operation through training and accomplishing a plan that provides all the actions necessary for performance.

The training efficiency is given by a multitude of training components previously established, as well as the trainer’s ability in observing, analysing, synthesizing and modifying the activity of training or the coaching process as to adapt it to the situations and the needs that this implies.

Coaches lead programs involving two main essential areas such as the components related to the abilities, strategies and performance sport techniques and the study modules in the sports science:

...maybe the most shocking aspect of a contemporary coach’s activity is to face the informational boom, in most cases a high level boom, particularly in domains such as the physiology of the exercises and the psychology of the sport. From this aspect comes the preoccupation over these aspects of coaching, like the assimilation of fresh information, the tendency to reduce the dimension, of crucial importance, of the effectiveness of coaching...


To be effective, a coach has to have the ability to react to the player’s particularities and necessities.

The sportsmen who do not have much trouble for the low training level before the competition and they expect the coach to have a talk with them as to motivate them, they do not have self motivation and the coach indeed has to have a discussion as to stimulate that player or the group of players.

Recent theories regarding the effectiveness of training have shown a multitude of steps the analysis and approach of which have a purpose in the sportsman’s development.

Studies present the steps as follows:

- The style of leading and perceptual congruence between the player and the coach;
- Self analysis and reflection;
- Effective application of systematic observation instruments;
- Examination and analysis of information content;
- Specific analysis of the situation.”

(“Antrenoriat și competiție”, 1994: 96)

The leadership of a coach is influenced by a number of variables such as the game experience, the number of victories and defeats, age, knowledge: “When it comes to the style a coach applies, we have to take into account all these variables, depending the sport situation” (Kuklinski, 1990, qtd in “Antrenoriat și competiție”, 1994: 97).

RESULTS

<table>
<thead>
<tr>
<th>Nº series</th>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 3</th>
<th>Series 4</th>
<th>Series 5</th>
<th>Arithmetic average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>It</td>
<td>Ft</td>
<td>It</td>
<td>Ft</td>
<td>It</td>
<td>Ft</td>
</tr>
</tbody>
</table>

Table 1.
It=Initial test, Ft=Final test, Ita=Initial test average, Fta=Final test average

As a conclusion the leadership and the training of a team has a number of complex problems and variables which if not taken very seriously, will not help to reach the goals and the targets.

The experiment tried and succeeded in pointing all these problems and variables because the hypothesis was verified, and a quite good progress was recorded with trained sportsmen; so the coach proved his essential role and his qualities in management and leadership.

### References


**LE RÔLE ET L’EFFICIENCE DE L’ENTRAÎNEUR DANS LE MANAGEMENT DE LA FORMATION DES JOUEURS DE 9 m, CONCERNANT LE JEU DE HANDBALL**

**Résumé:** Cet ouvrage se propose d’aborder, de présenter et de démontrer qu’un management efficient et scientifique de handball, usant des méthodes appropriées à la formation des joueurs de handball (dans ce cas là- des joueurs de 9 m) peut mener à une amélioration de l’efficience et des performances de ces joueurs.

**Mots-clés:** handball, entraînement, information visuelle, mémorisation, fiche d’observation
STUDY ON THE PERCENTAGE OF INFORMATION ACCUMULATED BY VISUAL MEMORY DURING A HANDBALL GAME AND THE NECESSITY OF OBSERVATION SHEETS

Ioan Teodor CICMA\textsuperscript{1}, Gloria RAȚĂ\textsuperscript{2}

\textsuperscript{1}Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA
\textsuperscript{2}Faculty of Movement, Sports and Health Sciences, “Vasile Alecsandri” University of Bacau, ROMANIA

Abstract:
The aim of this study is to highlight the complexity and multitude of the information that comes to light, from the coaches’ capacity to memorise, on the one hand, and, on the other, from the notes on the observation sheets, regarding the game stages and the tactical individual and collective actions of an official handball game. Regarding the capacity of memorising and of storage of the visual information during the competitions, there is the idea that this should be substituted by the use of observation sheets, fact that will ensure a correct and efficient analysis of the game.

Key words: Handball, coaching, visual information, memorising, observation sheet.

INTRODUCTION

Sport is one of the most dynamic and attractive social activity, distinguished by other social and modern phenomena by its universality and uniqueness, its main target being the improvement of the human being.

Sport is a race activity composed by an ensemble of movement actions, differentiated in sport branches which have the target to enhance the morpho-functional and mental possibilities, enhanced in performances such as: record, partner’s record or self record. (Teodorescu, 2009: 9)

Sport realises a cohesion between the ways and forms of physical education, made either in an organised way, with an eye to manifest and improve both the physical condition and the spiritual convenience, to achieve social relations between individuals or with the target to obtain good results in different competitions.

“Performance sport – is an activity that maximises the performance capacity and capitalizing it in important competitions, capitalized in records and winning titles, medals and places in official tops.” (Teodorescu, 2009: 11).

The notion of “high performance sport”, may be represented as a pyramid which has in its top that or those sportsmen who practice high performance sport.

Handball, as a sport, has developed continuously; at present, there are official competitions for all categories, the development of this sport being also quantitative and qualitative.

The handball game creates a connection between the movement capacity of the player and his mental capacity, and this brings a contribution in forming other qualities, capacities and abilities.

As a result, the specialists in the performance handball game have developed a game notion that has to match the demands of the world elite handball, and which takes into account the tendency to evolve that the game has in international field, this being in a continuous process of updating.

As a theoretical scientific discipline, the handball game studies and treats the content of the game from the point of view of the training factors: physical, technical, tactical, theoretical and psychological.

The science of handball studies the history and the continuous evolution of the game, generalizes the experience, the practice and the results of the best teams, studies and creates an inter-addiction with other games that lend methods and different ways of training, as well as certain technical procedures and tactical actions that adapt to its particularity.

The finality of handball training is the competition or the official game.

The appreciation of the results obtained in official games is made in a scientific way by filling in the analysis sheets, although many coaches limit themselves to memorising the visual information during the game.

In this study we want to demonstrate the necessity of using the analysis sheets in official
games, in order to realise a fair and objective analysis of the game.

THE PURPOSE of this study is to demonstrate the efficiency and the possibility of making an objective analysis taking into account the observation sheet in handball competitions.

HYPOTHESIS
We started from the assumption that on the basis of visual information, a teacher-coach cannot remember all the important aspects of an official handball game, in order to have a correct analysis of the game. Taking into account this assumption, it follows that the coaches’ use of observation sheets with the aspects that take place during the game would maximise the number of data obtained through direct memorising.

METHODS
The experiment was made on three teacher-coaches from the Braila Sports Programme Highschool, during an official handball game that took place in the School National Championship, at Juniors 1st stage.

This stage has been chosen because it is believed that the technical-tactical quantum of sportsmen is complete, so during the game there will appear game situations rather complex as well as variable individual tactical and collective situations.

There has been chosen an optimum number of game phases and tactical actions that were pursued by the coaches and written down in the observation sheets by observers.

During the second day, the coaches were surveyed regarding the number of game phases and tactical actions that have been chosen by both parts to be mentioned in the observation sheet, and the memorising-reproduction percentage has been calculated, reported to the real number of phases and actions, meaning the number of facts listed in the observation sheet.

The methods that were used are the observation method, the experimental method, the method of filling in observation sheets, the interview method, the questionnaire method, the tables method, the statistic-mathematical method and the graphic method.

STUDY CONTENT
Nowadays, in performance sport, a campaign is led, meant to change the teacher-coaches mentality regarding the continuous professional training and development.

The purpose of this study is the action of promoting and getting teacher-coaches accustomed with the scientific “competition evaluation”, thus ensuring the objectivity of the assessments.

During the training but most of all during and after the official contests, the sports games included, the coaches have to evaluate the results obtained by the sportsmen, after their examination and interpretation, to establish the measures to be applied so as to reach a higher level of performance.

The modern coach must meet a number of requirements such as: to be himself a learner, to get familiar with the complex science issues, as nowadays “the information explosion generates the ignorance explosion” (Colibaba & Bota, 1998: 19), to permanently improve his/her professional capacities as methodist, pedagogue, teacher, psychologist, physiologist, biochimist, mathematician-statistician, sociologist, researcher of own activity and that of the field s/he works in, organiser and leader (sports manager), and last but not least a person willing to change his mentality and didactical attitude.

An important objective of the training programme is that of increasing the activity value in multiple ways such as the improvement of the training knowledge and trust growth in the professional qualities of the coaches.

Besides these qualities and aptitudes, the modern coach must assimilate some knowledge of leadership and of optimal development of the present activity and of the perspective activity.

The training process is in a direct relation to the performance growth by the fact that it offers the player or the team a feed-back about the notion of performance.

Deep down, the training activity involves noticeable investigations of the behavior observable changes, the teaching and training qualities and skills depending consistently on the solid analysis that has an effect upon the improvement of sports performance.

In this activity, precise measures based on information are required for an effective feed-back and for performance improvement, as well.

A performance analysis of many sport events is based on a multitude of qualitative evaluations made by coach Franks in 1983, who defined a simple scale of the training process, which studies and presents teaching in its stages: observation, analysis and programming.

The contest/game will be carefully watched, and after that the coach will draw a conclusion upon the negative and positive aspects of the performance; often the results obtained in previous contests/games as well as the performance during the training are taken into account before establishing the training plan for the next contest/game.

Nevertheless, there are numerous problems related to a training process based on a subjective evaluation during the contest/game.
During the contest/game many mistakes go unnoticed as distinct problems, because of the controversial decisions of the officials, decisions that come from the interpretation of some technical procedures made at high level.

Many events and stages during a contest/game tend to lead to the confusion the memorable parts of contest/game and the best moments of game.

The after contest/game analysis, and the training for the next competition are made starting from the observations made after the previous contest/game.

These observations are restored or repeatedly told to the sportsmen after a while, after memorising them during the competition.

Memory represents the ability or the mental main feature of the human being, without which a great operation and development in normal parameters of personality would be impossible.

This thing can be quite easily noticed if we refer to people that suffer serious memory problems.

Although all the living beings have memory, the most evolved is that of human beings, besides the motor and genetic memory, characteristic for animals, also have other types of more productive memory related to the use of mnemonic means, such as the logical and arbitrary memory.

The human being’s memory can be compared to a specific instrument that serves to the accumulation and use of life experience.

Memory is defined as the mental process of reflecting the previous experiences by retention (storage and saving), recognition and reproduction of sensory images, ideas, affective or movements from the past, the memory processes being connected to the sensory reflection and to the processes of language and thinking; to some people the sensory-intuitive memory comes first, and to others, the abstract-verbal one” (Grigore, 2011).

Memory reveals recognition and reproduction; a necessary condition for the two processes mentioned above is the storage and memorising of things that happened, felt and were done before.

The human being’s memory is quite limited so it is almost impossible that someone remembers all the events and things that take place during the whole competition.

In 1987, based on studies conducted, Franks and Miller say that a coach is fair-play in his contest/game analysis, in a proportion lower than 45-50%, because an individual variable named quick forgetting interferes, a variable that is not astonishing taking into account the complex process of converting the data at the memory level and later on of reproducing it in a subsequencial way.

Phases or events that appear one time in a contest/game will not be easily reminded, the forgetting being a quick process.

Emotions and preconceived ideas are important factors that have an influence on storing the memory and redeeming it; in most teams an observer is capable of seeing and assimilating an action that takes place on the field.

Due to this fact, the coach cannot see but parts from the contest/game, at a given moment (usually in critical moments), the action or peripheral game phase being, to a large extent, lost.

The coach has to rely on after contest/game feed-back, only on partial information about the team, this feed-back being an inadequate one; here comes the opportunity loss of optimising the sportmen and the team performances.

Although the observation is extremely important during the contest/game, few researches were accuratelly made, these things demonstrating that coaches cannot expect to remember more than 50% of the performance; in most cases, even less.

One of the most important tasks of the coach is accuracy and performance analysis.

At that point it will be revealed that it cannot be done only in a subjective way, any chance or hope for improving this feed-back being low.

Objectivity can be obtained by using video means, biomechanical systems with an accurate analysis, written analysis, and, last but not least, the main subject of this study, the observation sheets filled in with what we are interested in, such as game phases and individual, collective tactical actions.

Handwritten observation sheets are in most cases very clear, but have the disadvantage that the most complex ones involve a considerable time of analysis; that is why they imply a division into game phases and individual and collective tactical actions, and more observers for their preparation.

As a conclusion, the purpose is to develop the availability, thinking and motrical-active intelligence that will give the opportunity to practice this game, to adapt and participate to the evolution of the specialty
RESULTS

Table 1.

<table>
<thead>
<tr>
<th>Trainers</th>
<th>9m Throw</th>
<th>6m Throw</th>
<th>Counterattack</th>
<th>Positional attack</th>
<th>Loss of ball</th>
<th>Tactical combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nr. T</td>
<td>P.</td>
<td>Nr. T</td>
<td>P.</td>
<td>Nr. C</td>
<td>P.</td>
</tr>
<tr>
<td>T1</td>
<td>9</td>
<td>42.86%</td>
<td>7</td>
<td>41.18%</td>
<td>9</td>
<td>40.91%</td>
</tr>
<tr>
<td>T2</td>
<td>11</td>
<td>52.38%</td>
<td>9</td>
<td>52.94%</td>
<td>12</td>
<td>54.55%</td>
</tr>
<tr>
<td>T3</td>
<td>8</td>
<td>38.1%</td>
<td>8</td>
<td>47.06%</td>
<td>10</td>
<td>45.45%</td>
</tr>
<tr>
<td>Real actions</td>
<td>21</td>
<td>100%</td>
<td>17</td>
<td>100%</td>
<td>22</td>
<td>100%</td>
</tr>
</tbody>
</table>

Nr. T = number of throws, P. = percent, Nr. C = number of counterattacks, Nr. P = number of positional attacks, Nr. L = number of ball losses, Nr. T = number of tactical combinations

Following the result, we can see that the percentage of information stored is very small compared to the overall number of actions during the game.

CONCLUSIONS

In conclusion it has been proved that without the preparation of the observation sheets, we cannot have an accurate and relevant analysis of the game, the visual memorising percentage and their reproduction, naming the game phases and collective and individual game phases, being rather low (<60%).

References


ÉTUDE DU POURCENTAGE DES INFORMATIONS OBTENUS PENDANT UN JEU DE HANDBALL OFFICIEL PAR MÉMORISATION VISUELLE ET LA NÉCESSITÉ DE L’USAGE DES FICHES D’OBSERVATION
IDENTIFICATION BY SPECIALISED VIDEO ANALYSIS OF TECHNICAL MISTAKES RELATED TO THE PROCEDURE IN BASKETBALL THROWING THE BALL FROM JUMPING PROCEDURE

Dana Lucica CIOCOIU

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
The article underlines the importance of video analysis programs in the objective detection of technical mistakes within the basic course in basketball. It is based on an extensive experimental study on optimising the technical component in basketball, and also on general aspects regarding the process of professional training in the faculties of sports and physical education for the basic course in the subject of basketball.

Key words: Video analysis, spatial parameters (segment trajectory), throwing to the basket from jump, technical mistakes.

INTRODUCTION

RESEARCH HYPOTHESIS
It was presumed that the application of specialised video analysis in the basic course in basketball will increase the efficiency of the methodological approach of learning-consolidation-assessment of the technical procedure called basket, throwing the ball to the basket from jump (the so-called “jump shot”) by gaining knowledge of the moments composing the movement and by objectively detecting technical mistakes.

PURPOSE
Detection of technical mistakes in the jump shot procedure, in the basic course in basketball by applying video analysis.

RESEARCH OBJECTIVES
1. Analysis and generalisation of data in specialised literature.
2. Identification of the main moments in the execution, and common technical mistakes for the given procedure.
3. Ascertaining the efficiency of the video method in technique analysis and mistake detection for the given procedure in teaching basketball.

The methods and techniques of scientific research in the present article are as follows: bibliographic documentation, pedagogical observation, video analysis, biomechanical analysis of spatial parameters (trajectory of the movement of segment articulation), constatative experimental study, mathematical statistics, graphics and tables. The specialised video analysis of the jump shot was performed by the “Physics ToolKitt” - version 6.0 programme, and focused on the trajectory of the
segment articulations in 5 movement points (ankle, knee, hip, shoulder, fist).

The research activity took place in the Faculty of Sports and Physical Education and the Phoenix Sports High School Club in Galati. The subjects were 10 students of the Faculty of Sports and Physical Education, selected on the basis of the average grades between 7.40-7.84 obtained in testing the technical procedures, and 3 high performance athletes of the Phoenix Club, Galati.

RESULTS

The presentation and interpretation of data provided by the specialised program of video analysis, which confirmed the research hypothesis, will be exemplified in the execution of a student, randomly selected out of the 10 participants.

Determining the trajectory of the movement of segment articulation in executing the procedure of basket shot from a standing position for the executing student is shown in Figures 1-2 and Table 1, providing the possibility to observe the position indicator on the horizontal \(X_m\) and vertical \(Y_m\) axis.

![Figure 1](image1.png)

**Figure 1.** Movement points at the level of the fist and shoulder articulations student execution

![Figure 2](image2.png)

**Figure 2.** Movement points at the level of the hip and knee articulations student execution

### Table 1. Data and coordinates during student evolution

<table>
<thead>
<tr>
<th>Time</th>
<th>(X_m)</th>
<th>(Y_m)</th>
<th>(F_1)</th>
<th>(Dx_m)</th>
<th>(dy_m)</th>
<th>(D_m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,00E+00</td>
<td>0,402</td>
<td>0,947</td>
<td>1,038</td>
<td>0,00E+00</td>
<td>0,00E+00</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>3,30E-02</td>
<td>0,066</td>
<td>1,088</td>
<td>1,259</td>
<td>0,221</td>
<td>0,133</td>
<td>0,258</td>
</tr>
<tr>
<td>3,70E-02</td>
<td>0,062</td>
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<td>1,257</td>
<td>0,134</td>
<td>0,443</td>
<td>0,512</td>
</tr>
<tr>
<td>1,00E-01</td>
<td>0,777</td>
<td>2,265</td>
<td>2,334</td>
<td>0,345</td>
<td>1,257</td>
<td>1,304</td>
</tr>
<tr>
<td>1,33E-01</td>
<td>1,046</td>
<td>0,838</td>
<td>1,404</td>
<td>0,62</td>
<td>-3,85E-03</td>
<td>0,82</td>
</tr>
</tbody>
</table>

a) for the fist

b) for the shoulder

c) for the hip

d) for the knee
e) for the ankle

<table>
<thead>
<tr>
<th>Time (s)</th>
<th>X (m)</th>
<th>Y (m)</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
<th>R5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00E+00</td>
<td>0.40</td>
<td>0.105</td>
<td>0.472</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td></td>
</tr>
<tr>
<td>3.30E-02</td>
<td>0.409</td>
<td>0.269</td>
<td>0.469</td>
<td>8.65E-03</td>
<td>-8.65E-03</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td>0.70E-02</td>
<td>0.409</td>
<td>0.089</td>
<td>0.478</td>
<td>8.65E-03</td>
<td>-0.185</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>1.00E-01</td>
<td>0.646</td>
<td>0.253</td>
<td>0.741</td>
<td>0.185</td>
<td>0.257</td>
<td>0.317</td>
<td></td>
</tr>
<tr>
<td>1.33E-01</td>
<td>0.909E+01</td>
<td>0.133</td>
<td>0.742</td>
<td>0.239</td>
<td>0.227</td>
<td>0.241</td>
<td></td>
</tr>
</tbody>
</table>

The graphical representation of segment trajectory in the 5 essential points of the student’s movement allowed the inclusion of the global execution into a synthetic, easily observable form (Figure 3).

The identification of the main moments in the execution of the procedure under study is focused on: M1-catching the ball; M2-stopping; M3-beat-jump (detachment); M4-throwing; M5-landing.

For the objective detection of technical mistakes, the student’s execution was compared to the execution of a high performance athlete, taken as a model. The comparative analysis of the execution of the procedure under study was made by superposing the two initial positions (student and athlete) wherefrom the segment displacement was effected during the execution (Figure 4.).

The common technical mistakes seen during the acquisition of the sequential stages of the technical procedure were synthesized in Figure 5.

CONCLUSIONS

1. The program has contributed to evincing the main moments in performance and the detection of technical mistakes improving the progress of the technical training of the student in this throwing procedure.
2. The video analysis method ensured the interactivity during the lessons and the students’ motivation.
3. The specialized software of biomechanical analysis of spatial parameters (segments trajectory) has also allowed the observation of body segments which are differently involved (as percentage) in the procedure of throwing the ball from jumping.
4. The combined use of video and traditional methods was a safe way to effectiveness in the methodological path of learning-consolidation-assessment-detection-prevention-correction, providing objective solutions for the teacher and also for the students in the given procedure.
Figure 5. Common mistakes in the technical execution of jump shot

References:
5. Ciocoiu D. L. The technical training of the students at Sport and Physical Education Faculty at Basketball basic course applying the video analysis, Doctoral dissertation, USEFS, Chișinău, 2009.

IDENTIFICATION PAR ANALYSE VIDEO SPECIALISE DES FAUTES DE TECHNIQUE POUR LA PROCEDURE LANCER LE BASKETBALL AU PANIER

Résumé
Cet article souligne l’importance des programmes d’analyse vidéo pour la dépistage objective des erreurs de technique pour le cours – discipline basketball. Cet-ci a pour base un étude expérimental ample, parlant de l’optimisation de la componente technique dans le jeu de basketball mais aussi des aspects généraux regardant le process de preparation professionnelle des étudiants de la Faculte d’Éducation Physique et Sport au discipline «Basketballs» cours de base.

Mots clés: analyse video, parametres spatiaux (les segments de chemin d’accès), jetter au panier in dribbling, preparation technique, fautes de technique.
THE IMPLEMENTATION OF THE SELECTION AND PREPARATION OF 6 TO 10 YEAR OLDS IN FOOTBALL

Aurelian DRĂGAN

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
The practice of the football game by 6 to 10 year olds constitutes an element of maximum importance for the achievement of the skills of specific movement. The purpose is the presentation of the most important aspects involved in the selection and preparation under all aspects of the 6 to 10 year olds’ training, an age of extreme importance in the footballistical development of the future performer. In view of the research we used the next methods: scientific documentation, statistics, observation, experiments. In the course of this research, the main factor developed is the maximum speed in specific conditions, namely the speed running. Knowledge of the characteristics of the specific preparation at the age 6 to 10 years of age leads to scientific training and in this way empirical preparation, without precise rules can be avoided. Knowledge of the characteristics of age, of the level concerning the development of the driving qualities through trials of control and of the level concerning the technical and tactical preparation through tests of profile, contributes to the permanent knowledge of the level of progress and makes possible the co-optation in batches of performance of children with actual qualities for football.

Key words: Selection, preparation, speed, talent, football.

INTRODUCTION
The practice of the football game by 6 to 10 year olds constitutes an element of maximum importance for the improvement of their health, for acquiring the skills of specific movements, especially if the training is achieved under the direction of the physical education teacher or of the football coach.
Between ages 6 to 10 pupils register great progress concerning the driving activity. Natural and basic skills are perfected, while new others, more complex skills, form and consolidate.
For these reasons, this age is the most indicated for the development of the driving qualities, and is named the age of the first performances.
The indexes which define the speed, the ability and the aerob resistance rapidly grow. Simultaneously with the growth of these indexes, a distinct attention must be paid to mobility which, if not upheld in a adequate manner, can regress.
Also, at this age, in the activity destined to the development of the driving qualities we will offer a distinct attention for to graduate the effort in the development of the force and the speed in system of resistance.
The state of the art, concerning this paper, reflects the force exercises who it recommend to be used with medium and undermaximal intensity as effect of the process still unfinished for to consolidate the locomotory apparatus. Identical and the exercises for to development the speed in system of resistance will be used with attention, if we will have in view that neither the functions of the apparatuses for circulation and breathing don’t touched the maximum level of development (Giacomini, M., 2009).

The aim of the research is represented of to establish the more important aspects binded of the selection and the preparation in all aspects of the sporting training of the children of 6 to 10 years of age, extreme of important stage in the footballistical development concerning the futuring performer.
Concerning the achievement of the research, we formulated the next hypotheses:
- We suppose that the theoretical focalisation of the specific preparation characteristics for 6 to 10 years of old and them application will conduct at the scientifical conducting of the sporting training.
- We suppose that the theoretical focalisation of the selection characteristics and them application will conduct at the the fair establisment of the components concerning the preparing group.

Section 2 presents the principals research methods and procedure used in the present paper and section 3 reflects the research results.

RESEARCH METHODS AND PROCEDURES:
In the aim of the achievement concerning this paper we used the next research methods: the scientifical documentation, the statistical method, the observation method, the experimental method. The results obtained by the players will constitute points
of view in the preparation of the footballers at this level.

The subjects of the research were represented by the experimental groups constituted by 20 children, footballers of Secondary School with Sporting Programme from Galați, borned in the years 2001 and 2002.

In experiment we used the next driving trials:

1. Speed running on 10, 20, 30 metres: Start from legs, it bends at sonorous signal. It runs by 2, on synthetical fiels, two repetitions and it notes the best.

2. Jump in length of on place.

3. To maintain the ball in air with the skilful and unskilful leg, maximum number. The ball it raises in air approximately 30-40 cm.

**RESEARCH RESULTS:**

1. Speed running on 10 m

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and firstname</th>
<th>Speed running 10m (s)</th>
<th>Name and firstname</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>g. 2001</td>
<td>g. 2002</td>
</tr>
<tr>
<td>1.</td>
<td>B.M.</td>
<td>2.25</td>
<td>2.87</td>
</tr>
<tr>
<td>2.</td>
<td>B.A.</td>
<td>2.44</td>
<td>3.00</td>
</tr>
<tr>
<td>3.</td>
<td>S.L.</td>
<td>2.57</td>
<td>2.78</td>
</tr>
<tr>
<td>4.</td>
<td>R.R.</td>
<td>2.25</td>
<td>2.46</td>
</tr>
<tr>
<td>5.</td>
<td>L.A.</td>
<td>2.38</td>
<td>3.21</td>
</tr>
<tr>
<td>6.</td>
<td>N.S.</td>
<td>2.37</td>
<td>2.85</td>
</tr>
<tr>
<td>7.</td>
<td>Ş.D.</td>
<td>2.44</td>
<td>2.66</td>
</tr>
<tr>
<td>8.</td>
<td>F.D.</td>
<td>2.50</td>
<td>2.93</td>
</tr>
<tr>
<td>9.</td>
<td>V.R.</td>
<td>2.43</td>
<td>2.38</td>
</tr>
<tr>
<td>10.</td>
<td>F.V.</td>
<td>2.38</td>
<td>2.64</td>
</tr>
<tr>
<td>11.</td>
<td>B.R.</td>
<td>2.50</td>
<td>2.71</td>
</tr>
<tr>
<td>12.</td>
<td>I.A.</td>
<td>2.37</td>
<td>2.99</td>
</tr>
<tr>
<td>13.</td>
<td>O.N.</td>
<td>2.55</td>
<td>3.06</td>
</tr>
<tr>
<td>14.</td>
<td>N.A.</td>
<td>2.43</td>
<td>3.03</td>
</tr>
<tr>
<td>15.</td>
<td>N.D.</td>
<td>2.37</td>
<td>2.59</td>
</tr>
<tr>
<td>16.</td>
<td>S.R.</td>
<td>2.55</td>
<td>2.68</td>
</tr>
<tr>
<td>17.</td>
<td>B.R.</td>
<td>2.32</td>
<td>2.86</td>
</tr>
<tr>
<td>18.</td>
<td>B.T.</td>
<td>2.37</td>
<td>2.92</td>
</tr>
<tr>
<td>19.</td>
<td>P.R.</td>
<td>2.25</td>
<td>2.77</td>
</tr>
<tr>
<td>20.</td>
<td>P.C.</td>
<td>2.41</td>
<td>2.62</td>
</tr>
</tbody>
</table>

Arithmetical average 2.406 2.800
Minimum 2.25 2.38
Maximum 2.57 3.21

**Table 2.** The average level of speed running on 10 m

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Speed running 10 m 2001</th>
<th>Speed running 10 m 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average level</td>
<td>2.406</td>
<td>2.800</td>
</tr>
</tbody>
</table>
Type 1. Speed running on 10 m - the arithmetical averages

We observe that the difference between the two groups is of 0.394 seconds (2.406 seconds – 2001 group face of 2.800 seconds - 2002 group) (Drăgan A., 2009).

2. Speed running on 20 m

Table 3. The arithmetical average of the results obtained at speed running on 20 m by the groups of children from at L.P.S. Galați

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and firstname</th>
<th>Speed running 20m (s)</th>
<th>Name and firstname</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>B.M.</td>
<td>4.12 5.31</td>
<td>D.T.</td>
</tr>
<tr>
<td>2.</td>
<td>B.A.</td>
<td>4.19 5.56</td>
<td>C.S.</td>
</tr>
<tr>
<td>3.</td>
<td>S.L.</td>
<td>4.31 5.20</td>
<td>F.P.</td>
</tr>
<tr>
<td>4.</td>
<td>R.R.</td>
<td>3.74 4.84</td>
<td>T.A.</td>
</tr>
<tr>
<td>5.</td>
<td>L.A.</td>
<td>4.43 5.82</td>
<td>C.A.</td>
</tr>
<tr>
<td>6.</td>
<td>N.S.</td>
<td>4.31 5.45</td>
<td>S.L.</td>
</tr>
<tr>
<td>7.</td>
<td>Ş.D.</td>
<td>4.43 4.66</td>
<td>G.B.</td>
</tr>
<tr>
<td>8.</td>
<td>F.D.</td>
<td>4.62 5.13</td>
<td>B.C.</td>
</tr>
<tr>
<td>9.</td>
<td>V.R.</td>
<td>4.25 4.18</td>
<td>N.O.</td>
</tr>
<tr>
<td>10.</td>
<td>F.V.</td>
<td>4.44 5.27</td>
<td>V.A.</td>
</tr>
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<td>11.</td>
<td>B.R.</td>
<td>4.39 5.30</td>
<td>Z.A.</td>
</tr>
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<td>I.A.</td>
<td>4.12 5.29</td>
<td>O.F.</td>
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<tr>
<td>13.</td>
<td>O.N.</td>
<td>4.30 5.06</td>
<td>A.D.</td>
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<td>4.24 5.28</td>
<td>J.A.</td>
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<tr>
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<td>N.D.</td>
<td>4.05 4.65</td>
<td>P.L.</td>
</tr>
<tr>
<td>16.</td>
<td>S.R.</td>
<td>4.37 5.03</td>
<td>G.A.</td>
</tr>
<tr>
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<td>4.19 4.88</td>
<td>G.C.</td>
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<td>B.T.</td>
<td>4.32 4.99</td>
<td>M.N.</td>
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<td>P.R.</td>
<td>4.21 4.82</td>
<td>C.F.</td>
</tr>
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<td>P.C.</td>
<td>3.94 4.27</td>
<td>E.D.</td>
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<tr>
<td></td>
<td>Arithmetical average</td>
<td>4.248 5.049</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>3.74 4.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>4.62 5.82</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. The average level of speed running on 20 m

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Speed running 20 m 2001</th>
<th>Speed running 20 m 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average level</td>
<td>4.248</td>
<td>5.049</td>
</tr>
</tbody>
</table>
Type 2. Speed running on 20 m - the arithmetical averages

The difference between the two groups is of 0.801 seconds (4.248 seconds – 2001 group face of 5.049 seconds 2002 group).

3. Speed running on 30 m

Table 5. The arithmetical average of the results obtained at speed running on 30 m by the groups of children from L.P.S. Galați

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and firstname</th>
<th>Speed running 30m (s)</th>
<th>Name and firstname</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>g. 2001</td>
<td>g. 2002</td>
</tr>
<tr>
<td>1</td>
<td>B.M.</td>
<td>5.87</td>
<td>6.98</td>
</tr>
<tr>
<td>2</td>
<td>B.A.</td>
<td>6.18</td>
<td>6.96</td>
</tr>
<tr>
<td>3</td>
<td>S.L.</td>
<td>6.12</td>
<td>6.70</td>
</tr>
<tr>
<td>4</td>
<td>R.R.</td>
<td>5.56</td>
<td>6.24</td>
</tr>
<tr>
<td>5</td>
<td>L.A.</td>
<td>6.37</td>
<td>7.41</td>
</tr>
<tr>
<td>6</td>
<td>N.S.</td>
<td>6.00</td>
<td>6.78</td>
</tr>
<tr>
<td>7</td>
<td>Ş.D.</td>
<td>6.62</td>
<td>6.58</td>
</tr>
<tr>
<td>8</td>
<td>F.D.</td>
<td>6.58</td>
<td>7.31</td>
</tr>
<tr>
<td>9</td>
<td>V.R.</td>
<td>6.43</td>
<td>6.05</td>
</tr>
<tr>
<td>10</td>
<td>F.V.</td>
<td>6.45</td>
<td>6.97</td>
</tr>
<tr>
<td>11</td>
<td>B.R.</td>
<td>6.61</td>
<td>7.42</td>
</tr>
<tr>
<td>12</td>
<td>I.A.</td>
<td>6.24</td>
<td>7.11</td>
</tr>
<tr>
<td>13</td>
<td>O.N.</td>
<td>6.37</td>
<td>7.21</td>
</tr>
<tr>
<td>14</td>
<td>N.A.</td>
<td>6.19</td>
<td>6.97</td>
</tr>
<tr>
<td>15</td>
<td>N.D.</td>
<td>6.07</td>
<td>6.86</td>
</tr>
<tr>
<td>16</td>
<td>S.R.</td>
<td>6.38</td>
<td>7.08</td>
</tr>
<tr>
<td>17</td>
<td>B.R.</td>
<td>6.05</td>
<td>6.68</td>
</tr>
<tr>
<td>18</td>
<td>B.T.</td>
<td>5.80</td>
<td>6.87</td>
</tr>
<tr>
<td>19</td>
<td>P.R.</td>
<td>6.01</td>
<td>6.72</td>
</tr>
<tr>
<td>20</td>
<td>P.C.</td>
<td>5.81</td>
<td>6.23</td>
</tr>
<tr>
<td></td>
<td>Arithmetical average</td>
<td>6.185</td>
<td>6.856</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>5.56</td>
<td>6.05</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>6.62</td>
<td>7.42</td>
</tr>
</tbody>
</table>

Table 6. The average level of speed running on 30 m

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Speed running 30 m 2001</th>
<th>Speed running 30 m 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average level</td>
<td>6.185</td>
<td>6.856</td>
</tr>
</tbody>
</table>
Type 3. Speed running on 30 m - the arithmetical averages

Also, in this case the difference between 2002 group and 2001 group is of 0.671 seconds (6.185 s. – 2001 group face of 6.856 seconds – 2002 group).

4. The jump in length of on place

Table 7. The arithmetical average of the results obtained at the jump in length of on place by the grups of children from at L.P.S. Galați

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and firstname</th>
<th>The jump in length of on place (m)</th>
<th>Name and firstname</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>B.M.</td>
<td>1.70</td>
<td>1.40</td>
</tr>
<tr>
<td>2.</td>
<td>B.A.</td>
<td>1.50</td>
<td>1.25</td>
</tr>
<tr>
<td>3.</td>
<td>S.L.</td>
<td>1.40</td>
<td>1.50</td>
</tr>
<tr>
<td>4.</td>
<td>R.R.</td>
<td>1.70</td>
<td>1.35</td>
</tr>
<tr>
<td>5.</td>
<td>I.A.</td>
<td>1.55</td>
<td>1.30</td>
</tr>
<tr>
<td>6.</td>
<td>N.S.</td>
<td>1.50</td>
<td>1.45</td>
</tr>
<tr>
<td>7.</td>
<td>Ş.D.</td>
<td>1.40</td>
<td>1.20</td>
</tr>
<tr>
<td>8.</td>
<td>F.D.</td>
<td>1.20</td>
<td>1.45</td>
</tr>
<tr>
<td>9.</td>
<td>V.R.</td>
<td>1.60</td>
<td>1.65</td>
</tr>
<tr>
<td>10.</td>
<td>F.V.</td>
<td>1.40</td>
<td>1.50</td>
</tr>
<tr>
<td>11.</td>
<td>B.R.</td>
<td>1.10</td>
<td>1.00</td>
</tr>
<tr>
<td>12.</td>
<td>I.A.</td>
<td>1.55</td>
<td>1.25</td>
</tr>
<tr>
<td>13.</td>
<td>O.N.</td>
<td>1.50</td>
<td>1.65</td>
</tr>
<tr>
<td>14.</td>
<td>N.A.</td>
<td>1.60</td>
<td>1.30</td>
</tr>
<tr>
<td>15.</td>
<td>N.D.</td>
<td>1.55</td>
<td>1.40</td>
</tr>
<tr>
<td>16.</td>
<td>S.R.</td>
<td>1.60</td>
<td>1.35</td>
</tr>
<tr>
<td>17.</td>
<td>B.R.</td>
<td>1.55</td>
<td>1.55</td>
</tr>
<tr>
<td>18.</td>
<td>B.T.</td>
<td>1.70</td>
<td>1.60</td>
</tr>
<tr>
<td>19.</td>
<td>P.R.</td>
<td>1.70</td>
<td>1.40</td>
</tr>
<tr>
<td>20.</td>
<td>P.C.</td>
<td>1.55</td>
<td>1.55</td>
</tr>
</tbody>
</table>

Arithmetical average: 1.517 1.405
Minimum: 1.1 1
Maximum: 1.7 1.65

Table 8. The average level of the jump in length of on place

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Jump in length of on place 2001</th>
<th>Jump in length of on place 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average level</td>
<td>1.517</td>
<td>1.405</td>
</tr>
</tbody>
</table>
Type 4. Jump in length of on place - the arithmetical averages

The difference between the two groups is of 11.2 cm (1.517 metres – 2001 group face of 1.405 metres – 2002 group).

5. To maintain the ball in air with the skilful leg

Table 9. The arithmetical average of the results obtained at to maintain the ball in air with skilful leg by the groups of children from at L.P.S. Galați

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and firstname</th>
<th>g. 2001</th>
<th>g. 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>B.M.</td>
<td>202</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>B.A.</td>
<td>100</td>
<td>17</td>
</tr>
<tr>
<td>3.</td>
<td>S.L.</td>
<td>82</td>
<td>32</td>
</tr>
<tr>
<td>4.</td>
<td>R.R.</td>
<td>190</td>
<td>45</td>
</tr>
<tr>
<td>5.</td>
<td>L.A.</td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>N.S.</td>
<td>31</td>
<td>7</td>
</tr>
<tr>
<td>7.</td>
<td>Ş.D.</td>
<td>22</td>
<td>35</td>
</tr>
<tr>
<td>8.</td>
<td>F.D.</td>
<td>43</td>
<td>26</td>
</tr>
<tr>
<td>9.</td>
<td>V.R.</td>
<td>56</td>
<td>21</td>
</tr>
<tr>
<td>10.</td>
<td>F.V.</td>
<td>64</td>
<td>17</td>
</tr>
<tr>
<td>11.</td>
<td>B.R.</td>
<td>117</td>
<td>12</td>
</tr>
<tr>
<td>12.</td>
<td>L.A.</td>
<td>45</td>
<td>18</td>
</tr>
<tr>
<td>13.</td>
<td>O.N.</td>
<td>74</td>
<td>18</td>
</tr>
<tr>
<td>14.</td>
<td>N.A.</td>
<td>60</td>
<td>11</td>
</tr>
<tr>
<td>15.</td>
<td>N.D.</td>
<td>55</td>
<td>24</td>
</tr>
<tr>
<td>16.</td>
<td>S.R.</td>
<td>42</td>
<td>34</td>
</tr>
<tr>
<td>17.</td>
<td>B.R.</td>
<td>76</td>
<td>62</td>
</tr>
<tr>
<td>18.</td>
<td>B.T.</td>
<td>31</td>
<td>51</td>
</tr>
<tr>
<td>19.</td>
<td>P.R.</td>
<td>189</td>
<td>14</td>
</tr>
<tr>
<td>20.</td>
<td>P.C.</td>
<td>36</td>
<td>22</td>
</tr>
</tbody>
</table>

Arithmetical average  78.75  24.7
Minimum  22  5
Maximum  202  62

Table 10. The average level of to maintain the ball in air with the skilful leg

<table>
<thead>
<tr>
<th>Indicators</th>
<th>To maintain the ball in air with the skilful leg 2001</th>
<th>To maintain the ball in air with the skilful leg 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average level</td>
<td>78.75</td>
<td>24.7</td>
</tr>
</tbody>
</table>
Type 5. To maintain the ball in air with the skilful leg - the arithmetical averages

Also, there is a difference between the two groups is of 54.05 repetitions (78.75 repetitions – 2001 group face of 24.7 repetitions - 2002 group).

6. To maintain the ball in air with the unskilful leg

Table 11. The arithmetical average of the results obtained at to maintain the ball in air with unskilful leg by the children from at L.P.S. Galați

<table>
<thead>
<tr>
<th>No.</th>
<th>Name and firstname</th>
<th>To maintain the ball in air with unskilful leg (max. number of repetitions)</th>
<th>Name and firstname</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>B.M.</td>
<td>69</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>B.A.</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>S.L.</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>4.</td>
<td>R.R.</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>L.A.</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td>6.</td>
<td>N.S.</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>7.</td>
<td>Ş.D.</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>F.D.</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>9.</td>
<td>V.R.</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10.</td>
<td>F.V.</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>11.</td>
<td>B.R.</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>12.</td>
<td>I.A.</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>13.</td>
<td>O.N.</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>14.</td>
<td>N.A.</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>15.</td>
<td>N.D.</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>16.</td>
<td>S.R.</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>17.</td>
<td>B.R.</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>18.</td>
<td>B.T.</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>19.</td>
<td>P.R.</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>20.</td>
<td>P.C.</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Arithmetical average</td>
<td>16.4</td>
<td>7.85</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>69</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

Table 12. The average level of to maintain the ball in air with the unskilful leg

<table>
<thead>
<tr>
<th>Indicators</th>
<th>To maintain the ball in air with the unskilful leg 2001</th>
<th>To maintain the ball in air with the unskilful leg 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>The average level</td>
<td>16.4</td>
<td>7.85</td>
</tr>
</tbody>
</table>
Type 6. To maintain the ball in air with the unskilful leg - the arithmetical averages

There is a difference between the two groups, namely of 8.55 repetitions (16.4 repetitions – 2001 group face of 7.85 repetitions - 2002 group).

In synthesis, we can calculate the indexes of the growth concerning the average levels for the tests applied at 2001 group face of 2002 group (Drăgan, A., 2009).

Table 13. The indexes of the growth concerning the average levels of the trials

<table>
<thead>
<tr>
<th>The test</th>
<th>The group</th>
<th>Indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed running on 10 m</td>
<td>2.406</td>
<td>2.800</td>
</tr>
<tr>
<td>Speed running on 20 m</td>
<td>4.248</td>
<td>5.049</td>
</tr>
<tr>
<td>Speed running on 30 m</td>
<td>6.185</td>
<td>6.856</td>
</tr>
<tr>
<td>The jump in length of on place</td>
<td>1.517</td>
<td>1.405</td>
</tr>
<tr>
<td>To maintain the ball in air with the skilful leg</td>
<td>78.75</td>
<td>24.7</td>
</tr>
<tr>
<td>To maintain the ball in air with the unskilful leg</td>
<td>16.4</td>
<td>7.85</td>
</tr>
</tbody>
</table>

The indexes of the growth concerning the average levels of the tests applied at 2001 group face of 2002 group were calculated after the next formula:

\[
I_{2001\text{group}/2002\text{group}} = \frac{\bar{x}_{2001\text{group}}}{\bar{x}_{2002\text{group}}}
\]

where:

\[
x_{2001\text{group}} = \text{the average level of the test applied at 2001 group;}
\]

\[
x_{2002\text{group}} = \text{the values of the variable researched over the twenty children from 2001 group;}
\]

\[
n = \text{number of children who are tested from 2001 group;}
\]

\[
x_{i,2001\text{group}} = \text{the values of the variable researched over the twenty children from 2001 group;}
\]

\[
x_{i,2002\text{group}} = \text{the values of the variable researched over the twenty children from 2002 group;}
\]

\[
I_{2001\text{group}/2002\text{group}} = \text{the values of the variable researched over the twenty children from 2002 group;}
\]

\[
n = \text{number of children who are tested from 2002 group.}
\]

We observe in the table number 13. that:
- at the trial speed running on 10 metres, the average level of 2001 group subtracted with 14.08 % face of the average level of 2002 group. which it means an improvement of the speed running on 10 metres for the children of 2001 team;
- at the test speed running on 20 metres, the average level of 2001 group subtracted with 15.86 % face of the average level of 2002 group. which also. it means an development of the speed running on 20 metres for the children of 2001 team;
- at the trial speed running on 30 metres, the average level of 2001 group subtracted with 9.79 % face of the average level of 2002 group. which it means an improvement of the speed running on 30 metres for the children of 2001 team;
- at the test jump in length of on place, the average level of 2001 group growed with 7.97 % face of the average level of 2002 group. which it means that the children of 2001 team jump on horizontaly more good face of the children of 2002 group;
- at the trial to maintain the ball in air with the skilful leg, the average level of 2001 group growed with 218.83 % face of the average level of 2002 group.
2002 group. which it means that at this test the children of 2001 group are very good prepared face of the children of 2002 group;

- at the trial to maintain the ball in air with the unskilful leg, the average level of 2001 group grewed with 108.92 % face of the average level of 2002 group. which it means an improvement of this test for the children of 2001 team.

CONCLUSIONS

The knowledge of the characteristics. concerning the specific preparing for 6 to 10 years old. contributes at the scientifical leading of the sporting training. So we can to avoid the empirical preparing. without precise rules.

Also. the knowledge of the age characteristics. of the level concerning the development of the driving qualities through control trials and of the level for the technical and tactical preparing through profile tests. contribute to the permanent knowledge of the progress level and make possibly the cooptation in the performance batch of the children with real qualities for football.

At 6 to 10 years old is important to work in a special mode for speed and ability. but we don’t must to neglect the development of the resistance at specific efforts.

For to attract the children in football. the coaches must to achieve an availability towards an efficacy comunication with the parents. but and with the children.

The age 6 to 10 years old is the more important preparing age. because it forms the footballistical skills in fair mode and in this period it can take an earnest option concerning a strong football team.

The speed or agility at 6 to 10 years old is a complex skill with testimony under more shapes. These complexity is confirmed by the fact that from she result three elements. all fundamentaly. but heterogenous: reaction speed. agility of the simple movement and her frequency.

The reaction speed is strong joined by a series of central factors and mental factors. The agility of the simple movement is influenced by force and of the frequency of the movement in the same time.

So. the three forms of speed present distinct developments in the time of the growth period: some speeds are related so much with the coordinative skills. and from this motive distinct authors. face of what it admits in traditional mode. don’t consider the speed as a conditional skill.

In the time of the training. the principal factor which musts to be developed it’s the maximum speed in specific conditions. as exemple. the speed running and the reaction speed. This musts to be maked in a state of relative physical freshness. Also. the speed is often combined with the force and the resistance.
INDIVIDUAL TRAINING OF 17-18 YEAR OLD FOOTBALL STRICKERS

Aurelian DRĂGAN

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
This paper selects a set of technical means - tactical high efficiency leading to increased value of the individual players as junior forwards I.
The research aim is to verify and to reflect the role and involvement of technical structures - standard tactical training for junior I attackers, to raise their individual value and increase efficiency in the game.
We used the next methods of research: scientific documentation, statistics, observation, experimental study.
This research presents the results of a battery of tests in the training of attackers: 30 m speed; the Cooper test; length of the place; commute; push-ups; pull-ups; 30° abs; technical-tactical complex.
The graphical study of the arithmetic test conducted on samples of each specific level of development of physical qualities, especially strength, presents an upward path, which suggests that the means used were operationally efficient, in particular long jump and the Cooper test.
Modeling training and the use of individualization are basic conditions for the training of young players who must be able to act very quickly in the small spaces offered by the defense systems.

Key words: Attackers, modeling, individualization, training, basic means, skills, physical preparation.

1. INTRODUCTION
The issue of junior football training, in general, and of strikers /attackers, the subject of this paper, focuses on very complex aspects of their selection starting with established scientific criteria and ending with the shaping of their training so as to make them able to handle all the effects of an increasingly sophisticated defense.
The current level of the research in the field is determined by the identification of efficient ways and means, standardized and objectified in a logical planning, meant to increase the attackers’ efficiency in the game, both as creators of dangerous phases and as useful tools to handle them efficiently.
Our approach starts from the following methodological considerations about the possibilities to increase the value of individual players in the junior forwards I.
The technique of handling the ball on very small and crowded spaces under adversity, and to collaborate with teammates, require training programs to consider (Giacomini, 2009):
- the technical profile of the individual player;
- the morphological conformation;
- the center of gravity position;
- the level of traction;
- the mental structure.
Also, the training process should take into account several major factors, such as:
- traits of character and education;
- quality of the first models of learning;
- quality and quantity of training;
- attitude and motivation to play.

The attacking player model building is difficult given current trends in modern football. Model requirements for attacking players of this age group would indicate:
- class - 1.75-1.80 m;
- speed in all its forms;
- high ball handling technique on small areas, under high adversity;
- thinking tactical advanced placement, anticipated actions, clairvoyance;
- incision, initiative and decision making capacity;
- special stamina to counter the hardness of defenders.

It should however be noted that the technical profile of a player’s value is divided into the main game and the quality of the primary models. At the same time quality and quantity of training are crucial in the emergence of values. The individual technical profile, defined so far by externalizing motrical-technical and technical skills, implies that each type of player has to adapt to the technical job. This term indicates, with particular technical focus and
direction, a specific tactical position. To the attack within the meaning of the word pure type of finisher is usually unambiguous, the players with the skills to train others skills.

In the training of junior performance, acts preparatory work towards increasing the capacity to improve the players performance capacity determined by the components:
- biological components;
- biomechanical components;
- motor components;
- psychological, and these during training, gradually and carefully targeted training distributed programming.

The state of the art, concerning this paper, consists in a number of changes and trends that help training and thus raising the participation in competitions that present below (Giacomini, M., 2009):
- scientific rigorous selection criteria.
- decreased longevity sport (shorter maximum performance) the preparations for growth (early selection, high volume training).
- modeling exercise based on performance components.
- maximize the importance of physical preparation.
- volume under the intensity.
- getting resistance up tempo game than the game.
- correlation of maximal effort in training.
- few means but with maximum efficiency coefficient.
- expansion of circuit training and interval training and technical - tactical and even mix them.
- rise to a principle of individualization with emphasis on technical training.
- approach combining training factors simultaneously through complex structures.
- great importance to recovery after trainings and competitions.

In order to perform the experiment we chose a group of six forwards from FC Otelul Galati driven by Mr. Ragea Mitica, participating with good results in national junior championship.

Ascertaining experiment subjects are subject to six players: 4 strikers and 2 attacking midfielder born in 1994.

Research was conducted during the years 2011 and 2012 round trip in which I could apply during the preparatory and competitive periods less means that we operated in the experiment.

Concerning the achievement of the research, we formulated the following hypothesis: suppose that identifying the most appropriate to be applied as close to game conditions, we can help increase the value of individual players by increasing efficiency forwards them to the game economy.

In the aim of the achievement concerning this paper we used the next research methods: the scientifical documentation, the statistical method, the observation method, the experimental study method. The results obtained by the players will constitute points of view in the preparation of the footballers at this level.

As a direct method which allowed me some conclusions that confirm my working hypothesis from which we started was the experienced, about complex investigation can confirm and verify this research.

Section 2 reflects the modeling in football training, section 3 presents the develop operational means and in section 4 we can see the research results.

2. MODELING IN FOOTBALL TRAINING

In general sense, the modelling represents the technology for to develop training programs concerning the process models using operational or define as "the express mention of the intention to reproduce the model".

Modelling is a dynamic process as opposed to "model" that is static. Models are based modelling operational exercises expressed in high efficiency systems.

Modelling is what reconsidered training component model dictated by performance. It gives priority to technical - tactical efficiency that must be performed similar or better model proposed, or, more precisely, modelling is to achieve consistency between training content and the game. This involves conducting training lessons under conditions close to the game or the game.

In sports training, modelling is well-defined functions, namely:

a) demonstration function that contributes to the knowledge content model. It must be schematized essential, call the fund motric known, allowing the accumulation of knowledge, skills and new skills.

b) where the model is exploited cognitive function during prenotrică. Document refers to the knowledge structure loads.

c) according to the learning process aimed at global learning by model.

d) based heuristic model allows adaptation to individual characteristics, allows the creation of new elements, processes, relationships. technical – tactical

e) evaluation function to measure and assess the degree of adaptation to the training body. As a general methodical line I would indicate a pattern of attacking player structured technical content and few job specific tactical objectives that must be met under the post.

Requirements of the model:

1. Increase number of play actions:
   - avoid takeovers (direct care, deviation or shot on goal);
   - avoiding undue ball tactical management;
   - total commitment into action through effective and continuous exposure.
2. Variety of actions during the completion by:
   - improvement actions and executions under adversity, crisis of space and time made fast.
3. Accelerating actions of attack:
   - transmission time on the fairway in the next position
   - shot at goal from free corridor appearance
   - improving the technique of hitting the ball in any position.

As a requirement of the job in modern football striker is the creator actions as such. He is a player multilateral very good physical qualities, developed at the highest levels, coupled with a skill (technical knowledge - special tactical) taken to virtuosity, complemented by a great mental capacity.

In addition to special physical qualities (tall for the central striker, medium to extreme tape player) to achieve solutions to the fight game opponent directly attacking player needs a strong sense of tactical thinking that it needed the constant demarcation make the situation favorable for completion and color creates for other teammates.

Maximize the value of individual players specializing in post, should raise individual training to a principle, requiring modification of psycho-tactical opportunities for players to maximize the return on the game.

To achieve this goal in the training of the attackers, to work in collective training is required and introduction of specific individual training job.

Individual training, individualization, is a form of modern training base following the preparation of each player depending on job requirements, the peculiarities of psycho-physiological and requirements of modern game.

Individualization of the training is done according to the information we have about how the reactivity of the athlete during exercise, which requires an order determined by the needs of current practice as follows (Stănăulescu, G., 2003):
   - development and improvement of essential qualities;
   - development and improvement of muscle groups that have not been activated thus creating a large base of specific and nonspecific skills;
   - use of technical structures - tactical as close to real game situations.

If the development or remediation of physical qualities is easier to do work, preparing technical - tactical coach requires special knowledge in choosing the most effective means of specific job requirements.

Finally the principle of individualization acting sports training, supplemented with other groups but results primarily from the complexity of the human body.

3. DEVELOP OPERATIONAL MEANS

In order to confirm the hypothesis from which we started, we started to develop complex technical structures - tactical training to operate in the first part of the experiment, the address structure to improve and maximize the value of the individual test subjects introduced in the microcycles training, working couples and individual work.

To develop motor qualities we chose specific and nonspecific means the game with which I sought to bring the basic driving skills and needed a striker combined well prepared:

**Education speed:** Repeat method with maximum efforts and intervals.
A. Running distance of 15-20 m, maximum speed, at first only with a structure running, then the teacher instructions, running in a zig-zag, followed by stops, turning, running in the opposite direction, running winding. After running 120-150 m is given a break of 2-3 min.
B. Distance of 20-30 m sprints departing from different positions, rest 25 seconds.
C. Series about 3x10, 3x20, 3x15, 4x20, 3x15 with breaks between sets of 2-3 minutes (repeat-intervals).
D. Exercise ball: 30 m relay contest, management and completion; assists in the series of 8-10 pc. two teammates

**Education forced** was based on characteristic structures in conditions hampered techniques and exercises to overcome through their own weight.

**Strength in legs and arms:**
A. 3x20 back squats partner, break combined with mobility exercises.
B. 3x15-arm pushups in pieces, break one minute;
C. 5X30-speed runs down the stairs;
D. from lying dorsal pushing the dumbbell chest 5x10 pcs. (h = 10 kg);
E. exercise ball kick at the door with wet;
F. imitating the shot at goal with ankle tied with an elastic band.

**Education resistance** - we used to develop resistance exercises under the speed (VR) and specific resistance. The methods we used repeats, intervals, varying tempi.

A. Uniform tempo runs, 2/4, 8-10 minutes or 800-1200-1600-2000 the flat and varied terrain;
B. Varied tempo runs short (20-40-50-60) with breaks of 15-30 seconds to one minute intervals as;
C. Runs over various obstacles combined with hitting the ball with the head thrown by partner or shot at goal from crosses from both sides;
D. 3X3 game on small areas with two taps. 3X4 game with a single touch (takes place on rounds of 5”)

**Education specific skill** - we used specific exercises to strengthen the implementation of specific techniques main station forward.
A. keeping the ball in the air with his foot, thigh, head, shoulder during a minute.
B. keeping the ball in the air in pairs.
C. takeover, lifting the ball, shot on goal: on foot; head.
D. cross, care to heel, back, shot at goal.
E. same, dodge the shot continued to dribble and finish;
F. takeover of centering the chest, head, thigh followed by shot on goal or pass to teammates who complete;
G. play tennis or head to foot in groups of 2 or 3 volleyball over net (three shots);
H. autopases combined with screws, shot on goal.

Technical and tactical structures

In order to improve technical parameters related to job training in the weekly cycle we introduced a number of structures exercises direct address to raise specific technical and tactical skill players forwards on to:
- Technique of handling the ball in small spaces;
- Technique of hitting the ball in different positions with foot and head;
- Individual penetrations foot ball followed by completion;
- Tactical combinations between 2-3 players by crosses, enveloping, marking successive
- Improving takeovers opponent under pressure;
- Improving the shot on goal in force: the return leg through diversion or over goalkeeper (lobbed) in the upper portions of long or short;
- The provision and upgrading to the skill of passing the slits, the shot, confusing change of direction of movement, the bird, the shot continued with other decisive action;
- Improving the speed crosses, passes back, deviations, shot on goal in conditions of adversity and crisis of space and time.

All these structures were included in the weekly cycle training mainly in precompetitive stage and then during the competition when they were used as rally fragments containing the technical and tactical training and specific physical training. I worked with these structures presented in the first part of the experiment in training for nine weekly training cycles. To clarify I have watched the value of the proposed structures and a number of 8 games of the championship by recording the evolution of each player, resulting in the number of shares of appeals held, the predominant action of participation upon completion of each forward and assists for other.

4. RESEARCH RESULTS

Building opportunities to take the research subjects have developed a series of control samples through which I could check the initial training of subjects from which we started conducting research in establishing objective criteria for assessing the quality of the driving and technical -tactical on which we acted the structures through a series of complex exercises (operating means) to allow individual players increase the value of forwards and increase their efficiency in the championship game.

Table no.1Battery of tests for six subjects

<table>
<thead>
<tr>
<th>Physical tests</th>
<th>Ideal model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed – 30 flat</td>
<td>3.7-4.1 sec.</td>
</tr>
<tr>
<td>Resistance - COOPER TEST</td>
<td>3200-3300</td>
</tr>
<tr>
<td>Force - length of the place</td>
<td>minimum 2.45</td>
</tr>
<tr>
<td>Tractions</td>
<td>minimum 12</td>
</tr>
<tr>
<td>Abdomens 30 &quot;</td>
<td>30</td>
</tr>
</tbody>
</table>

Technical tests:
A. Technical – tactical complex: taking + driving in a straight line 20 m, leadership among five benchmarks (3 meters apart) + shot on goal from 16 m sample runs twice and consider the best time.
B. Shuttle.

The first test was conducted on 23.10.2011. After testing it may be concluded that test players approach the scales requirements set by the Romanian Football Federation and can act on them strongly with the quality available and their willingness to train.

Table no. 2 The results obtained at first test

<table>
<thead>
<tr>
<th>Name first-name</th>
<th>Speed 30 m flat</th>
<th>Cooper test</th>
<th>Length of the place</th>
<th>Commute</th>
<th>Flotations</th>
<th>Tractions</th>
<th>Abdomens 30 &quot;</th>
<th>Technical – tactical complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C.</td>
<td>4.1</td>
<td>2850</td>
<td>2.45</td>
<td>26.5</td>
<td>18</td>
<td>10</td>
<td>25</td>
<td>13.5</td>
</tr>
<tr>
<td>R.R.</td>
<td>4.2</td>
<td>2650</td>
<td>2.60</td>
<td>25.5</td>
<td>12</td>
<td>8</td>
<td>27</td>
<td>17.0</td>
</tr>
<tr>
<td>G.E.</td>
<td>4.0</td>
<td>2900</td>
<td>2.40</td>
<td>24.5</td>
<td>15</td>
<td>9</td>
<td>25</td>
<td>12.7</td>
</tr>
<tr>
<td>S.L.</td>
<td>4.2</td>
<td>3000</td>
<td>2.48</td>
<td>24.5</td>
<td>18</td>
<td>8</td>
<td>26</td>
<td>14.0</td>
</tr>
<tr>
<td>S.T.</td>
<td>4.1</td>
<td>2850</td>
<td>2.35</td>
<td>26.0</td>
<td>13</td>
<td>8</td>
<td>28</td>
<td>13.5</td>
</tr>
<tr>
<td>B.D.</td>
<td>4.0</td>
<td>2900</td>
<td>2.30</td>
<td>26.5</td>
<td>16</td>
<td>9</td>
<td>26</td>
<td>11.5</td>
</tr>
</tbody>
</table>

Table no. 3 reflects performance in the games of the attackers studied. In the eight games forwards took a total of 250 shares of attack that
marked a total of 9 goals which is a low percentage completion.

### Table no. 3 The performance in the games of the attackers

<table>
<thead>
<tr>
<th>Name first-name</th>
<th>No. game</th>
<th>Final passes</th>
<th>Sutures</th>
<th>Slits</th>
<th>One-two</th>
<th>Blows with the head</th>
<th>Goals</th>
<th>Total actions</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td>At p.</td>
<td>On p.</td>
<td>R</td>
<td>N</td>
<td>R</td>
<td>N</td>
</tr>
<tr>
<td>M.C.</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>R.R.</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>9</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>G.E.</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S.L.</td>
<td>6</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>S.T.</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B.D.</td>
<td>8</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Of the 250 actions which are all carried the ball touches the individual player: passing, shots on goal with head and leg, slits, "one to two" sites, it appears that the two central peaks had the more contact with the ball, but their achievements embodied in the goals, seven in number, are reduced as a percentage%.

Also be noted that their participation was not equal number of games they are used according to their value at the time and depending on injuries and suspensions.

Drawing the lessons first lessons of recordings made in the games I wanted to check and the driving qualities. Thus, to end tour championship 2011-2012 we conducted a test whose results allow me to form a more concrete picture of return on training in the first period of the experiment.

### Table no. 4 The results obtained at second test

<table>
<thead>
<tr>
<th>Name firstname</th>
<th>Speed 30 m flat</th>
<th>Cooper test</th>
<th>Length of the place</th>
<th>Commutation</th>
<th>Flotations</th>
<th>Traction</th>
<th>Abdomens 30°</th>
<th>Technical – tactical complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C.</td>
<td>3.9</td>
<td>2950</td>
<td>2.50</td>
<td>24.2</td>
<td>16</td>
<td>9</td>
<td>26</td>
<td>11.5</td>
</tr>
<tr>
<td>R.R.</td>
<td>3.9</td>
<td>2850</td>
<td>2.62</td>
<td>22.6</td>
<td>12</td>
<td>8</td>
<td>28</td>
<td>13.3</td>
</tr>
<tr>
<td>G.E.</td>
<td>3.8</td>
<td>3000</td>
<td>2.44</td>
<td>23.5</td>
<td>12</td>
<td>9</td>
<td>27</td>
<td>12.2</td>
</tr>
<tr>
<td>S.L.</td>
<td>3.8</td>
<td>3100</td>
<td>2.50</td>
<td>24.2</td>
<td>16</td>
<td>8</td>
<td>27</td>
<td>13.7</td>
</tr>
<tr>
<td>S.T.</td>
<td>3.7</td>
<td>3100</td>
<td>2.45</td>
<td>23.8</td>
<td>16</td>
<td>9</td>
<td>28</td>
<td>13.1</td>
</tr>
<tr>
<td>B.D.</td>
<td>3.8</td>
<td>3000</td>
<td>2.35</td>
<td>25.3</td>
<td>16</td>
<td>10</td>
<td>28</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Paradoxically to the development and performance in the game, the second test shows a general increase in all indices tested, which led me to believe that the value of the complex physical nature had a good efficiency, but the expression embodied in the game, return each topic is not successful.

Following the analysis performed after the second test we went to the rationalization and standardization of training, using a small number of structures to those used in the first part of the experiment, namely structures 2, 3, 4, 6 and 7, made under close game, focusing on increasing speed and performance, the improvement technique of ball handling individual and small areas under increasing adversity. Outside the structures mentioned above have focused on the conduct of games 2X2 and 3X3 small areas (inside the box) with special tasks to reach the ball (touch, two, maximum three) followed by completion (Drăgan A., 2009).

We also focus on solving the tasks of attack fixed moments of the game regarding: improvement shootouts - directly or in combination; debranding permanent; appropriate placement depending on where the throw; entry into combinations and strengthen the sense of collaboration between the strikers, midfielders and players sideband. In the weekly cycle of training, the emphasis was on the job training individualization, couples and game lines and the assembly of rally by working the lines. 2011-2012 Championship early return we made last test on subjects, the results shift control samples are presented in the table no. 5.
It is noted in the table above growth indices in control samples from the first test, which I believe is due to two factors favoring: final testing was performed a week after the end of training camp conducted in the mountains, where subjects received a very good preparation, and the second factor that has allowed to obtain higher values in samples was that testing, except COOPER test, given in the hall athletics, which allowed the execution of tests in very good land, which have not negatively affected conducting samples. Table no. 6 shows averages eight samples from the first test and final test, in which stand out the achievements of the six forwards studied.

### Table no. 5 The results obtained at final test

<table>
<thead>
<tr>
<th>Name</th>
<th>firstname</th>
<th>Speed 30 m flat</th>
<th>Cooper test</th>
<th>Length of the place</th>
<th>Commute</th>
<th>Flotations</th>
<th>Traction</th>
<th>Abdomens 30&quot;</th>
<th>Technical – tactical complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C.</td>
<td></td>
<td>3.8</td>
<td>3100</td>
<td>2.55</td>
<td>23.5</td>
<td>20</td>
<td>10</td>
<td>28</td>
<td>11.9</td>
</tr>
<tr>
<td>R.R.</td>
<td></td>
<td>4.0</td>
<td>2950</td>
<td>2.65</td>
<td>22.1</td>
<td>14</td>
<td>9</td>
<td>27</td>
<td>12.2</td>
</tr>
<tr>
<td>G.E.</td>
<td></td>
<td>3.8</td>
<td>3050</td>
<td>2.48</td>
<td>22.7</td>
<td>18</td>
<td>9</td>
<td>26</td>
<td>11.9</td>
</tr>
<tr>
<td>S.L.</td>
<td></td>
<td>3.7</td>
<td>3150</td>
<td>2.55</td>
<td>23.9</td>
<td>18</td>
<td>11</td>
<td>27</td>
<td>12.7</td>
</tr>
<tr>
<td>S.T.</td>
<td></td>
<td>3.7</td>
<td>3100</td>
<td>2.50</td>
<td>23.2</td>
<td>16</td>
<td>10</td>
<td>26</td>
<td>12.5</td>
</tr>
<tr>
<td>B.D.</td>
<td></td>
<td>3.7</td>
<td>3150</td>
<td>2.45</td>
<td>23.8</td>
<td>16</td>
<td>12</td>
<td>28</td>
<td>11.4</td>
</tr>
</tbody>
</table>

### Table no. 6 The averages levels at first test and second test

<table>
<thead>
<tr>
<th>Test</th>
<th>First test - the arithmetical averages</th>
<th>Final test - the arithmetical averages</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed 30 m flat</td>
<td>4,1&quot;</td>
<td>3,8&quot;</td>
<td>-0,1&quot;</td>
</tr>
<tr>
<td>COOPER test</td>
<td>2858 m</td>
<td>3083 m</td>
<td>+275 m</td>
</tr>
<tr>
<td>Length of the place</td>
<td>2,43 m</td>
<td>2,53 m</td>
<td>+0,10 m</td>
</tr>
<tr>
<td>Commute</td>
<td>25,50&quot;</td>
<td>23,36&quot;</td>
<td>-2,14&quot;</td>
</tr>
<tr>
<td>Flotations</td>
<td>16</td>
<td>17</td>
<td>+2</td>
</tr>
<tr>
<td>Traction</td>
<td>8,66</td>
<td>10</td>
<td>+1</td>
</tr>
<tr>
<td>Abdomens 30&quot;</td>
<td>26,16</td>
<td>27</td>
<td>+0,66</td>
</tr>
<tr>
<td>Technical – tactical complex</td>
<td>13,7&quot;</td>
<td>12,1&quot;</td>
<td>-1,6&quot;</td>
</tr>
</tbody>
</table>
Type 5. Abdomens 30" - the arithmetical levels
Type 6. Tractions - the arithmetical levels

From table no. 6 samples increases in the strength (length of the place, push-ups) and the Cooper test, so a good steady evolution of all indices tested, which means that in the second part of the experiment means used gave the expected yield.

Graphical study of arithmetic test these samples for each specific level of development of physical qualities, especially power, we have an upward path, which shows that the means used were operational efficiency, notably those on standing long jump and the Cooper test.

Outside of the three tests to compare the effectiveness of technical means used in tactical training game yield of subjects tested in this study, we followed the behavior of their eight league matches (return) records of each action taken by while playing on: demarcation effective penetration foot ball, the teammates assists, shots on goal from the action (empty space on the gate outside the gate) (Drăgan A., 2009).

I mentioned earlier that the first record made, return the game was not adequately large number of shares held. In stage II of the experiment yields increased, but not the extent of work and the value of individual players. We put these achievements on the inexperience of players, and the precarious state of playing fields where parties have been pursued.

The table below shows the activity of each player games that I attended.

<table>
<thead>
<tr>
<th>Name first-name</th>
<th>No. game</th>
<th>Final passes</th>
<th>Sutures</th>
<th>Slits</th>
<th>One-two</th>
<th>Blows with the head</th>
<th>Goals</th>
<th>Total actions</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>G</td>
<td>At p.</td>
<td>On p.</td>
<td>R</td>
<td>N</td>
<td>R</td>
<td>N</td>
</tr>
<tr>
<td>M.C.</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R.R.</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>G.E.</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S.L.</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>S.T.</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>11</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>B.D.</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Compared with the first record is observed decrease the number of shares held by the six forwards studied, but their performance is explained by the greater number of actions embodied in goals (18 goals in a number of 166 shares, compared to only...
seven goals in a to 250 in championship round action). We can explain this positive development by increasing the individual players, and by increasing their concentration in the game, especially at the stage of completion.

Making an average game actions, that in each of these players have developed a number of 31.3 shares registered in the first 8 games scoring a total of 7 goals (only forwards) and the second entry had an average share of 20.8 per game, scoring 18 goals - double the first record. Comparing the two records note the increase in efficiency of their work in terms of number of actions completed empty (18) and increased efficiency in game economy by reducing inefficient actions.

The data collected from experiments performed as well as processing and interpretation can conclude that the means used in the training process, objectively, standardized and carefully planned, can raise the value of individual players forwards, confirming the hypothesis that I left.

Modeling training, use of individualization, are basic conditions in the training of young forwards who, crowding the defense presented by current systems must be able to do very quickly in small spaces offered by these systems and the degree of increasingly high adversity of opposing defenders (Drăgan A., 2009).

CONCLUSIONS:

Based on data from the research I drew the following conclusions:

- The attackers training for junior teams in the first place I have given particular attention in the selection process, involving both forwards positions and technical and tactical qualities physical and mental qualities of the same value, if not higher.

- The training of young forwards, modeling training instruction and individualization are key elements in raising their individual value and return the game.

- Maximize physical training is the basic support of technical and tactical training that gives true value to the player.

- Increasing the efficiency of training of young forwards is only through rigorous standardization and objectivity of operational resources and by appropriate planning of the training.

- Taking this very issue and comparing the results obtained from physical testing, reported values implied by the ideal model, it must be insisted on a multilateral preparation of each player and the habituation of the hard work required by the difficult position that it dealing team.

- At this age it is important to work especially for resistance and strength, motor skills priority for completion of youth football players.

- At the junior level (17 to 18 years of age) will continue within each group prepare advanced players (with technical and tactical qualities and special skills), using the means most complex and demanding increased. From this stage, coaches should emphasize, to training, developing players at all skill and knowledge to function as coordinator of the game.

- The choice of models and preparing itself to be adapted to the specific features and value especially to players, but without lowering the requirement in training and per - formance objectives of the proposed

- At this age, well-trained team, is characterized by:

  * pendulum swings on both sides of the field, participation in the construction and completion;
  * specific high effort that attracts all players, both attacking and defense;
  * special mentality in preparation to meet competition requirements.

- Awareness of the game through permanent information field: efficient operation depending on the position of the ball, teammates and the land;

- * stimulation of all areas of the field in attack and defense - width, depth, by making sustained efforts on routes required by the organization of the game, including the temporary takeover of tasks and fill in the functional groups (combination);*

- * use of tempo as tactical weapon: tempo supported preset periods: rehabilitation, construction, completion, temporary recovery supported by a new ball and defense corridor in effect;*

- * increasing the effective time of play: avoid sending the ball intentionally in out, shortening the throw the ball in play; strengthening technique of hitting the ball, the opponent under pressure in their crowded, and self-control in action defense, reducing the number of fouls, precision shooting at goal game actions increase by avoiding takeovers, avoiding undue ball tactical management, reduction of individual actions to the detriment of collective midfield pass easily through the fast moving ball and players, total commitment of the players in line for review by effective and continuous demarcation and consolidation actions and executions under adversity, balance, running out of space and time, built in speed - surprise your opponent off guard - pulling the gate to the emergence corridor, pulling the gate without taking, sending the fairway on the future position, execution and adaptation to different conditions this action game; defense crowded condition wet or frozen ground, snow (special tactics, techniques adapted, appropriate spikes), adaptation to weather conditions: heat, cold, rain.
- The composition of physical training programs should be considered that in this preparation are two aspects of motor qualities: the player's driving skills forwards: speed, strength, endurance, skill; specific motor skills of the players forwards: mobility, flexibility, balance, expansion, coordination.

- Training in modern game aims two fundamental aspects: prepare as close to the game (global models);
- for matters that should be improved training method using individual parts, the quality, the factors, elements and processes.
- I propose increasing the number of hours of individualized training on the qualities and deficiencies, with a line adapted to the peculiarities of modern methodology athletes.
- I suggest using those exercises that give structure to the game transfer.
- I propose the use of exercises to achieve automatisms game between midfield - attack or attack each other.
- I suggest practicing kick down the door of the box to ensure a higher success rate of other executions.
- I suggest practicing on line methodical completion of head of different areas and angles, in conditions of adversity.

REFERENCES:

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THE EFFECT OF BASIC PSYCHOLOGICAL NEEDS ON UNIVERSITY STUDENTS’ SELF-CONFIDENCE

Ersin ESKILER¹, İhsan SARI¹*, Fikret SOYER¹, Laurentiu Gabriel TALAGHIR²

¹University School of Physical Education and Sport, Sakarya, TURKEY
²Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
This study aims to find out whether the satisfaction of the basic psychological needs for autonomy, for competence and for relatedness contributes to self-confidence.
INTRODUCTION

People try to meet their needs in their life. There have been various human need theories trying to explain people’s needs (e.g. Maslow, 1970; Murray, 1938, etc.). According to these, people have needs and their behaviors are based on these needs. People behave in a certain way in order to meet their needs. For example, if an athlete tries to interact with significant others (his coach, his parents or his close friends, etc.) it could be interpreted by some theories that this athlete interacts with them in order to meet his belongingness (or relatedness) need. Shortly, need theories try to explain human behavior by some certain human needs which should be met.

Self Determination Theory, one of these theories, proposes the three basic psychological needs: the need for competence, the need for autonomy and the need for relatedness (Deci & Ryan, 1985; Deci, Ryan & Williams, 1996; Deci & Ryan, 2000; Deci & Ryan, 2002). The need for competence is the perception of an individual about their abilities. If they think they are capable of successfully accomplish certain activities, their competence need is met. The need for autonomy is a human need to feel autonomy, for having the possibility to make one’s own decisions. The need for relatedness refers to people’s need to feel attached and loved by others, as the human being has propensity to make strong affectional bonds to particular others (Bowlby, 1977).

Although some studies consider that these needs might change according to culture (Markus, & Kitayama, 1999), others suggest that satisfying these needs promotes motivation and mental health across cultures. The results are consistent with the view that these needs are universal (Deci et al. 2001). Moreover, it was also suggested that not satisfying these needs will result in ill-being (Ntoumanis et al.2009), whereas satisfying these basic psychological needs will result in positive outcomes (Reis et al. 2000; Williams et al. 1994; Koestner et al. 1984; Scanlan et al. 1986).

Self-confidence is the perception and the belief to successfully accomplish a behavior (Feltz, 1988). Self-esteem was also defined as “a driving power that results from positive and affirmative emotions towards oneself” (Şahin, 2006). Moreover, self-confidence was proposed to be related to positive performance outcomes (Martin & Gill, 1991; Tavani & Losh, 2003; Chamberlain & Hale, 2007). As explained above, self-confidence is positively related to sportive performance and it as stated that the satisfaction of the basic human needs contributes to various desired outcomes. In this sense, it could be questioned whether the satisfaction of the basic psychological needs affects self-confidence. The need for competence was defined above as the perception of an individual about their abilities. As it could be understood from the definition, self-confidence could relate to the satisfaction of the need for competence. When this need is satisfied, people’s self-confidence might get higher. Moreover, satisfying the need for autonomy and that for relatedness could also provide a psychological state which strengthens one’s self-confidence. However, this relationship between the above mentioned variables could be affected by cultural and individual factors. Shortly, the perception of the basic psychological needs and self-confidence might differ depending on various environmental aspects such as country, culture, family, friends, etc. For example, a child might feel higher levels of self-confidence when he receives much assistance from his sport coach in his basketball exercises. However, another person might consider too much assistance as restricting his freedom and his self-confidence could get lower. He could also interpret that too much assistance indicates his inability to practice basketball exercises without help which results in decreased self-confidence. This is due to the fact that people are different and attribute different meanings to similar situations. At this point, the importance of such research studies in different environments and with different samples in order to discover human psychology can be seen. Therefore, the aim of this study was to find if the satisfaction of the basic psychological needs for autonomy, for competence and for relatedness contributes to the increase of self-confidence.
METHODOLOGY

2.1 Participants:
232 participants (136 males, 58.6%, and 96 females, 41.4%) participated in the study. The participants were students of different departments of a state university in Turkey.

2.2 Data collection tool:
Self-confidence was measured by 19 questions answered on a 5 point Likert scale developed by Tokinan (2008). Higher scores of this scale indicate higher self-confidence. The scale was tested for 278 university students. The validity and reliability of this scale for the Turkish participants were reported by Tokinan (2008).

The basic psychological needs of the participants were assessed using the Basic Psychological Need Scale described by Ilardi et al. (1993) and used by Gagne (2003) and Kashdan et al. (2006). The language adaptation of the scale was made by Kesici et al. (2003). The scale has 3 subscales and 21 items scored on a 5-point Likert scale. A higher score on this scale represents higher needs of individuals.

2.3 Data collection:
The questionnaires were obtained from the students in the classrooms in face to face interactions. The students were informed that the participation in the study is voluntary, and the data obtained from the participants will remain anonymous.

2.4 Data analysis:
The SPSS.17 package program was used for data analysis. Descriptive statistics techniques, Pearson’s correlation analysis, regression analysis were used in order to analyze the data. The level of significance was determined to be 0.05.

RESULTS
The demographic information for the 232 participants in the study (96 females, 41.4%, and 136 males, 58.6%) is listed in Table 1. Male students constitute most of the participants. Concerning the age distribution of the students, as it can be understood from Table 1, it ranges between 20 and 24. Students aged 21-23 constitute nearly two thirds (58.6%) of the total number of students.

Table 1. Respondents’ demographic profile

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>136</td>
<td>58.6</td>
</tr>
<tr>
<td>Female</td>
<td>96</td>
<td>41.4</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20</td>
<td>50</td>
<td>21.6</td>
</tr>
<tr>
<td>21-23</td>
<td>136</td>
<td>58.6</td>
</tr>
<tr>
<td>24 Age</td>
<td>46</td>
<td>19.8</td>
</tr>
<tr>
<td>Year of Study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>59</td>
<td>25.7</td>
</tr>
<tr>
<td>2</td>
<td>88</td>
<td>38.3</td>
</tr>
<tr>
<td>3</td>
<td>61</td>
<td>26.5</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>9.6</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1.000 TL</td>
<td>85</td>
<td>38.8</td>
</tr>
<tr>
<td>1.001-1.500 TL</td>
<td>62</td>
<td>28.3</td>
</tr>
<tr>
<td>1.501-2.000 TL</td>
<td>27</td>
<td>12.3</td>
</tr>
<tr>
<td>2.001-2.500 TL</td>
<td>18</td>
<td>8.2</td>
</tr>
<tr>
<td>2.500 TL &lt;</td>
<td>27</td>
<td>12.3</td>
</tr>
</tbody>
</table>

TL: Turkish Lira

Table 2. Descriptive statistics of variables

<table>
<thead>
<tr>
<th>Need for Autonomy</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for Competence</td>
<td>232</td>
<td>7.00</td>
<td>28.00</td>
<td>15.68</td>
<td>3.86</td>
</tr>
<tr>
<td>Need For Relatedness</td>
<td>232</td>
<td>8.00</td>
<td>33.00</td>
<td>16.97</td>
<td>4.77</td>
</tr>
<tr>
<td>Self-Confidence</td>
<td>232</td>
<td>48.00</td>
<td>95.00</td>
<td>75.32</td>
<td>9.24</td>
</tr>
</tbody>
</table>

Table 3. Differences of variables according to gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for Autonomy</td>
<td>136</td>
<td>15.80</td>
<td>3.75</td>
<td>0.56</td>
</tr>
<tr>
<td>Female</td>
<td>96</td>
<td>15.50</td>
<td>4.02</td>
<td></td>
</tr>
<tr>
<td>Need for Competence</td>
<td>136</td>
<td>17.17</td>
<td>2.70</td>
<td>0.39</td>
</tr>
<tr>
<td>Female</td>
<td>96</td>
<td>17.47</td>
<td>2.45</td>
<td></td>
</tr>
<tr>
<td>Need For Relatedness</td>
<td>136</td>
<td>16.54</td>
<td>4.68</td>
<td>0.10</td>
</tr>
<tr>
<td>Female</td>
<td>96</td>
<td>17.58</td>
<td>4.86</td>
<td></td>
</tr>
</tbody>
</table>
Male 136  74.98  8.94
Female 96  75.79  9.68

T-test analysis revealed that there was not any difference between males and females for the variables of need for autonomy and need for competence, need for relatedness and self-confidence (p>0.05).

Table 4. Correlations between self-confidence and basic psychological needs (for autonomy, for competence & for relatedness)

<table>
<thead>
<tr>
<th>Need for Autonomy</th>
<th>Need for Competence</th>
<th>Need For Relatedness</th>
<th>Self-Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>0.38</td>
<td>0.58</td>
<td>-0.56</td>
</tr>
<tr>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pearson’s correlation analysis revealed a negative significant correlation between self-confidence, on the one hand, and the needs for autonomy, competence, and relatedness, on the other hand (p<0.00); the need for autonomy and that for competence; the need for autonomy and that for relatedness (p<0.00); the need for competence and that for relatedness (p<0.05).

Table 5. Regression analysis of the basic psychological needs predicting self confidence

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for Autonomy</td>
<td>-1.06</td>
<td>0.16</td>
<td>-0.44</td>
<td>-6.79</td>
<td>0.00</td>
</tr>
<tr>
<td>Need for Relatedness</td>
<td>-0.40</td>
<td>0.13</td>
<td>-0.21</td>
<td>-3.15</td>
<td>0.00</td>
</tr>
</tbody>
</table>

The regression analysis on the needs for autonomy, relatedness and competence to predict self-confidence showed that R² was 0.35 for the model. The need for autonomy and that for relatedness significantly explained almost 35% of the total variance in self-confidence (F=60.28; p< 0.00). The need for competence was not a significant contributor to the model.

DISCUSSION

The aim of this study was to find if the satisfaction of the basic psychological needs for autonomy, for competence and for relatedness contributes to the increase of self-confidence. When examining the results of the t-test analysis for the basic psychological needs and self-confidence according to gender, it could be seen that we could not find any significant difference. This shows that males and females perceive the satisfaction of their psychological needs similarly. Moreover, males and females were also found to be holding similar levels of self-confidence. These results might also lead to the interpretation that cultural aspects and environmental factors provide similar opportunities for males and females to satisfy their need for competence, relatedness and autonomy, and to have a certain level of self-confidence.

The correlation analysis showed that there is a positive significant correlation between the need for autonomy, that for competence and the need for relatedness. These three needs are proposed by the Self Determination Theory as the basic psychological needs and this positive correlation was actually expected. This result shows that when one of the psychological needs is satisfied, other needs are satisfied too. Namely, the satisfaction of the need for autonomy will be accompanied by the satisfaction of the need for competence or autonomy.

The regression analysis showed that 35% of the variance in self-confidence was accounted for by need for autonomy and that for relatedness. While this result is not surprising, the need for competence was also expected to predict self-confidence. Because it was initially thought that when people feel more competent and perceive themselves as more capable, their self-confidence eventually gets higher. However, our model suggests that the satisfaction of the need for competence does not contribute to the increase of self-confidence. Only two subscales of the basic psychological needs (the need for autonomy and that
for relatedness) predict self-confidence. The regression analysis points out that when people meet their need for relatedness by satisfying relationships with others and when they have freedom and autonomy in their life, their self-confidence gets higher. This result is consistent with the relevant literature (Deci & Ryan, 1985; Deci, Ryan & Williams, 1996; Deci & Ryan, 2000; Deci & Ryan, 2002).

Moreover, it is suggested that as water, minerals, and sunshine are crucial for plants to blossom, Self Determination Theory puts forward that the satisfaction of the basic psychological needs is essential for humans to actualize their potentials, to flourish, and to be protected from ill health and maladaptive functioning (Broeck et al., 2008: 279). Our results on the positive effects of satisfied human needs are similar to those of Broeck et al., (2008).

According to specialized literature, self-confidence is related to gender (Ogletree & Williams, 1999), standard of knowledge and experience (IŞman & Çelikli, 2009) and culture (Li & Kirkup, 2007). The results of this study contribute to the relevant literature through the focus on the positive effect of the satisfaction of basic psychological needs on self-confidence.

Furthermore, Kurtuldu, (2007) suggests that higher self-confidence strengthens people and make them put more effort in their activities. Higher self-confidence also results in successful outcomes (Kurtuldu, 2007). Therefore, the basic needs of people (more specifically athletes) should be met in order to increase their self-confidence. This study could be accepted as an original study contributing to specialized literature due to its being one of few studies which examine the relationship between the satisfaction of basic psychological needs and self-confidence.

CONCLUSION

The results of this study show that female and male participants did not differ in terms of their psychological needs (for autonomy, for competence and for relatedness) and self-confidence. We also found significant correlations between the satisfaction of basic psychological needs and self-confidence which indicates that when people’s psychological needs are satisfied, their self-confidence increases. In addition, regression analyses revealed that the satisfaction of the basic psychological needs contributes to self-confidence. In light of the results of this study we could suggest that environments in which people satisfy their psychological needs could result in higher self-confidence. In this context, the behavior of people working in certain positions such as sport coaching, preceptorship, management, etc. and teaching or leading people should be such as to fulfill the basic psychological needs of people around them.

REFERENCES

L’EFFET DES BESOINS PSYCHOLOGIQUES FONDAMENTAUX SUR LA CONFIANCE EN SOI DES ETUDIANTS UNIVERSITAIRES

Résumé: Cette étude vise à déterminer si la satisfaction des besoins psychologiques de base améliore la confiance en soi des étudiants universitaires.

Mots-clés: Les besoins psychologiques de base, confiance en soi, des étudiants universitaires.

THE OBJECTIVES, FUNCTIONS AND ROLE OF JUDO IN THE CONTEXT OF CONTEMPORARY EDUCATION

1Mircea IONENE, Adriana NEOFIT 2

1Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA
2 PHd. University of Pitești, ROMANIA

Abstract: In the present conditions of continuous development of society, sports successfully contribute to fulfilling the general tasks which should not be regarded unilaterally through the prism of its role in physical development and health improvement. Sports exert a multilateral influence on athletes as it is correlated to the other dimensions of education: intercultural education, aesthetic education, moral education, etc. Judo, by its content and means may support the global phenomenon of including education in creating a better world able to meet the requirements of development.

Key words: Judo, objectives, functions, education, contemporary.

INTRODUCTION

Starting from the analysis of “the concept promoted by A. Peccei, the president of the Club of Rome, under the title Problems of Contemporary World” (P.L.C.), a concept evincing the universal character of these problems, the global character of manifestation, the fast evolution and difficult to foresee, the pluridisciplinary character, as well as the prioritary or impending character” (Rassekh, 1987: Mihăilescu L., Mihăilescu N., 2009, p. 2), it may be said that judo attempts at contributing to the solution of these problems in today’s world.

The new problems have triggered a rethinking of the directions of education as a process of formation for youngsters and adults all around the world, and in our country, in point of becoming responsible and participating in solving the problems confronting humanity and the modern society.

HYPOTHESIS

It is considered that judo, through its content and means, may support this global phenomenon of
involving education into “the creation of a better world, if achieved by programs centred on the values of education for change, for tomorrow, as the development of the modern world is closely related to the manner in which education may meet the demands of development” (Mihăilescu L., Mihăilescu N., 2009, p. 2).

**TASKS**

To provide solutions along these lines, it is considered that the concepts of “new educations” and “permanent education” should be enriched with specific contents, which is a priority for all the subjects involved in the educational process on a national and international level, so it is also true for judo.

Judo, as a subject belonging to the field of physical education, has functions tallying in with the general functions of this subject and education at large. The functions of education have been differentiated in specialised literature, as they are considered to have the role of “selecting and conveying values from society to the individual, developing the biopsychic potential of the individual, ensuring an active social insertion of the human subject” (Nicola I., 1992, p. 21-22) or as a “cognitive function of information conveyance; economic function of forming individuals for productive activity; axiological function of valorisation and development of the cultural creation potential” (Şafran O., 1982, p. 73-74). Each of these attempts at pointing out that “the educational act focuses on developing human personality, and on the other hand this development responds to the societal requirements placed on the individual” (Nicola I., 1992, p. 21-22).

The functions of sports and physical education aim at achieving a “relation between practising physical exercise in various forms and its effects on the social life in its entirety” (Mihăilescu L., 2010, p.26).

Judo, according to the form in which it is practised, i.e. as a leisure activity or high-performance sporting activity, attempts at fulfilling the functions that are common to sports and physical education.

The functions of sports and physical education, as presented by Mihăilescu in Dragnea (2002), are common functions on various levels (biological, motor, psycho-social, cultural and recreational-economic) with specific elements to the two activities.

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**Figure 1.** Parallel view of the functions of physical education and sports, and the forms of judo practice

**The Functions of Physical Education/Judo for Spare Time**

- Optimising the biological potential and improving the health condition;
- Psychomotor development improving the motor skill;
- Developing the intellectual, moral, volitional qualities;
- Socialising;
- Conveying spiritual, material values, reflecting the activity;
- Practising physical exercise as cultural acts;
- Developing the aesthetic skills.

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**The Functions of High-Performance Sport/Judo**

- Maximising the biological potential according to the requirements of the sporting branch and reducing the unilateral or excessive effort;
- Developing the ability of performance;
- Improving the profile specific to a sporting branch or discipline;
- The agonistic function;
- Excellence;
- Conveying traditions, rituals and moral values (fair-play);
- Placing value on the results of the science in the field;
- The spectacular dimension of certain sporting events and branches;
- Symbol of the Olympic sporting ideals;
- Investment;
- Creating new jobs;
- Developing a new sports industry (technology and equipment).

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**Traditional forms and components of the “new educations” and the non-standard components**
THE PLACE AND ROLE OF JUDO IN EDUCATION

Judo has a specific content, and its own forms of organisation, means of achieving actions influencing education, thus meeting the demands and forms of education. In Romanian formal education, judo is a school subject in the vocational curriculum.

Nonformal education is achieved through specific activities organised mainly outside the school institutions (sporting clubs), sports competitions included in the school calendar, and also through the participation of all those involved in practising judo in federations, training camps and all the forms available to elite athletes by post school programs, formation and permanent training, as well as professional improvement.

Similarly, nonformal education is performed through activities with a certain independence degree, on the basis of objectives different from the physical activities practised in school, with compensating functions, and the participation of other social factors (sports directions, town halls, sports associations), under the management of specialists with various levels of training (teachers, coaches, trainers), but without neglecting the partnership with the school.

Nonformal education in judo is also achieved by being systematic, answering the permanent and varied requirements of children’s education, being seen as complementary or supplementary education.

Judo corresponds to the characteristics of nonformal education by the optional character of the organised activities, the possibilities for children to learn, and the wide range of social factors involved.
participate interactively in establishing what they are to learn and perform. The specialists play the role of guides, moderators, activity partners. Assessment in nonformal education falls within the limits of the children’s need for stimulation and support, without marks or grades.

Nonformal education achieved by judo is a necessity, having the role of making available to children various forms of access to education, through the manner of carrying out activities and granting value to all the formative and educational influences of the different organisational forms of education during the school cycle and in the post-school stage.

In general, this form of education answers the need for spending free time, being part of groups with similar affinities, being closely connected with the school environment.

It allows for an education with predominantly positive effects on the children, since:

- all activities constitute a subsystem of the institutionalised educational system;
- the activities are conceived according to principles, general norms, rules, requirements able to ensure performances meant to be integrated into the general educational process;
- the activities take place according to the educational pedagogical requirements;
- the educational process is managed by specialists;
- it has clearly formulated educational objectives;
- it disposes of rigorously selected contents, adapted to the specific character of each age, open to interdisciplinarity and permanent education;
- it has specific teaching methodologies;
- it is child-oriented and corresponds to the child’s needs and aspirations;
- children are directly involved, being unmediated co-partners in these activities;
- it provides programs of alternative activities, which are differentiated, diversified, and optional;
- it possesses diversified methodological instruments allowing a more considerable accumulation of life experience by the unmediated contact with people, cultural phenomena, and the direct participation in sports events;
- actions are characterised by considerable flexibility and meet a wide range of interests;
- activities take place in accordance with the novelties in various fields;
- the communication in the activities is interactive, including methods of child activation;
- the working techniques are creative and stimulating, allowing for the vocational and multilateral development;
- the educators are direct participants, their actions consist more in suggestions, not imposing their point of view, cooperation with the children, guidance towards becoming good organisers of their own activity;
- assessments are optional, considered rather as methods of stimulation and support for the children;
- the educational process allows for the cultivation of the ability to transfer the learning acquisitions, and especially to apply them in practice in various circumstances;
- it has positive effects on cultivating the interest in knowledge due to its character of authenticity, attractiveness, variety, founding its activities on the children’s interests, skills, concerns and preferences, thus enabling the development of affective processes;
- it contributes to developing organisational abilities, self-care abilities, time-management, critical thinking, decision-taking and problem solving skills.

An aspect that should absolutely be taken into account in the activities of the nonformal education in judo is that they should observe the pedagogical values of education and take place on scientific foundations, avoiding the use of contents that encourage popularity or the guidance of activities towards fixed aspects (such as high performance).

CONCLUSIONS

Judo is important and useful in nonformal education as it has a series of pedagogical advantages: it is learner-centred, learning-centred, it has a flexible and varied curriculum, presupposes diverse attractive means, contributes to enriching the general and specialised culture, it is an organised leisure form, ensures the information upgrade in various fields, allows the immediate application of acquisitions, puts forward the new technologies, answers the requirements and necessities of permanent education.

Judo, in informal education, disposes of specific contents and activities, by increasing the individuals’ awareness about the importance of practising sports at any age, the benefits on the health condition, on a psychophysical, educational, social and cultural level, on the standard of living, through actions of direct information and mediatisation.

A valuable informal education may have positive influences on children’s formation and development, being also achieved by advertising the performance of elite judo athletes, by promoting their moral values and fair-play spirit in competitions, as well as their perseverance in attaining the top in their sport discipline.

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Résumé:
Dans les conditions actuelles de la société de nos jours, le sport contribue à accomplir les tâches générales qui ne se limitent pas à développer le physique et améliorer l’état de la santé. Les sports exercent une influence multilatérale sur les sportifs car ils sont corrélés aux autres dimensions de l’éducation : interculturelle, esthétique, morale, etc. Le judo, par son contenu et ses moyens, peut soutenir le phénomène global de l’inclusion de l’éducation dans la création d’un monde meilleur.

Mots clés: Judo, objectifs, fonctions, éducation, contemporain.

THE ROLE OF PERCEPTIVE AND SENSORY FACTORS IN JUDO-SPECIFIC MOTOR ACTS AND ACTIONS

Mircea IONE, Adriana NEOFIT

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

University of Pitești, ROMANIA

Abstract:
Judo is characterised by complex specific movements provided by the interaction of active and passive forces and the speed of reaction. A rich experience, a high number of repetitions, a long training of the kinaesthetic sense result in assessing the intensity and direction of the effort necessary in performing a movement. It determines the formation of adequate representations of certain movements (elements and technical procedures) which play an important role in the acquisition of the judo technique.

Key words: Judo, motor act, perception, sensoriality.

The response to a stimulus or a situation is defined as a motor act. The occurrence of the motor act, in point of the adaptation to the situation, task or intention, is conditioned by the sensory-perceptive complex whose informational source is the movement itself and its relation with the object it acts on.

The importance of sensory and perceptive information in motor acts:

- sensory information of motor acts;
- dermic (cutaneous) information, i.e. the sensations occurring as a result of exciting the sensitive corpuscles under the skin, which are of 3 types:
  - tactile (the sense of touch, of which contact and pressure are also a part);
  - temperature, divided into hot and cold, or pain sensations.

The tactile stimuli in judo may come from the kimono, or the opponent. The subjects form certain habits, as a result of systematising the excitation processes on the cortex, represented by the formation of the dynamic stereotype and the habitue-formation phenomena developed in the nervous centres.

Visual sensations are sensations of light and colour. They are considered important in human life and activity, taking into consideration that they provide orientation in the environment.

In sports training the peculiarities of seeing colours and perceiving size (objects: tennis balls, footballs, basketballs, etc), distance (benchmarks on the size of the court or the surface) and object movement (displacement of the opponent or the referees) are of importance in developing distributive attention from a very tender age.

In judo the combat area is delimited by safety areas that are vividly coloured, making the difference between the regulations zone and the area where the athlete may be sanctioned, allowing him to focus less on this aspect and more on the technical and tactical situations in the match.

The results of the laboratory research proved that out of the colours green is the least perceived by
Peripheral vision. The next in line are red, blue and yellow, which is the best perceived by the periphery of the retina.

Starting from these aspects, it is recommendable for competition organisers to use mainly yellow, blue, and red mats in delimiting the combat areas, leaving the central area coloured in green, thus allowing the judoka to focus more on winning.

**Auditory sensations** are extremely important as they help humans get oriented in the environment, perceiving various sounds or noises.

In practicing physical exercise, auditory sensations contribute to a great extent to spatial orientation. Like many other sports, judo employs auditory sensitivity to receive messages with a specific informative content - from the coach, opponent, referees, audience, etc., and also non-specific content - the various noises produced by the feet on the mat, the intensity of the opponent’s breathing, etc.

In judo it is necessary to get used to the gallery, the coach’s voice. The athletes’ auditory sensitivity should be educated. It was found that if they cover their ears, they no longer perceive the air noises so well, and consequently their own speed, which determines modifications of the nervous impulses commanding motility.

**Kinaesthetic-muscular-articulatory sensations** provide information on the movement and position of various body parts.

Together with the balance sensations, the kinaesthetic sensations form the group of proprioceptive sensations, reflecting the excitations produced inside the body and especially in the muscles.

The kinaesthetic sense informs the cortex about the position of the body parts - in judo, the importance lies on: positioning in relation to the opponent so that to avoid his attacks, rebalancing and reassuming the attack position. The athlete should know how to avoid an attack, to use the appropriate grip when dodging an attack, to know his exact position in relation to the opponent’s attack, the exact spot where he is placed after avoiding it, and his possibilities of counterattack.

The movement of the body parts. Certain peculiarities of the manner of execution of a certain exercise. The better trained the athlete, the richer his motor experience, and he will be able to perceive and assess the following: the attack technique initiated by the opponent, the trajectory, the amplitude, the attack speed of the leg or the hip, the transmission force during the attack.

Judoka should know at any moment where they stand in rapport with the opponent, and the combat area, the type of grip of the opponent, the manner of changing the grip according to the technique he wants to use. It is important for the athlete to see the placement of the opponent, to feel the opponent’s attack initiation or avoidance, to anticipate the opponent’s technical procedures, and the grip used to make things difficult for the other.

In the tactical training all these aspects should be carefully planned to put the opponent in difficulty.

The speed of movement should not be neglected either, as it refers: displacement on the combat area, the position in relation to the opponent, grip rapidity, the precision of attack initiation, and rebalancing in case the attack fails, coming back into combat position and dominating the opponent.

**The sensations of balance and spatial orientation of the body movements**, walking, running, leaping, throwing, acrobatic gymnastics or using gym devices, trampoline jumping, swimming, skiing, tennis, or numerous exercises or sport disciplines require from practitioners a very keen sense of balance and the ability to appropriately orient their movements in space.

Judo is a sport requiring good balance in all the elements and technical procedures, viz.: displacement, loss of balance, changing the weight centre during an attack, repeated passage in vertical combat from an attack into a defence/counterattack position, changing combat position from vertical to horizontal, etc.

Balance development should be trained since initiation through specific and non-specific means that will eventually result in performance increase.

The dynamics of the judo match presupposes a series of situations resulting from the displacement on the tatami, direction changes, changing the bilateral support into unilateral support at a lower or higher level, requiring a good balance sense, orientation on the combat surface and in relation to the opponent, coordination, laterality, the ability to accurately orient the body movements in space.

Regaining balance is possible through a series of highly complex quick movements which are in fact unconditional reflexes.

Judo places high demands on the analyser of the body balance and spatial orientation, and the education of the balance sense and the sense of spatial orientation can only be successful to the extent where the entire complex of proprioceptive and exteroceptive sensations are taken into account - movement, kinaesthetic, balance, tactile, visual – as well as the internal factors triggering movement (concrete representations and images of the movements to be performed).

**Spatial, temporal and movement perceptions**: spatial perceptions ensure the individual’s orientation in the environment.

An important role in judo falls to the perception of spatial limits, being at the basis of assessing the distances between opponent and the combat area. The accurate assessment of the distance, the spot where attacks are initiated, refers to the athlete’s possibility to move towards the favourable
position in relation to the opponent and the combat area; it is achieved by thematic exercises, on long-term, resulting in sporting skill.

Temporal perceptions – the coordinative skills at work in the preparatory and decisive attacks, choosing the best moment to increase the effort during attack initiation, assessing the duration of technical domination exchanges represent various aspects of time perception in motor acts.

The formation of the temporal sense is achieved in conditions specific to the judo match. The perception of match duration, of a pin down is extremely important in the strategy of the competitional activity.

According to Epuran (1976), the tempo is characteristic to all movements, both cyclic and acyclic. The duration and tempo are the main components ensuring the perception of speed in motor acts.

Rhythm in judo is conditioned by the alternance of attack initiation by the two opponents, passages from vertical to horizontal combat.

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THE ROLE AND IMPORTANCE OF GAME LEADING FOR THE INITIATION STAGE IN ICE HOCKEY

Gabriel GHEORGHÎU, Ioan ONET

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
The game is one of the most effective and important means of education. Any coach or instructor, once convinced of this, will realize that you need to know as many games as possible, to know how to select, adapt, drive, and analyze them and create new ones. A deeper game analysis will show their importance in education and self-control. A series of games develop eyesight, hearing, intelligence, sense of observation. There are no physical or intellectual qualities that cannot be developed through some games.

The hockey specific effort is characterized by complex technical and tactical procedures and operates at high speed, which creates a variety of situations. Success in learning and perfecting this sport is ensured by the performance of a large number of exercises and repetitions

Key words: Motion games, beginners, ice hockey
INTRODUCTION

Games embellish and complete life and are essential for the biological function of both individual and society, because their value is that of a means of expression, and a cultural function. The game is played within limits of time and space. It begins and ends at a precise time. The limitation of time and quality link to immediately fix the form of culture. It is kept by memory as a spiritual creation and is transmitted and can be repeated at any time. Tension effects express beauty, balance, swing, alternation, contrast, variation, binding and posting, settlement. Rhythm and harmony captivate, enchant.

In childhood, play is a central activity; with children entering school, the game goes into the background, because the young to become an activity of sewage and energy and the work ages a comfort activity. So, while children play is conduct formative and shaping, adult play functions as a complement to work, and is disconnecting and relaxing.

Theories formulated by various authors explain the game according to class interests, relating them to the social and professional life of the individual, to the formation and evolution of the mental processes and personality, in general. Jean Chateau believes that the child’s desire to play games shows that s/he wants to reach adulthood. In his view, the origin lies in playful inventive activity, imitation, learning by tradition, structure and instincts. J. Piaget explained the game as an assimilation process involving a double function: on the one hand, while playing, there is an assimilation of impressions and reactions, leading to the development of its functionality, and on the other hand, assimilation requires training and organization of mental nature. "All active methods of education for young children - he says - ask to be given their appropriate material for that, playing, they manage to assimilate the intellectual realities, without them, remain outside the child's intelligence."

Therefore, the play and its requesting specific behavior, action schemes are developed that stimulate the practice and mental development. Assimilation is the real maximum symbolic play which is of increasing importance as an intellectual movement is sensory-motor plane.

Games contribute greatly to children engaging in multilateral communication generated by the subject chosen and the role. Through play, children appropriate knowledge of occupations, activities, human conduct. We can say that the game is a school for life, which stimulates the ability to live; it is a complex activity that reflects the world and society. Games also reflect the influence of society in which the child lives, the social conditioning, history.

A correct understanding of its essence would be that it is a broader phenomenon of adaptation to the environment. With the evolution and child development, the play behavior in relation to life, and playing partners undergo important changes.

The role and importance of motion games for the initiation stage. In recent years, children increasingly devote less time to playing. In the same time the number of sports, squares/parks and children playgrounds in cities is becoming smaller. Heavy traffic makes it impossible to practice games in the streets; this skill is of the past. No home, children cannot find space and time to play, the TV, the computer and, generally, passive recreation forms of movement replacing it. This situation is similar in sports where the number of spectators and supporters are by far superior to that of athletes. But fair play, learned in sport, influences the individual for a lifetime, helping him to bear defeat with dignity and taste the joys of victory. Those who learn this on the playground transpose it later in life.

A lot of moral qualities developed even using the simplest games could be listed: the spirit of sacrifice, perseverance, courage. Special attention should be paid to developing speed and skill. Unlike in lessons I and II, in lessons III and IV, in addition to speed and skill, strength and resistance indices have grown. Memory and attention become more stable, which allows children to solve some rather complicated actions.

Factors sports training in beginners hockey training

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Such movement in the share game lesson training will depend on the type of lesson:
1. learning lesson, 10-20%;
2. repeat-building lesson, 40-50%.

In this lesson athletes possess the ability to coordinate complex movements and fit more easily into team play. Therefore, the teacher will have the option of moving the game character race, combine running, jumping, catching and throwing the ball, set simple and natural obstacles or gym machines. Now everything is organized and games with elements of strength and power, but short-lived.

After organizing the team for the game, which means and place it in the appropriate band, the teacher can proceed to explain and demonstrate the game. Explanation and demonstration contribute to the formation of accurate representations in the children’s minds, as well as using accessible language, concise and clear.

Explaining and demonstrating the game vary in children age. Thus, at a younger age, explanation accompany demonstration, because children cannot represent the action game based only on its description. The teacher is responsible for demonstrating. Subsequently, the higher classes can be used better prepared students. The demonstration must be made properly, fairly, so as to complete understanding explanations. This calls for a logical sequence of the key elements of the game.

The plan recommends that the explanation observe the following sequence:
- brief description of the action-game;
- highlighting the main rules of the game;
- establishing the conditions for winning the game and score;
- setting the start and termination signals of the game.

If necessary, add additional explanations. It is also good for the teacher to ensure that students understand the game, and if there are questions to return to the explanation and demonstration, drawing attention to the whole staff on more difficult items.

Overall, explanation and demonstration should take no more; the playing time will be used mainly for action to achieve tasks.

**The teacher** has a particularly important role in the game, and is expected to follow closely the conduct of the game to see the athlete’s accuracy and compliance in execution.

Typical performance-tracking errors:
- observing the athletes’ behavior and peculiarities of manifestation, if players participating in the game play honestly, without inopportune opponent, whether they manifest initiative, help each other, and take responsibility for their actions, etc.

In managing the game, the teacher should consider certain recommendations, namely:
- to be impartial in the outcome;
- to be constantly concerned about the game;
- to use a moderate tone;
- to participate in the play with children in small classes;
- to ensure the discipline of athletes in the game.

In leading the game, the teacher can use a signal whistle, clap or word, with the recommendation that, in the first case, he does not exaggerate in order not to bother and annoy the children.

Observance of discipline in the game does not mean handcuffing manifestations of enthusiasm of the children. The teacher must ensure active participation by athletes and allow exteriorization of feelings without exceeding the limits. Being disciplined in the game really means to follow the rules and requirements and have a civilized collective behavior. Deficiencies in teacher training may manifest poor game choice by organizational mistakes, incomplete explanations, appropriate or inappropriate team management. Therefore, it is necessary, that no detail is overlooked by teachers. At the same time, they must be concerned with creating an atmosphere of fun for students to participate with pleasure in the game.

**Ice hockey** - the game - has its own characteristics and peculiarities which are steadily growing, this development involving complex training in all training factors.

The hockey specific effort is characterized by complex technical and tactical procedures and operates at high speed, which creates a variety of situations. Of physiological character, hockey effort is maximal, alternated with pauses. Actions require certain motor skills which, in their turn, require appropriate training period. Increasingly adapting the body to work and high technical virtuosity involve the support of a good physical training, tactical thinking, and moral strength because the process is complex and needs systematization and spreading over time.

Preparing early oriented perspective, taking into account the possibilities of children, setting limits and using resources for precise effort, can contribute directly to the formation of a large number of young people to meet current values of the game.

Large and varied volume content of early preparation involves gradual objectives, tasks and resources in a rational sequence, characteristics determined by age, level of training and working conditions. Following the sequence of the entire learning process can be observed to build new skills
due to the previously acquired, thereby accelerating the achievement of proposed values.

**Initiation stage for ice hockey beginner groups (8-12 years).** Due to the game and the wide variety of technical and tactical procedures to be learned, early preparation has become lately and ice hockey. Mention that for this selection, girls aged 8-10 years and less are also addressed.

Experience has shown that in the age of automation learning and training can be created on technical elements of the game: skating, puck management, etc. pulling the gate. At this age, children show great excitability, but also show fatigue faster. For this exercise, a variety of pleasant game elements will be uses. Because of the age-specific tendency, for instability and irritability, the teacher or coach will show attention to maintaining discipline.

Training lessons are simple, attractive, with a rich emotional and stimulating at the same time.

**Training and education methods used in preparing children** will then be chosen to match the physical and intellectual skills learned in training and staff development. Pedagogical skills and the ability to coach is to act promptly and effectively in different situations, combining requirement with understanding.

Formation and strengthening motor skills is achieved by multiple simple exercises with and without object game, in pairs and group work. Communication and motivation actions are essential in working with beginners. In this sense we try to point out some aspects that the coach or teacher should consider:

- a good coach has the lesson so that children can easily understand what they are asked and what is expected from them;
- during the lesson, the coach will focus on one technical aspect. Various exercises are recommended to cover some technical elements to maintain the interest of children;
- the lesson execution requirements will reach a sufficient level of difficulty so children can progress. Exercise on the extent of hindering properties to maintain the desired pace of development is also recommended;
- assessment and encouragement of children, emphasizing progress;
- exercise of the game as most effective in training;
- when children are asked to form teams, the teacher/coach will help to achieve a balance of appropriate value for the game to be appealing;
- alternate exercises performed on the place of the movement.

Knowledge of skating techniques support the properties of all technical elements of ice hockey. Making a quick slide on the ice requires significant physical effort from the player. The muscular effort made must also concern the optimal use of all factors that can contribute to fast and economical slipping. This is achieved by alternating proper muscle contraction and relaxation. Achieving this relief increases exercise capacity showing a good balance nerve.

These properties ensure a proper execution mechanism for skating hockey, and the specific movements enable learning and improvement of the sport. Hockey skills and game techniques ultimately involve speed, agility and safety slipping on ice. Success in learning and perfecting the sport is achieved through a large number of exercises and repetitions.

**CONCLUSIONS AND RECOMMENDATIONS**

Pedagogical and methodological requirements which determine movement efficiency to stage game start:

- game content to meet the functional and psychological peculiarities of somatic-sensory students;
- the content of the game should be the objectives of the training provided by the teacher in that lesson;
- it is necessary to choose the game, to consider the material conditions in which the activity;
- parallel to the rules should follow their stimulating role in achieving goals;
- requires that the teams are close and equal numerically. They are by count, by choice, by appointment by the teacher or have a permanent character;
- forces must be distributed in the game so that each player is dealt and be manifest in them;
- necessary game to be explained and demonstrated clearly and accurately, fully and on stage where “slow”, then check understanding through trial executions;
- in game development, effort should be undertaken dosing, assessing and guiding student behavior, setting the result, preventing the accidents;
- when the game ends, the first moves are made to calm the body, followed by communication and explanation of results;
- in order to capture the interest of children, those variants that enrich and complicate the game content are recommended. Some of them are included in the curriculum, others are invented by the teacher.

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LE RÔLE ET L'IMPORTANCE DES JEUX DE MOTRICITÉ À L'ÉTAPE D'INITIATION AU HOCKEY SUR GLACE

Résumé. Le jeu est l’un des moyens les plus efficaces et importants de l'éducation. Tout entraîneur ou un instructeur, une fois convaincu de cela, vous rendez compte que vous devez savoir que de nombreux jeux, à savoir pour sélectionner, de les adapter, les conduire, de les analyser et en créer de nouveaux.

Lors d'une analyse plus approfondie des jeux tirent leur importance dans l'éducation et la maîtrise de soi. Une série de jeux développés vue, l'ouïe, l'intelligence, sens de l'observation. Il n'y a pas de qualités physiques ou intellectuelles qui ne peuvent être développés à travers des jeux.

L'effort particulier est caractérisé par la complexité des procédures techniques et tactiques et fonctionnera à une vitesse élevée pendant le jeu sont créé une variété de situations. La réussite dans l'apprentissage et le perfectionnement du sport effectue un grand nombre d'exercices et de répétitions effectuées dans les jeux allés.

Mots-clés: jeux de mouvement, débutants, hockey

THE ROLE OF GAMES IN OPTIMIZING EDUCATION TARGETS IN TEACHING SPORT ACTIVITIES

Gabriel GHEORGHIU, Ioan ONET

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
This paper will focus on technical opinions/ processes and strategies fund, doing so to achieve the objectives of sport education. The authors will review the sport education model, an approach to social and individual development, and project model pedagogical knowledge structures.

The philosophical approach of the third part focuses on training through physical education and movement games, and was the center of our professional certainties early in the twentieth century. Until the 50s it was not questioned, but since that time, a series of professional and social upheavals led to diversification, specialization, different philosophical approaches to the issue relating to sport, physical form and physical education.

Keywords: Sports activities, educational goals, learning through movement games.

INTRODUCTION
In an earlier era, the schools believed that learning creates values in sports, such as honesty, perseverance, kindness and courage. The transmission of these values represents the main task of the specialists/ teachers of physical education. Some deeper sociological, psychological, historical and philosophical research have seriously put into question the concepts related to sports in school. Today we know for a fact that sports do not always involve perseverance and loyalty; and will only choose those who are already endowed with these qualities. We also learned that the more athletes are involved in high level competitions (in college, amateur professionals at the Olympics), the more they complain of a delay in relation to our moral athletes.

What do we do in this situation? To try and solve this dilemma, a change in the current system, making it more compatible with educational objectives, is required.

SPORTS EDUCATION AS A RESEARCH AREA
“Sports pedagogy” is a term often used in international sports education and sports in scientific circles. “Pedagogy” refers to teachers’ training or to educational and training programs. This term is in relation to teaching physical education curricula. The notion of sports pedagogy, as understood internationally, is widely used: it includes the teaching of physical education in
schools and in public and private clubs. It includes the development and implementation of programs in competitive sporting activities, and forms of recreation.

Some elements of sports pedagogy are essential if we are to understand the methodology and teaching techniques required by the sportive educational objectives. A UN activity is certainly one of the changes likely to occur. Olympic Education is amended, as new models appear. Such programs are some models by the private centers for the adult form. They are offered as an alternative to mandatory physical education programs provided in most schools. In many countries, many secondary institutions have replaced many activities dealing with the sports education model. This leaves us hopeful regarding future changes in the curricula for physical education.

**DEFINITION OF SPORTS ACTIVITIES, AIMS AND OBJECTIVES**

Sporting activities are a significant component of our global culture, the cornerstone of physical education. It is therefore necessary to reframe how physical education can promote positive values through sports experience. Used correctly, sports can and should promote the educational objectives of physical education.

Physical education, as I lived at school, is it in danger? If we want it to survive in this era of enthusiasm for sports and implementing programs as public and private, have changed the way physical education and implementation as designed and taught in schools. Traditionally, basic physical education taught in schools has always been an example for any public or private program of sports activities, implementing or re-shaped and recreational activities. In the past, physical education in schools was expected to provide children with the technique, dexterity, insight and attitudes necessary for them to spend during their life, sport, put in shape and physical education.

What frustrates most in physical education is the lack of interest in its teaching in an era when sports and the physical condition are so popular.

The traditional philosophy of physical education believes that sports are a means that enables the achievement of educational objectives which, by their very nature, are moral, social, psychological and physical. Many domain specialists say that physical education activities are valid in themselves. This concept can be translated by the term “game education”. The objective of this education is to help students acquire a technical skill and reach to attach to these activities. Considered at that time, a kind of transformers and transmitters of cultural constructive philosophy, professionals in the “game education” domain have tried in the 70s to the 80s to redefine physical education as education of the game.

Logically and psychologically, physical education is indeed a game. Defining physical education as a form of play, places it clearly in the category of primary game and other forms of institutionalized activities, as art, music and drama. This classification allows us to recognize that the activities of the golfer or skier in the weekend, the tennis player, evening, handball player, in the afternoon, resemble those of the painter, the actor or the musician. Everyone plays an institutionalized form of play. What really matters is the participation.

In game education we can keep the object as it is an institutionalized form of game, having a crucial importance in the cultural space in which we live and evolve. Olympic education programs do not allow the direct influence of the philosophy of game education. Game education has never become an important matter in American schools. Towards the mid-80s a different philosophical perspective based on the philosophy of game education appeared. Sports education aims to prepare students for the techniques, values and attitudes of a real sport, so that a healthy and positive culture of sports can be acquired.

Reasoning based physical education is based on a number of fundamental assumptions. The first is that the sport stems from the game, in other words, sport is an institutionalized form of game

Driving Competition. The second basic assumption is that it represents an important part of our culture and that it plays a major role in its health and vitality; the more sport practitioners, the stronger the culture. The third basic assumption is a corollary of the other two. If sports are a high form of game and if sports are important for the good health and vitality of our culture, it follows that sports should be part of physical education. Therefore, the training of good athletes and better sports culture development should be the central mission of physical education.

Sports education is simply a perspective that can be used to teach educational objectives of the sport. Students learn to practise techniques and strategies in groups, during a so-called unit/ season. Sports education is taught in physical education courses. As it progresses, it devotes less time practising the techniques, and more emphasis is placed on game competitions and strategy skills

The educational aims and objectives of the model are multi-sport education and may be immediate:

- to develop techniques and physical condition for a specific sport;
- to develop and assess the ability to execute a strategy game;
o to participate in an appropriate stage of its development;
o to collaborate in planning and directing sports experiences;
o to choose a responsible leader;
o to be part of an active working group aiming at achieving common goals;
o to respect the traditions and conventions of each sport;
o to develop the capacity to make decisions after mature deliberation in respect of any sporting problem;
o to apply knowledge and training in arbitration;
o to voluntarily decide to get involved in extracurricular sports.

Another fundamental goal of this model is to train top athletes. Students should learn to appreciate, to respect the principle of fair play and adopt a fair behaviour in competitions.

Other suggestions for the teachers regarding educational goals other than the ones mentioned above:
o to have the certainty that specific attitudes are clear for the students. In the primary schools some bills are considered an example of fair play. In secondary education, teachers can ask students to discuss in the Sports Council on cases of unfair behavior in the game;
o points may be awarded to promote and reward fair behaviour, or withdrawn as a penalty;
o students should be taught and encouraged to become good people, have respect for teammates, opponents, and their effort;
o to use a highly accurate system for the selection of team members, and maintain equity as the main purpose;
o sports boards can be encouraged to decide on issues of competition and fair play. This way, students are taught to handle conflicts and solve problems;
o Awards for fair play must be regarded as a test and awarded the winners.
o to teach students how to practice the ritual gestures of each sport when it comes to rewarding for the performance: welcoming opponent in fencing, welcoming the referees after a sample of gymnastics, alignment by a collective game to shake hands with opponents.

Sport education model has some ambitious targets. It intends to help students become grown, competent and enthusiastic players and athletes.

Once understood physical education, a phrase like “I concluded football season” or “start next season with tennis” does not mean the same. The facts showing that students will notice the difference and become advocates of the sensors.

The theoretical framework for sport education takes some basic concepts of physical education. This is to prepare students in physically based disciplinary approach to teaching physical activity. The conceptual framework presented below embraces the concept of sport for all.

The programs design units and lessons for all levels of training and fitness for students. Objectives psychosocial concerns capabilities that students will acquire a thoughtful decisions about team work and fair site. In the sport education model, students learn to participate in a celebration, respect and practise the rituals and traditions of each meeting, and to compete and turn to sports to improve techniques and strategies.

Natural objectives are in relation to the physical conditions necessary and sufficient for young people to develop the techniques necessary to participate in sporting events. Cognitive goals focus on students’ understanding of sport events. As students become true participants, they come to understand how to make selections for a team, organize a competitive calendar, mark the results of the strategy. They learn techniques to become responsible leaders and to deal simultaneously with a large number of complementary activities such as marking points, arbitration and training.

In teaching and training, the model prefers the qualitative approach rather than the quantitative one. With this model, students can learn thoroughly and can fully practise the activities selected, they have a controlled delivery and competitive experience can know early in the first repetition of the rookie level.

CONCLUSION

I would like to conclude this work by presenting a conceptual framework for sport education with the finding that the problem of choosing the best optical adopted to achieve the educational objectives of sport is that a major practical problem facing physical educators today. If we curricula, teachers and coaches will be set in advance, the philosophical reference and choose the appropriate strategy that allows the opening of the educational objectives pursued.
A conceptual framework for sport education

Role des jeux dans l'optimisation de mouvement objectifs éducatifs du sport d'enseignement

Résumé: Cet article se concentrera sur des avis techniques et processus et les stratégies du fonds, ce qui provoque à atteindre les objectifs éducatifs du sport. Je vais revoir le modèle de l'éducation sportive, une approche de développement social et individuel et de projets pédagogiques des structures du modèle de connaissances.

Je voudrais commencer par le chemin philosophique du troisième aspect. Philosophie met l'accent sur la formation à travers des jeux éducatifs et des mouvements physiques, porté les certitudes de notre entreprise depuis le début du XXe siècle. Elle n'a pas été interrogué jusqu'à ce que les années 50. Depuis ce temps, il y avait un certain nombre de bouleversements professionnels et sociaux qui ont conduit à la diversification, spécialisation, différente approche philosophique de la question relative sport, de fitness et de l'éducation physique.

Mots-clés: sport, les objectifs éducatifs, d'apprentissage à travers des jeux de mouvement.
NORMATIVE SCALES FOR STUDENTS IN PHYSICAL EDUCATION

Kanwaljeet SINGH1, Gurpreet SINGH2

1Guru Nanak Dev University, Amritsar, Punjab, INDIA
2Department of Physical Education, Lovely Professional University, Phagwara, Punjab, INDIA

Abstract:
The intention of the study was to prepare normative scales for evaluating the performance of physical education students, in jumping events (athletics). A sample of 1400 student was taken from different physical education colleges and departments of universities of Punjab and Chandigarh. The subjects were divided in two groups according to their age, i.e. 18 to 21 year and 21 to 25 year boys and girls, in each age group; 700 students: 400 boys and 300 girls, students in physical education served as subjects. The performance of the subjects in jumping events collected through three test items, namely high jump, long jump, and triple jump. Norms were prepared for jumping events (athletics) with four normative scales such as percentile, Hull, sigma and T scale, and the standard for the students’ evaluation was also established under Normal Distribution.

INTRODUCTION
In physical education, evaluation plays a vital role since the beginning. The phase of physical education and sports process is concerned with test, measurement and evaluation. These involve techniques to measure the student’s status and progress in growth, development and achievement. The results of such application indicate not only changes in the product in these areas, but also the magnitude of such changes as well as the direction they have taken.

“Norms are the values considered to be the representative of a specified population. A test that has accompanying norms is definitely preferred to one that is usually based on age, weight, grade, height or various combination of these characteristics” (Johnson et al., 1988).

There are several types of norms, such as percentile norms, standard norms, T-score norms, age norms and grade norms. These norms are most popular and widely used in physical education and sports which are as old as the beginning of human culture. Physical activities were performed for recreational purposes in pre-historical times and, as time passed by, became famous in a competitive way. With the development of the human being sports activities have also changed and many new activities have appeared in the new trends of physical education and sports. History reveals that as human become more civilized, scientific and subsequently sought more exact way to measure the general as well as specific evaluation. The history of measurement and evaluation in physical education and sports has paralleled the growth and development of research which has elevated the field to a more respected position in the educational spectrum. Today, the measurement of skills and the knowledge of fitness testing are also deemed a necessary part of the professional training, of PE teachers and coaches. Today in every country there is a number of professional colleges and departments of Physical Education in various universities. In these colleges and departments, various courses of physical education are running, such as Diploma in physical education (DP.Ed) - 2-year course, Bachelor of physical education (B.P.E) - 4-year course, both are after 10+2, Bachelor in physical education (BP.Ed) - one-year course, after graduation, and Master of physical education (M.P.Ed) - 2-year course after (BP.Ed). In these courses various theoretical and practical subjects are being taught. The practical aspects of the curriculum include various elements of games and athletics.

The training of teaching for practical courses in physical education and sports, such as games and athletics, is given by teachers in Professional colleges and universities. Athletics is a major practical course of the physical education curriculum, because activities like running, jumping and throwing take place only in athletics.

All these events have been evaluated only by observational techniques, which is not a valid test/tool of measurement because it always shows partial and imperfect/biased opinions, and teachers are bound to respond to a false impression of teaching and training effects. The teaching of theoretical subjects is evaluated by taking a paper and pencil test. As the curriculum of PE contains both theoretical and practical aspects, effective teaching in Physical Education and sports shall depend largely upon the ability of the teacher/coach to test and evaluate the
students with the help of standardized athletic tests and norms.

Research scholars feel that if athletic performance norms are made available to teachers/coaches, students and athletes, they will definitely improve their performance because they will compare their current performance score with their previous score. It can be a motivational factor to develop the area of sports performance and PE teaching. With the availability of standardized performance norms, partial evaluation can be minimized. On the other hand, the job of the teacher will be made easier and reliable on the basis of performance norms, which will help to evaluate the students of physical education (teaching). In PE, practical teaching plays an important role as it is an integral part of this education system. In every curriculum of physical education programs, practical teaching has equal weight to theory courses/subjects in elementary and high school level more emphases are given on practical teaching. Therefore objectivity in evaluation is highly required and can be achieved if teachers of physical education should prepare and evaluate perfectly with a valid test and ideal norms. If teachers have more practical knowledge, then the development of the nation should be positive and well practitioner teachers can produce in physical education profession.

**OBJECTIVES**

To formulate athletic performance norms for students in Physical Education in Punjab and Chandigarh.

To formulate athletic performance norms for Physical Education students of different age groups, such as 18-21 and 21-25 years.

**METHOD AND PROCEDURE**

A sample of 1400 subjects, 400 boys and 300 girls, age between 18 and 21 years, and 400 boys and 300 girls, age between 21 and 25 years were selected. These subjects were students of different PE colleges and university departments. Students’ performance data was collected by administering three test items namely high jump, long jump, and triple jump. The collected data analyzed with SPSS 16.0 and Microsoft excels to construct norms for test items. Four normative scales such as percentile, Hull, sigma and T scales were constructed. For grading of students five standards i.e. Excellent, Good, Average, Fair and Poor were also established under Normal Distribution.

**RESULTS OF THE STUDY**

The data was analyzed and the findings were presented in two different phases. The first phase deals with the percentile scale and the evaluation standards of physical education students, and the second phase deals with the T-scale, hul scale, and sigma scale.

**PHASE 1. PERCENTILE NORMS AND STANDARDS OF EVALUATION**

Percentile scales for the PE students with ages ranging from 18 to 21 and 21 to 25 years have been presented as follows:

**Table 1.**

<table>
<thead>
<tr>
<th>PERCENTILE</th>
<th>Age Group 18-21 Years</th>
<th>Age Group 21-25 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>95th</td>
<td>5.73</td>
<td>4.27</td>
</tr>
<tr>
<td>90th</td>
<td>5.47</td>
<td>3.91</td>
</tr>
<tr>
<td>85th</td>
<td>5.32</td>
<td>3.75</td>
</tr>
<tr>
<td>80th</td>
<td>5.12</td>
<td>3.60</td>
</tr>
<tr>
<td>75th</td>
<td>4.87</td>
<td>3.44</td>
</tr>
<tr>
<td>70th</td>
<td>4.67</td>
<td>3.27</td>
</tr>
<tr>
<td>65th</td>
<td>4.59</td>
<td>3.25</td>
</tr>
<tr>
<td>60th</td>
<td>4.50</td>
<td>3.22</td>
</tr>
<tr>
<td>55th</td>
<td>4.39</td>
<td>3.18</td>
</tr>
<tr>
<td>50th</td>
<td>4.33</td>
<td>3.13</td>
</tr>
<tr>
<td>45th</td>
<td>4.26</td>
<td>3.08</td>
</tr>
<tr>
<td>40th</td>
<td>4.13</td>
<td>2.97</td>
</tr>
<tr>
<td>35th</td>
<td>3.82</td>
<td>2.78</td>
</tr>
<tr>
<td>30th</td>
<td>3.64</td>
<td>2.71</td>
</tr>
<tr>
<td>25th</td>
<td>3.55</td>
<td>2.60</td>
</tr>
<tr>
<td>20th</td>
<td>3.33</td>
<td>2.50</td>
</tr>
<tr>
<td>15th</td>
<td>3.24</td>
<td>2.39</td>
</tr>
<tr>
<td>10th</td>
<td>3.12</td>
<td>2.34</td>
</tr>
<tr>
<td>5th</td>
<td>2.74</td>
<td>2.17</td>
</tr>
</tbody>
</table>
Table 2.
Percentile norms for the triple jump (in mtr.)

<table>
<thead>
<tr>
<th>PERCENTILE</th>
<th>Age Group 18-21 Years</th>
<th>Age Group 21-25 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>95&lt;sup&gt;th&lt;/sup&gt;</td>
<td>11.33</td>
<td>7.43</td>
</tr>
<tr>
<td>90&lt;sup&gt;th&lt;/sup&gt;</td>
<td>10.32</td>
<td>7.22</td>
</tr>
<tr>
<td>85&lt;sup&gt;th&lt;/sup&gt;</td>
<td>9.46</td>
<td>7.11</td>
</tr>
<tr>
<td>80&lt;sup&gt;th&lt;/sup&gt;</td>
<td>9.23</td>
<td>6.86</td>
</tr>
<tr>
<td>75&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8.57</td>
<td>6.67</td>
</tr>
<tr>
<td>70&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8.42</td>
<td>6.55</td>
</tr>
<tr>
<td>65&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8.24</td>
<td>6.47</td>
</tr>
<tr>
<td>60&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8.14</td>
<td>6.24</td>
</tr>
<tr>
<td>55&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7.48</td>
<td>6.19</td>
</tr>
<tr>
<td>50&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7.35</td>
<td>6.05</td>
</tr>
<tr>
<td>45&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7.21</td>
<td>5.80</td>
</tr>
<tr>
<td>40&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6.98</td>
<td>5.67</td>
</tr>
<tr>
<td>35&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6.63</td>
<td>5.47</td>
</tr>
<tr>
<td>30&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6.47</td>
<td>5.38</td>
</tr>
<tr>
<td>25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6.29</td>
<td>5.34</td>
</tr>
<tr>
<td>20&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5.96</td>
<td>5.23</td>
</tr>
<tr>
<td>15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5.67</td>
<td>4.81</td>
</tr>
<tr>
<td>10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5.35</td>
<td>4.27</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5.12</td>
<td>4.27</td>
</tr>
</tbody>
</table>

Table 3 shows that the maximum scores of jumping events are at 95<sup>th</sup> percentile and the minimum scores are at 5<sup>th</sup> percentile for boys and girls in the 18-21 years of age, and for boys and girls in the 21-25 years of age. The highest scores are at the top and the lowest scores are at the bottom of the table.

In Tables 4 to 6 the evaluation standards are presented. Standards of evaluation were based on mean and standard deviation values.
Table 4.
Evaluatıon standards for the long jump (in mtr.)

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>SCORE LIMIT FOR 18-21 AGE GROUP</th>
<th>SCORE LIMIT FOR 21-25 AGE GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BOYS</td>
<td>GIRLS</td>
</tr>
<tr>
<td>Excellent</td>
<td>Above 5.93</td>
<td>Above 4.20</td>
</tr>
<tr>
<td>Good</td>
<td>4.82 - 5.92</td>
<td>4.19 - 3.46</td>
</tr>
<tr>
<td>Average</td>
<td>3.71 - 4.81</td>
<td>3.45 - 2.72</td>
</tr>
<tr>
<td>Fair</td>
<td>2.60 - 3.70</td>
<td>2.71 - 2.00</td>
</tr>
<tr>
<td>Poor</td>
<td>Below 2.60</td>
<td>Below 2.00</td>
</tr>
</tbody>
</table>

Table 5.
Evaluatıon standards for the triple jump (in mtr.)

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>SCORE LIMIT FOR 18-21 AGE GROUP</th>
<th>SCORE LIMIT FOR 21-25 AGE GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BOYS</td>
<td>GIRLS</td>
</tr>
<tr>
<td>Excellent</td>
<td>Above 10.50</td>
<td>Above 7.72</td>
</tr>
<tr>
<td>Good</td>
<td>8.50 - 10.49</td>
<td>7.71 - 6.62</td>
</tr>
<tr>
<td>Average</td>
<td>6.50 - 8.49</td>
<td>6.61 - 5.51</td>
</tr>
<tr>
<td>Fair</td>
<td>4.50 - 6.49</td>
<td>5.51 - 4.41</td>
</tr>
<tr>
<td>Poor</td>
<td>Below 4.49</td>
<td>Below 4.40</td>
</tr>
</tbody>
</table>

Table 6.
Evaluatıon standards for the hıgh jump (in mtr.)

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>SCORE LIMIT FOR 18-21 AGE GROUP</th>
<th>SCORE LIMIT FOR 21-25 AGE GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BOYS</td>
<td>GIRLS</td>
</tr>
<tr>
<td>Excellent</td>
<td>1.52 &amp; Above</td>
<td>1.32 &amp; Above</td>
</tr>
<tr>
<td>Good</td>
<td>1.36 - 1.51</td>
<td>1.19 - 1.31</td>
</tr>
<tr>
<td>Average</td>
<td>1.21 - 1.35</td>
<td>1.06 - 1.18</td>
</tr>
<tr>
<td>Fair</td>
<td>1.07 - 1.20</td>
<td>.94 - 1.05</td>
</tr>
<tr>
<td>Poor</td>
<td>Below 1.06</td>
<td>Below 93</td>
</tr>
</tbody>
</table>

PHASE II.
In this section, T scale, Hull scale, and Sigma scale were constructed. It is considered a standard scale because it is based on mean and standard deviation values. These scales for the PE students with ages ranging from 18 to 21 and 21 to 25 years have been presented as follows:

Table 7.
Norms for the long jump for the 18–21 year age group (in cm.)

<table>
<thead>
<tr>
<th>T-SCALE</th>
<th>HULL SCALE</th>
<th>SIGMA SCALE</th>
<th>PERCENTILE</th>
<th>T-SCALE</th>
<th>HULL SCALE</th>
<th>SIGMA SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-34.88</td>
<td>103.42</td>
<td>149.52</td>
<td>0</td>
<td>2.82</td>
<td>94.7</td>
<td>125.32</td>
</tr>
<tr>
<td>57.32</td>
<td>167.96</td>
<td>204.84</td>
<td>10^th</td>
<td>64.07</td>
<td>137.57</td>
<td>162.07</td>
</tr>
<tr>
<td>149.52</td>
<td>232.5</td>
<td>260.16</td>
<td>20^th</td>
<td>125.32</td>
<td>180.45</td>
<td>198.82</td>
</tr>
<tr>
<td>241.72</td>
<td>297.04</td>
<td>315.48</td>
<td>30^th</td>
<td>186.57</td>
<td>223.32</td>
<td>235.57</td>
</tr>
<tr>
<td>333.92</td>
<td>361.58</td>
<td>370.8</td>
<td>40^th</td>
<td>247.82</td>
<td>266.2</td>
<td>272.32</td>
</tr>
<tr>
<td>426.12</td>
<td>426.12</td>
<td>426.12</td>
<td>50^th</td>
<td>309.07</td>
<td>309.07</td>
<td>309.07</td>
</tr>
<tr>
<td>518.32</td>
<td>490.66</td>
<td>481.44</td>
<td>60^th</td>
<td>370.32</td>
<td>351.95</td>
<td>345.82</td>
</tr>
<tr>
<td>610.52</td>
<td>555.2</td>
<td>536.76</td>
<td>70^th</td>
<td>431.57</td>
<td>394.82</td>
<td>382.57</td>
</tr>
<tr>
<td>702.72</td>
<td>619.74</td>
<td>592.08</td>
<td>80^th</td>
<td>492.82</td>
<td>437.7</td>
<td>419.32</td>
</tr>
<tr>
<td>794.92</td>
<td>684.28</td>
<td>647.4</td>
<td>90^th</td>
<td>554.07</td>
<td>480.57</td>
<td>456.07</td>
</tr>
<tr>
<td>887.12</td>
<td>748.82</td>
<td>702.72</td>
<td>100^th</td>
<td>615.32</td>
<td>523.45</td>
<td>492.82</td>
</tr>
</tbody>
</table>
Tables 7 to 9 show the highest scores for jumping events; they are at 100\textsuperscript{th} percentile and the lowest scores are at Zero percentile for age group 18-21 year boys. The highest scores are at the bottom of the table and the lowest scores are at the top of the table.
Tables 10 to 12 show the highest scores for jumping events are at 100th percentile and the lowest scores are at Zero percentile for age group 21-25 year girls. The highest scores are at the bottom of the table and the lowest scores are at the top of the table.

**DISCUSSION AND FINDINGS**

Four normative scales, namely Percentile, Hull, Sigma and T-scale, were constructed for students of physical education colleges and universities of Punjab (State) and Chandigarh (U.T.). The differences in the performance of male students belonging to two age groups (18-21 and 21-25 years) in long, triple and high jumps were found. The mean scores in long jump, triple jump and high jump of the subjects of the two groups have been found to be 426.12, 773.81, 129.32 and 514.70, 877.17 and 136.11, respectively. It indicates that there is a significant difference in the performance of the students in long jump, triple jump and high jump of the above mentioned two groups. The results reveal that the subjects of the 21-25 years of age group performed better in long, triple and high jumps as compared to the male subjects of 18-21 years of age.

The investigator’s opinion is that the difference in the performance of male subjects in the field events might be due to the influence of the factors such as age, diet, experience, physical and psychological maturity and fitness of subjects. This may be due to the above mentioned facts.

The differences in the performance of female students belonging to two age groups (18-21 and 21-25 years) in long, triple and high jumps. The mean scores in long jump, triple jump and high jump of the subjects of two groups have been found to be 309.07, 606.80, 112.81 and 336.97, 642.76 and 111.40, respectively. It indicates that there is a significant difference in the performance of long jump and triple jump but in-significant difference in high jump of the above mentioned two groups. The result shows the subjects of the 21-25 years of age group performed better in long and triple jumps as compared to the subjects of 18-21 years of age and in high jump event the subjects of 18-21 years of age group performed...
better in high jump as compared to the subjects of 21-25 years of age.

The investigator revealed the fact that the difference in performance of girls subjects in the field events may be influenced by a number of factors such as age, diet, experience, physical and psychological maturity and fitness of subjects. This may be due to the above mentioned facts.

IMPLICATIONS OF THE STUDY

The present study will be helpful for the following reasons:
1) it provides criteria to teachers of physical education for objective evaluation.
2) it helps the coaches and physical education teachers to know the effects of their training, teaching and coaching on the athlete’s performance.
3) it helps physical education teachers and coaches to grade the students.
4) it helps students to compare their current performance with previous performance in athletics.
5) it provides norms which will be helpful to Physical Education students, teachers and coaches for the evaluation, classification and selection of students for different levels of competition.
6) it provides scientifically constructed athletic performance norms for students of physical education.
7) it enables students to evaluate self performance in athletics.

SUGGESTIONS AND RECOMMENDATIONS

In the light of the conclusions of the present study, the following recommendations are made:
1. The same study can be conducted on students of arts colleges of Punjab and Chandigarh.
2. The normative scale constructed in this study may be used to evaluate the performance of students of physical education colleges and university departments of Punjab and Chandigarh.
3. It is recommended that similar studies may be conducted on school students of Punjab and other states.
4. Norms should be revised each year because the fitness/performance level of the student improves.
5. It is suggested that prepared norms in the study may be adopted by the college and department of physical education of universities to evaluate the athletics performance of students of Punjab and Chandigarh.
6. Based on the present study, athletics performance of physical education students may be compared with students of physical education of other states.
7. The same study can be conducted on professional athletes of different levels.

REFERENCES


ÉCHELLES NORMATIVES POUR LES ÉTUDIANTS DE L’ÉDUCATION PHYSIQUE

Résumé: L'intention de l'étude était de préparer les échelles normatives pour évaluer la performance des étudiants en éducation physique, dans les épreuves de sauts (athlétisme). Un échantillon de l'étudiant 1400 a été pris à partir de différents collèges d'éducation physique et du ministère des universités du Pendjab et de Chandigarh. Les sujets ont été divisés en deux groupes selon leur âge chronologique soit 18 à 21 ans et 21 à 25 ans garçons et les filles, dans chaque groupe d'âge 700 400 les étudiants garçons et filles 300 étudiants de l'éducation physique a servi en tant que sujets. La performance des sujets dans les épreuves de sauts recueillies par le biais de trois items de test à savoir le saut en hauteur, saut en longueur et au triple saut. Les normes ont été préparés pour les épreuves de sauts (athlétisme) avec quatre échelles normatives telles que percentile, Hull, sigma et l'échelle T et standard pour l'évaluation des élèves ont également établis en vertu de distribution normale.
THE INFLUENCE OF COLOUR ON THE EFFICIENCY OF BASKETBALL THROWS

Virgil MOROȘAN LARIONESCU, Mihoc PANTELIMONA

“Stefan cel Mare” University of Suceava, ROMANIA

Motto: “Everything that lives aspires to colour”, J.W. Goethe

Abstract:
The colour red, due to its association with perils and mistakes, should activate a motivation for hesitation, a motivation which determines people to be more vigilant and more open to taking risks. Thus, red, by comparison to blue, should improve the performance that is based on details and the orientation towards tasks that require concentration and special attention (e.g. basketball throws).

Keywords: Colour, perception, basketball throw, efficiency, synaesthesia.

INTRODUCTION

The interest for the cognitive psychology of sports is reflected by the progress seen in the field of research of sports psychology, the research being conducted on subjects such as identifying the most efficient ways of training in order to better the formation of habits and the development of the personality, the equipment and installations aiding in the process of preparing, the team spirit building techniques, the means for knowing the psychological characteristics of great athletes.

The necessity to know the physical and psychological elements which influence basketball players, the development tendencies and the progress factors during preparing, is an essential requirement for the coach to follow.

The sensorial processes are so important for our survival and functioning that the first scientific studies were on the subject of sensations. Today many psychologists discern sensations and perceptions, the starting point for both being a stimulus, a form of energy (such as light or sound waves) which can have an effect on sense organs (the eyes or the ears). Sensations depend on specialized cells called sensorial receptors which detect the stimuli and turn them into nervous impulses through the process of sensorial transduction. Although specific sensorial receptors usually serve specific senses, in certain cases the phenomenon known as synaesthesia appears.

This phenomenon is a characteristic of situations in which the stimulation of one sense conveys experiences which are specific of another sense. Chromatic perception depends on the physiological and educational profile of each individual, of the psychological and emotional stress factors which could occur when a colour image is watched. Thus, some authors think that the excitation or inhibition make the cells around have an opposite reaction. The concentration of the excitation will induce around the initial core an inhibition area (simultaneous negative induction), while the concentration of the inhibition will induce an excitation area (simultaneous positive induction). For example, if the analysed individual suffers from hyperactivity or hyper excitability, there will not be the same effects as there would be in the case of an emotionally healthy individual.

On the eye’s retina there are two types of cells: cone cells and rod cells. Rod cells activate during night-time, in the dark, while cone cells react when light reaches the retina and signals the brain with a certain colour. For distinguishing colours, the cone cells contain: cone cells which are more sensitive to light that has a great wavelength, these have a maximum reaction to the colour red (marked conventionally as L), cone cells which are more sensitive to light that has a medium wavelength, these react best to the colour green (M) and cone cells sensitive to light that has a minimum wavelength, these cells react best to the colour blue (H) (Fig. 2 and 3)
Thus, all colours are obtained through the different stimulation of each type of cone cell. For example, the colour yellow involves the stimulation of both L and M cells equally, but the H cells only play a small part, while blue stimulates the H cells more intensely, but have a lesser effect on L and M cells. Knowing these things we can notice the fact that in the sport-related activity the particularities of coloured vision have a special significance. Thereby, on sports fields the intensity of achromatic colours, black and white, is taken into account and, as a consequence, the thresholds for throws and vaults, the colours of the racing track, the bars of fences, the margins of the playing field are all painted white. It should also be taken into account that the colours are more distinguishable when projected on a background which is of a complementary colour (the green lawn, black or red tarmac).

Some solutions regarding the use of colours have been introduced in the sports activity: in table tennis, dark colours for the players’ shirts is recommended so that the white ball is easily distinguished and seen, in football the goal-keeper’s equipment is different from the other players’.

And so, having such an important effect on motor activity, we must discover what influence the colour has in the multitude of sports so that we can realise how we must redecorate the technical installations, the players’ training grounds, and the area in which the competitions take place, the sports players’ equipment and so on, if necessary.

**METHOD MATERIAL**

We have started from the assumption that by using modern means of projecting the colours red and blue on the basketball panel we will be able to show
their influence on the players’ psyche regarding the efficiency of stationary basketball throws.

We intend to prove the different associations of the colour red in comparison with blue, both of which can induce distinct incentives. The colour red, due to its association with perils and mistakes, should activate a motivation for hesitation, a motivation which determines people to be more vigilant and more open to taking risks. Thus, red, by comparison to blue, should improve the performance that is based on details and the orientation towards tasks that require concentration and special attention (e.g. basketball throws). In contrast, because blue is usually associated with relaxation, peace and quiet it is possible that it would activate a motivation to try a different approach because the aforementioned associations signal an environment that is without perils which encourages the players to use innovations when completing the task. Blue stimulates creativity and negatively influences the performance in tasks which require concentration. Thus, blue, in comparison with red, should improve the performance in creative tasks.

For the accomplishment of the experiment, ten students from “Stefan cel Mare” University of Suceava were recruited, with ages between 19 and 23, all of them basketball players who have a throwing percentage of $50\% \pm 5\%$. We would like to mention that none of the participants suffer from colour-blindness or any other congenital diseases which interfere with their perception of spectres or colour waves.

The registering of the data took place in the University’s gym and was done repeatedly so that the collecting of the data could be done in conditions which would make the results incontestable.

A DMX dimmer operator with joystick, two image projection rotating heads and red and blue colour filters were placed behind the free throw line. (see Fig. 4 and 5).

**Fig. 4.** Dimmer DMX

The following methods were used for data registering and processing: the observation method, the experimental method, the registering method, the investigation method, the statistical and mathematical method, the testing method, the graphic and table method, the video method.

**DEVELOPMENT OF THE EXPERIMENT**

It must be mentioned from the very beginning that the subjects did not know they were part of an experiment group so that they would not be influenced by certain information and so that everything progressed naturally. Thereby, the task that was to be accomplished took the form of a free-throw contest starting from the free-throw line. The task consisted of 6 sets, each set requiring 10 throws, the colour being projected onto the panel as follows: blue, red, half red-half blue then half blue-half red. At the last two sets of throws the colours alternated for each throw.

**Fig. 5.** Rotating head for image projection

**Fig. 6.** (a and b) Aspects from experiment tests
RESULT INTERPRETATION

As a result of registering the individual performances of each participant, we have observed that the average of the successes varies, as it can be seen in Fig. 7 and 8. Thus, the success rate of the basketball throws went up 0.6 points when the colour red was projected on the panel, which could mean that the players were positively influenced by it, but a relevant difference, statistically speaking, is not noticeable: t=0.57, p>0.6.

As we can see in Fig. 8, the instant the colour was changed to red/blue after each throw, the difference was of 3.2 point, which translates into 74 successful throws out of a total of 100 when the colour red was displayed and 42 out of 100 when the colour blue was displayed.

Calculating the correlation quotient, following the Brava-Pearsons method, we have reached a t=3.44 with a significance threshold of p<0.05, which is very close to 0.01 which supports the relevance of the completed study.

CONCLUSIONS

Obtaining these results we can affirm that red, in comparison to blue, improves the accomplishment of tasks which require concentration and special attention. Knowing that this colour is characterised as “the colour of will”, improves the muscle tone, activates breathing and raises blood pressure, those who prepare teams should take into account the factors which exist in the gym and during competition due to the implication of colour. Then we realise that it is not for nothing that installations and materials in a gym have certain colours, such as the basketball hoop which is red (or orange, depending on the case). Thereby, if during a game, on the walls of the gym, close to the panel, banners which are predominantly red were to be placed, it would affect the efficiency of the throws. Still, red should not be considered only as a distracting factor. It could be used in training, either in the way the experiment was conducted, in order to form the throwing stereotype, or in innovative ways which could lead to improving the teams’ performance.

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2. Elliot A., Maier M., Meinhardt J. – “Color and Psychological Functioning: The Effect of Red on Performance Attainment”, Journal of Experimental...
ANALYSIS OF THE ROMANIAN NATIONAL TEAM’S PARTICIPATION IN THE WORLD WOMEN’S HANDBALL CHAMPIONSHIP

Florin-Valentin LEUCIUC¹, Dariusz NAWARECKI²

¹“Stefan cel Mare” University of Suceava, ROMANIA
²Technological University of Opole, POLAND

Abstract:
The aim of the study is to analyze the evolution of female senior national team handball in the 2011 World Championship in Brasil and to determine the causes that led to the lowest rank.

The low attack efficiency, goalkeepers, 6m shots and wing shots efficiency in important matches and a large number of attacks without shot led to defeats in all decisive confrontations for qualification.

Another decisive factor was the low intake of backcourt (35 of 166 goals) and wings (18 of 166 goals) the number of goals scored by the team.

As a result, of the 6 games, there is a statistic: an average of 27.66 scored goals per game and 30.5 received goals per game.

Keywords: Handball, female, world championship, quantitative analysis

INTRODUCTION

The 2011 World Women’s Handball Championship (20th tournament) was held in Brasil, from 2 to 18 December 2011.

The matches were hosted by 4 cities: Barueri, Santos, Sao Bernardo do Campo, Sao Paulo. The games of Group C, group that included Romania, took place in Sao Paulo.

The playing schedule was a complex one, including a preliminary round involving 24 teams divided into 4 groups (A, B, C, D). The top four teams of each group qualified for the last sixteen phase, and the other eight teams participated in the President’s Cup, a mini-tournament to determine the positions of 17th to 24th at the final table of the competition. The second phase of the competition is elimatory (last sixteen, quarterfinals, semifinals, finals).

The nucleus of players trained and participants in the World Championship consisted of a total of 17 persons: goalkeepers – 3, wing – 5, backcourt - 4, center back – 2, line players – 3, 14 players being nominated for every match.

Group C included the national teams of Romania, Brasil, France, Tunisia, Cuba, Japan. The Romanian national team’s matches were held following the schedule below:

3 December 2011, Romania – Tunisia 30-28
5 December 2011, Cuba – Romania 27-33
9 December 2011, Romania – France 20-39

In Group C, Romania achieved two wins and a draw, which led to the ranking 3rd position in the group. It is noted that the victories were on a goal difference of +2 to +6 goals, but unexpected defeats with France and Brasil and also the draw results with Japan made our national team play in the last sixteen phase against Croatia.

In the second stage (last sixteen), the Romanian national team got the following result: 12 December 2011, Romania – Croatia 27-28. The defeat in the match with Croatia led finally Romania to occupy the 13th place on the final ranking of the competition.
The aim of the study is to analyze the evolution of the female senior national handball team in the 2011 World Championship in Brazil, and to determine the causes that led to the lowest rank in the history of participation in world championships.

**SUPPORT – METHOD**

In analyzing the evolution of the Romanian handball team in the 2011 World Women’s Championship there were used the observation method (direct observation method by simply watching the matches) and the statistical-mathematical method, having as support statistics provided by the organizers through websites of the competition (http://handballbrazil2011.com/us/) and of the International Handball Federation (www.ihf.info).

**RESULTS AND DISCUSSION**

The analysis of the participation in the World Championship was conducted as follows:
1. Group C games
2. Last sixteen game
3. Quantitative analysis of Romania’s national team games.

This study took as benchmark the data of specialised literature, data regarding the minimum shots’ efficiency (Taborsky F., 2001; Hergeirsson T., 2009):
- Efficiency of the whole team in attack: 60%
- Backcourt: 40–45%
- Wing: 55–60%
- Central part of 6 m line: 60–65%
- Counterattack: 70–75%

- 7 m shots: 75–80%
- Attacks without shots: 15–20%
- Goalkeepers: 35–40%

In confrontations with teams of Group C, Romania got 2 victories, 1 draw result and 2 defeats with the total of goals scored and received 139–155.

There were games against teams that were in direct competition for a better position of Romanian national team and finally reached the 3rd place in Group C.

Comparing the efficiency of the Romanian team to the standards listed above, we notice that its efficiency in attack was of 59% and 68 attacks were without shots (21.6%) of a total of 314, less than the allowable limits (Table 1) and that means a final attack efficiency of 44%.

The efficiency of the 9m line shots – 40.26%, in optimal limits; wing shots’ efficiency had a percentage of success of 51.72% (below normal), the shots in the central area of the 6m line is in the recommended values (64.38%).

The counter attack efficiency was of 89.29% and in 7 m penalty shots they scored 17 goals of a total of 21 shots (80.95%) both items are over recommended values, over the minimum efficiency of 70%. The goalkeepers’ efficiency was below the recommended margins (35–40%) – 27.23% (Table 2). There was optimum efficiency in the following types of shots: 9m line, central part of 6m line, counterattack (fastbreaks), 7m penalty shots. Weak results were obtained in the following indices: efficiency in attack, wing shots and goalkeepers.

<table>
<thead>
<tr>
<th>Team Shots</th>
<th>Goals</th>
<th>Saves</th>
<th>Missed</th>
<th>Total</th>
<th>Efficiency %</th>
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</thead>
<tbody>
<tr>
<td>6m Shots</td>
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<td>15</td>
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<td>73</td>
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<tr>
<td>9m Shots</td>
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<td>13</td>
<td>12</td>
<td>77</td>
<td>40.26</td>
</tr>
<tr>
<td>7m Shots</td>
<td>17</td>
<td>4</td>
<td>0</td>
<td>21</td>
<td>80.95</td>
</tr>
<tr>
<td>Fast Breaks</td>
<td>25</td>
<td>1</td>
<td>1</td>
<td>28</td>
<td>89.29</td>
</tr>
<tr>
<td>Breakthroughs</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>8</td>
<td>50.00</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>46</td>
<td>22</td>
<td>236</td>
<td>58.90</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>68</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>46</td>
<td>22</td>
<td>314</td>
<td>44.27</td>
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<table>
<thead>
<tr>
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<th>Total Shots</th>
<th>6m Shots</th>
<th>Wing Shots</th>
<th>9m Shots</th>
<th>7m Shots</th>
<th>Fast Breaks</th>
<th>Breakthroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
</tr>
<tr>
<td>Total</td>
<td>58/213</td>
<td>27.2/3</td>
<td>21/63</td>
<td>33.3/3</td>
<td>11/27</td>
<td>40.7/4</td>
<td>19/54</td>
</tr>
</tbody>
</table>

Table 1. Attack efficiency in matches with Group C teams

Table 2. Goalkeepers’ efficiency in matches with Group C teams
In the last sixteen game, Romania was defeated by Croatia, and the amount of goals scored and received was 27 – 28.

For all game posts there were obtained percentages of shots that fit within (9m Shots, 7m Shots, Fast Breaks, Breakthroughs) or above the minimum (6m Shots, Wing Shots, Goalkeepers' efficiency).

6m shots and wing shots were the weak links, the efficiency being below the average and also goalkeepers with an efficiency of 22.22% (Tables 3 and 4).

There were 10 attacks without shots of a total of 66, meaning 15.15%.

### Table 3. Attack efficiency in last sixteen match

<table>
<thead>
<tr>
<th>Team Shots</th>
<th>Goals</th>
<th>Saves</th>
<th>Missed</th>
<th>Post</th>
<th>Blocked</th>
<th>Total</th>
<th>Efficiency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>6m Shots</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>18</td>
<td>61.11</td>
</tr>
<tr>
<td>Wing Shots</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>60.00</td>
</tr>
<tr>
<td>9m Shots</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>66.67</td>
</tr>
<tr>
<td>7m Shots</td>
<td>3</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>75.00</td>
</tr>
<tr>
<td>Fast Breaks</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>100.00</td>
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<tr>
<td>Breakthroughs</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>71.43</td>
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<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>41</td>
<td>65.85</td>
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<tr>
<td>Attacks without shot</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>51</td>
<td>52.94</td>
</tr>
</tbody>
</table>

### Table 4. Goalkeepers’ efficiency in last sixteen match

<table>
<thead>
<tr>
<th>Goalkeepers</th>
<th>Total Shots</th>
<th>6m Shots</th>
<th>Wing Shots</th>
<th>9m Shots</th>
<th>7m Shots</th>
<th>Fast Breaks</th>
<th>Breakthroughs</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
</tr>
</tbody>
</table>

After 6 matches (2 wins, 1 draw, 3 defeats), the general goal average was 166 – 183.

The team’s efficiency in attack was of 59.93%, there were 88 attacks without shots (of a total of 365), their share being of 24.11%, more than the accepted limits (15-20%) and that drops the final attack’s efficiency to 45.48% (Table 5).

In the limits of recommended or superior efficiency there were the following shots: 9m (42%), 6m shots (64%), fast breaks (89.66%), 7m shots (80%)

There were shots that fell below the minimum: wing (53%), breakthroughs (60%), goalkeepers (22%) (Tables 5 and 6).

### Table 5. Attack efficiency (6 matches)

<table>
<thead>
<tr>
<th>Team Shots</th>
<th>Goals</th>
<th>Saves</th>
<th>Missed</th>
<th>Post</th>
<th>Blocked</th>
<th>Total</th>
<th>Efficiency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>6m Shots</td>
<td>58</td>
<td>18</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>91</td>
<td>63.74</td>
</tr>
<tr>
<td>Wing Shots</td>
<td>18</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>34</td>
<td>52.94</td>
</tr>
<tr>
<td>9m Shots</td>
<td>35</td>
<td>14</td>
<td>12</td>
<td>9</td>
<td>13</td>
<td>83</td>
<td>42.17</td>
</tr>
<tr>
<td>7m Shots</td>
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<td>1</td>
<td>0</td>
<td>25</td>
<td>80.00</td>
</tr>
<tr>
<td>Fast Breaks</td>
<td>26</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>29</td>
<td>89.66</td>
</tr>
<tr>
<td>Breakthroughs</td>
<td>9</td>
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<td>1</td>
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<td>0</td>
<td>15</td>
<td>60.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>166</td>
<td>52</td>
<td>25</td>
<td>16</td>
<td>18</td>
<td>277</td>
<td>59.93</td>
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<tr>
<td>Attacks without shot</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>166</td>
<td>52</td>
<td>25</td>
<td>16</td>
<td>18</td>
<td>365</td>
<td>45.48</td>
</tr>
</tbody>
</table>

### Table 6. Goalkeepers’ efficiency (6 matches)

<table>
<thead>
<tr>
<th>Goalkeepers</th>
<th>Total Shots</th>
<th>6m Shots</th>
<th>Wing Shots</th>
<th>9m Shots</th>
<th>7m Shots</th>
<th>Fast Breaks</th>
<th>Breakthroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
<td>S/A %</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>102/29</td>
<td>4/29</td>
<td>13.79</td>
<td>58/11</td>
<td>52.25</td>
<td>13.04</td>
<td>15/47</td>
</tr>
</tbody>
</table>
Comparing Romania (13th place) to the top 4 teams (Norway, France, Spain, Denmark), we obtain the following data (Table 7, Fig. 1).

**Table 7. Efficiency of the Romanian team compared to the top 4 teams**

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Places I-IV</th>
<th>Romania Place XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency of attacks with shots (%)</td>
<td>60</td>
<td>59.93</td>
</tr>
<tr>
<td>Goalkeepers’ efficiency (%)</td>
<td>40</td>
<td>22.22</td>
</tr>
<tr>
<td>Attack efficiency (%)</td>
<td>47.75</td>
<td>45.48</td>
</tr>
</tbody>
</table>

![Efficiency graph](image)

**Fig. 1. Efficiency of the Romanian team versus top 4 teams**

The Romanian team played only 6 matches, positioning on the 13th place in the final ranking; the top 4 teams played 9 matches each, with 5 teams rated to deliver very good results in the final standings. Taking as benchmark indices of specialised literature, we notice that the top teams are within maximum limits (goalkeepers’ efficiency) and sometimes above these values (attack efficiency).

The Romanian national team is generally within set limits, but for few items below these limits (goalkeepers and attack efficiency).

**CONCLUSIONS**

The low attack efficiency, the goalkeepers, the 6m shots and the wing shots efficiency in important matches, a large number of attacks without shot led to defeats in all decisive confrontations for qualification in the upper stage of the competition.

Another decisive factor was the low intake of the backcourt (35 of 166 goals) and the wings (18 of 166 goals), and the number of goals scored by the team.

The team showed a poor psychological preparation, as evidenced by the series of negative results recorded in the first phase, continued during the last sixteen phase, which resulted in the 13th place ranking in the final hierarchy.

The weak physical training is also one of the causes of the low outcomes achieved, because once getting favorable scores or with very small differences until the break, the matches were lost by the end of the game.

In all its 6 matches, Romania got 2 victories, 1 draw and 3 defeats; the World Champion, Norway, had 9 matches, getting 8 wins and 1 defeat, and the Vice World Champion, France, won 7 games and lost 2 games.

As a result, of the 6 games there is a statistic: an average of 27.66 scored goals per game and 30.5 received goals per game.

**RECOMMENDATIONS**

Our analysis of the Romanian team’s participation in the world championship are:

- training to improve the physical performance of the players because the presence in a competition at this level requires a large number of matches played in a short period of time (6 to 9 games in 10 to 17 days).

- increase of the level of the game in order to score a greater number of goals because the top teams scored over 31 goals/game whereas the Romanian one scored on average less than 28 goals per game.
increase of the efficiency in the game for weak playing posts (backcourt, center, goalkeeper).

improvement of attack efficiency by reducing the number of attacks without shot.

References

L’ANALYSE DE LA PARTICIPATION DE L’EQUIPE NATIONALE ROUMAINE AU CHAMPIONNAT DU MONDE DE HANDBALL FEMININE

Résumé:
L’objectif de l’étude est d’analyser l’évolution de la femme la plus âgée de l’équipe nationale de handball en Championnat du Monde Brésil 2011 et pour déterminer les causes qui ont conduit au dernier rang. L’efficacité d’attaque faible, les gardiens de but, des coups de 6m et l’aile d’efficacité tirs dans les matchs importants et un grand nombre d’attaques sans coup de feu a conduit à des défaites dans toutes les confrontations décisives pour la qualification.

Un autre facteur décisif a été la faible consommation de zone arrière (35 de 166 buts) et des ailes (18 sur 166 buts), le nombre de buts marqués par l’équipe.

En conséquence des 6 jeux, il ya une statistique: une moyenne de 27,66 a marqué des buts par match et 30,5 buts reçus par match.

Mots clés: handball, féminin, championnat du monde, l’analyse quantitative

INTERPRETING THE CORRELATIONS BETWEEN THE CONTROL TESTS USED IN ASSESSING THE DEVELOPMENT LEVEL OF COMBINED MOTOR SKILLS (8TH GRADE)

George Danut MOCANU, Liliana NANU

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
The education of motor skills, based on the different dosing of the physical effort, involves a thorough knowledge of the various factors that determine the success of this approach. In this approach, the selection and the programming of the operational models must be realized according to their primary and secondary influences, insisting on accessible and acceptable means that according to the chosen dosing facilitate the registration of some clearly defined or complex effects depending on the theme and objectives.

Keywords: Transfer and interference of motor skills, reciprocal conditioning, relevant tests, motor capacity, physical training, conditional and coordinative motor skills, effort parameters.

INTRODUCTION
The implementation of the special syllabus designed for the experimental lot and the interpretation of the results obtained in all control trials led to the conclusion that the motor performance recorded a significant increase. However we ask ourselves how the control trials influence each other.

According to the relation between trials that can measure the same parameter or different parameters, we can anticipate the chances so that the methodology and the system action used in order to educate an aptitude (force, for example) may have an influence and especially how much they can affect the results in other force trials or tests designed for different other aptitudes (speed or resistance for example).

Determining the degree of physical training of students involved testing with different various trials (SNSE trials and Eurofit tests), demonstrating the links between these trials requiring the calculation of the correlation coefficients. The
correlation coefficient \((r)\) establishes the intensity of the connection between two variables, when this connection is a linear one. When the result tends towards extremes \(\pm 1\), the link between the variables \(x\) and \(y\) is stronger, and, as the result approaches 0, the connection intensity decreases.

The correlation coefficient (Pearson) for parametric phenomena has the following formula:

\[
r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{n \cdot \sigma_x \cdot \sigma_y}
\]

where:
- \(x_i, y_i\) = values of the two variables;
- \(\bar{x}, \bar{y}\) = averages of the two variables;
- \(n\) = number of cases;
- \(\sigma_x, \sigma_y\) = standard deviations of the two distributions.

**WORKING HYPOTHESIS AND RESEARCH STRUCTURE**

We have considered that by studying the correlations between all the control tests that are part of the employed test set (19 tests), one could obtain useful information regarding the favorable or negative transfer of the approached motor skills. The results would allow for a correct planning of the means required for the development of motor abilities in order to accelerate the favorable mutual influence phenomenon displayed by various motor skills and their adjacent combinations. The work carried out on value groups took place at School no. 33 in Galati, on a 58-student lot. The results obtained have consequently been statistically processed, interpreted and displayed in graphs.

**RESULT ANALYSIS AND INTERPRETATION**

All the correlations between trials are represented in the graph below, the links of lower-intensity, medium or strong being detailed as follows.

A **high correlation (high connection intensity)** may be obtained between the following events, where \(r > 0.618\):

- the speed run (50m) with the following elements: resistance running, the “touch the plates” test, the 5x10m bi-directional running and the gym bench jump;
- the 5x10m bi-directional running, the “touch the plates” test, the Matorin test, getting the legs up from the down-dorsal position;
- the resistance running with the following elements: the Flamingo test, the hanging position and jumps from the gym bench, the coxofemoral mobility and the Matorin test, as well as getting the trunk up from the down-dorsal position and getting the pelvis up from the sitting position;
- the scapulo-humeral mobility with the following elements: push ups, the hanging position, A.M.O., getting the trunk up from the down-facial position and getting the pelvis up from the sitting position;
- the “touch the plates” test and: the Flamingo test, the square test, getting the pelvis up from the sitting position and jumps from the gymnastics bench;
- the Matorin test with: the Flamingo test, the square test, the length jump from a fixed position and jumps from the gymnastics bench;
- the Flamingo test and: the square test, getting the legs up from the down-dorsal position, jumps from the gymnastics bench;
- the square test with: the length jump from a fixed position;
- push ups with: the hanging position, A.M.O., dynamometry, getting the trunk up from the down-dorsal position, getting the legs up from the down-dorsal position;
- A.M.O. and getting the trunk up from the down-facial position;
- getting the trunk and the legs up from the down-dorsal position, getting the trunk up from the down-facial position;
- getting the trunk up from the down-facial position and jumps from the gymnastics bench.

The other event correlations not having been mentioned display more reduced link intensity values and can be considered to have a **weak correlation**: \(361 < r < 499\).

**CONCLUSIONS**

Taking into consideration the positive correlation found in all the test combinations used so far, some of them measuring apparently unrelated skills or even opposed skills (speed and endurance for example), the aspect may be explained by the initial low physical training level which made accumulations possible in all the motor skills, the solicitations prescribed for a skill (strength, for example) displaying a positive influence on the other skills (speed, local muscular
endurance, mobility, movement control and precision etc.).

All in all, it can be stated that the unilateral approach regarding the improvement of motor skills in lower secondary education is not sustained by solid arguments, the entire physical training process requiring a systemic planning and approach, where the mutual influences based on the transfer phenomena are favored, augmented and stressed upon by the results of the formative experiment.

Even if there are countless situations where the good and very good correlations may be justified by the resemblance of the events, through the same energetic mechanisms and solicited muscle groups or coordination processes involved (see the good connection between all the coordinative capacity events, the force ones of the superior limbs, abdominal and of the back or between those soliciting the speed or the speed-coordination combination), there are numerous examples where these considerations are no longer logical, thus new explanations are needed. For example, the good correlation between the resistance running and certain force events might be based on the importance of the abdominal muscles in the respiration process which favors a high performance in the endurance tests. The strong connection between the two mobility events with many force tests (static, dynamic, endurance-like explosive) must not be forgotten, for it may reconsider the importance of this skill for the physical education lesson.

At a closer glance, the study concerning the correlation between the assessment tracks used so far will lead to the understanding of the mutual connection between the different manifestation forms and combinations of the motor skills. This aspect favors the selection or planning of means with a varied influence (operational models), which, depending on the goals and themes from the approached motor skills and based on a rational dosage and programming of the effort, should be able to sustain the multilateral influences rapidly leading to the optimization of the education level regarding the motor skills.

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Graphic - Representation of the correlation intensity between tests
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INTERPRÉTATION DES CORRELATIONS ENTRE LES TESTS DE CONTROLE UTILISES POUR EVALUER AU NIVEAU MOTEUR LE DÉVELOPPEMENT DES COMPETENCES COMBINES (8e ANNEE)

Résumé: L’enseignement des aptitudes motrices conformément au dosage différencié de l’effort physique implique une connaissance approfondie des facteurs qui conditionnent la réussite de cette démarche. Dans ce sens, la sélection et la programmation des modèles opérationnels doit se réaliser en concordance avec leurs influences principales et secondaires ; il faut insister sur les moyens accessibles et attrayantes qui, en fonction du dosage choisi, facilitent l’enregistrement d’effets complexes ou clairement délimités en fonction de la thématique et des objectifs.

Mots-clés: transfère et interférence des aptitudes motrices, conditionnement réciproque, tests pertinents, capacité motrice, préparation physique, qualités motrices conditionnelles et coordinatrices, paramètres de l’effort.

FORECASTING THE RANKING OF IRAN’S NATIONAL FOOTBALL TEAM BY FIFA. TWO PREDICTING MODELS: ARTIFICIAL NEURAL NETWORKS AND AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE

Mohammadi SARDAR

University of Kurdistan, Sanandaj, IRAN

Abstract: Prediction of the ranking of the athletes in sports is a complicated task just like other subjects in politics and economics. But nowadays there are some models utilization which, we can predict, to some extent, future results and rankings. The aim of the present study is to provide a predicting model based on ARTIFICIAL NEURAL NETWORKS and Autoregressive-Integrated Moving Average, so that one can anticipate the ranking of Iran’s National Football Team [NFT] by FIFA.

Keywords: Modeling, predicting, artificial neutral networks, FIFA ranking, autoregressive-integrated moving average

INTRODUCTION

It is manifest that all branches of science such as physical education need the prediction of results and analysis of their performances in their way to progress, in order to achieve further success, and for such anticipations, the utilization of other mathematical sciences has drastically increased. After almost more than half of a century of football activities in our country, nowadays this sport has attracted many followers from the various parts of Iran and Iran’s National Football Team has attempted to become the winner of the Asian Olympic Games, the Asian Nations’ Cup and the Asian Champions League many times, and has qualified two times in the Olympic Games and three times in the World Cup Series. The previous decade was the period of introducing Iran’s Football to the world, to the extent that just in that decade Iran’s national football team scored a hundred standing in FIFA ranking and introduced outstanding players to the greatest teams of the European leagues.

At the end of each month the International Football Federation ranks the teams which are members of this federation, based on their performances [1]. The ranking position of many teams changes frequently, which is the result of their performance during that month. According to the available statistics of the last 120 months of the rankings of the Federation, South American and European teams have always taken the first ranks, and
Iran has progressed to the higher ranks in a way that in the second half of 2005 Iran’s National Football Team was ranked among the 15 best teams of the world. However, exactly this time ten years ago it had been ranked 118th. It has to be mentioned that, this promising prediction has been done just based on the increasing rank of Iran’s National Football Team’s position in FIFA ranking during the last 120 months and can be affected by various agents such as the present management and the future of Iran’s Sport, the amount of investment in this sport and some other interfering agents.

In recent years, focusing on the analysis the athletes’ former performances, and partaking of mathematics and its related branches, managers, coaches and commentators have succeeded in arranging more precise programs for the future. With the help of such modern scientific methods, one can predict the result of the matches and rankings of the sport teams by recognizing the influential agents on the results achieved [2].

Such predictions are affected by different agents as the present managerial methods and the future of Iran’s sports, the amount of investment in this sport, better sport equipment, better nourishment and exercise, and especially the effect of the invigorating substances [doping] on the future of sports, each athlete’s periodic readiness, teams’ conveniences, luck and other agents. In the recent years, researchers of sports, based on the existing information and computer software developments, have attempted to analyze and predict the future events and in some cases they have come to significant conclusions [3].

The prediction of football, like other predictions, such as in politics and economics, is such a difficult and complicated task. However, nowadays, based on existing models and sources and, of course, taking into consideration the teams’ abilities and their managements, researchers have been able to make some almost accurate predictions of future results and rankings. In these models two different processes are analyzed: 1) the distribution of the information and the teams’ conditions in the past and present, 2) the analysis of the progress made by managerial and programming agents according to which we can create some models for future predictions.

ARTIFICIAL NEURAL NETWORKS PREDICTION MODEL

During the last decade we have observed the successful presence of the Artificial Neural Networks. The idea of education for resolving the issue of complicated patterns recognition by the use of Intelligent Data Agents’ perspective has been challenging for the university researchers. ARTIFICIAL NEURAL NETWORKS is a simple calculative pattern for analyzing the data and creating some models based on the data structure. The data used for creating models is known as educational data. The neural network, using educational data for recognizing its patterns, can use the data to get access to the output and different conclusions.

Based on the objectives of the research, different kinds of ARTIFICIAL NEURAL NETWORK models could be used. One of the most renowned models is Multilayered Feed-forward Neural Network [MFNN]. MFNN is an example of trained neural network by the use of the spectator. According to recent studies [5], more than 50 percent of the reported trade functional studies of neural networks have used Multilayered Feed-forward Neural Networks with post diffusion learning Algorithm rules. Such neural network is fairly popular because of its widespread utilization in the different kinds of the issues related to management, like material prediction, modeling and classification. MFNN is appropriate for solving the issues including learning the relations between a particular set of inputs and outputs that indeed is an educational technique with a spectator for learning the relations between the data by the use of the education data collection [6,7,8].

Generally, ARTIFICIAL NEURAL NETWORKS do not have a great ability in developing a model, in a rational time, for the purpose we mean to use it for. On the other hand, in order to learn from the experiences [the collected data], Fuzzy modeling requires an attitude for using the integration of decisions. ARTIFICIAL NEURAL NETWORKS and Fuzzy models have been utilized in many functional fields and each has shown some advantages and disadvantages. Therefore, a successful combination of these two attitudes, Fuzzy Modeling and ARTIFICIAL NEURAL NETWORKS, has become the subject of further studies.

Among modern methods of modeling, Fuzzy systems have got a special reputation, and this can be considered as the result of human beings’ ability in applying human knowledge, by using the concepts of language tags and Fuzzy rules, non-linearity and adjustment of these systems. In short, the ARTIFICIAL NEURAL NETWORK model is a system based on the rational rules of if-then-otherwise. The starting point of making an ARTIFICIAL NEURAL NETWORK model is to provide a fuzzy if-then-otherwise set of rules of an expert’s knowledge or of the special field of science. Providing such rules is the most important and difficult part of the task since it needs the expert’s high level of knowledge and its correct application. Having a method at hand for utilization, to create some rules out of the available numerical information beside human knowledge could be of great use in this part.

Therefore, we have managed to apply a Fuzzy system in a way that it has the ability to learn retrospectively. So, we can calculate the error of the amounts of output by using the method of the least
sumption of the squares of the error. By combining this method and the post diffusion method we came to a mixed training method that works this way; in each education cycle: when moving forward, outputs of the loops are calculated normally up to the last layer, then the parameters of the result will be calculated by the method of the least summation of the squares of the error. After calculating the amount of the error, in a backward retrospective movement, the proportion of the error on the distributed condition parameters is corrected partaking of descending error grade method.

In the previous years, sports researchers have predicted future events based on available information and computer software developments and they have come to significant conclusions in some cases. Dereveco et al. in 2002 anticipated the performance of elite athletes of the 5 branches of track and field in the next 10 years and they have predicted the improvement of the records between 0.2 to 10.3 percent. They also mentioned that results of this prediction could be affected by some agents like better sport equipment, better nourishment and exercise, and particularly the effect of invigorating substances on the sport’s future [9].

Lucas and Luvalgia [2005] also asserted that managerial methods, coaches, teams’ facilities and luck have some influence on the prediction of the teams’ ranking [10].

Bryan et al. [2005] predicted almost reliably [0.65] the results of the National Basketball league which were based on the results published by New York Times [11]. Boulier and Stekler [2003] analyzed the predictive performance of the statistical models and the judgments in the professional American football games’ predictions from 1994 to 2000 by doing a research under the title of The Prediction of the Results of American National Football League’s Games. Their findings showed that the statistical model [based on the published marks in New York Times magazine] was more successful [65%] than the sport newspapers’ editorials [60%]. In general, they predicted 75% of the results of the National Football League [12].

Brawn [2005], too, predicted the teams’ rankings for the next 7 weeks by using ARTIFICIAL NEURAL NETWORKS and considering the teams’ programs and their previous matches in NCAA of America. After 7 weeks, when the matches were played, it turned out that the results of the predictions were 90% accurate by the use of ARTIFICIAL NEURAL NETWORKS [13]. It is interesting that those who were sufficiently acquainted with a sport field were more successful in their predictions. In their analyzing the prediction of the results of World Cup 2002 by experts and ordinary people, Patrick Anderson and his colleagues [2005] found out that those who had familiarity with football predicted the results more accurately and confidently [14].

What the predictions mostly face as a problematic agent, and which is an unavoidable agent in sports, is the existence of luck. In analyzing the agent of luck on sport records, Gambrayce et al., realized that out of the 22 predictions made according to the systematic progress method, only 4 were reliable and correct and the rest were distant from real performances [14]. However, the recent use of modeling rules for sport exercises has provided this possibility to predict the future [15]. In 2001 Cundell et al. started predicting bacterial infections according to sociological information and found 84% of relevance between these two agents [16]. Chi Ung Song et al. [2007] have done a research under the title of “Comparison of the Accuracy of Predictions Made by the Model and Referee in the National Football League of America [NFL]”. They predicted the result of the NFL matches, by using 31 statistical models and 70 experts who had anticipated the winners of 496 NFL games from 2000 to 2001. Results indicated that the difference between accuracy of the predictions of statistical systems and those of experts, regarding the winners, was not significant. Changes in the success of the predictions by experts were higher than the that of the statistical models. However, having detailed and high level of information did not improve the accuracy of the prediction. Neither the experts nor statistical systems could make the predictions correctly [17]. Some other research is being done on predictions in order to increase the reliability of the prediction model [18, 19, 20, 21]. In Iran, a fairly limited measure has been taken to use mathematics for sport predictions, some instances are predictive modeling of Iran’s football ranking position in FIFA ranking by Gorzi et al. and prediction of gymnasts’ performances in national and international competitions considering the Artificial Neural Network by Mohammadi et al. [17, 22].

The aim of this research is to present a model for predicting the rank of Iran’s National Football Team in the future based on the teams’ ranking in the last 120 months and its results by using Fuzzy Neural Networks.

**METHODOLOGY**

The method used in this research is descriptive-analytical. In the descriptive part, the last 120 months records of Iran’s National Football Team in FIFA ranking [1996-2006] were obtained from the official FIFA website which includes the ranking position of Iran’s team and its points at the end of each month, the number of goals [both received and scored], results of the matches, places in which the matches were held, types of matches, the ranking position of Iran’s opponent teams in the last month of FIFA ranking and the regional strength of those teams. In the analytical part, the data was analyzed by the ARTIFICIAL NEURAL NETWORK system and a predicting model has been presented for it.
EXPERIMENTAL ANALYSIS OF THE PREDICTION OF THE STATUS OF IRAN’S NATIONAL FOOTBALL TEAM IN FIFA RANKING

To provide predictive modeling of the ranking of Iran’s National Football Team in FIFA ranking in this research the two methods of ARTIFICIAL NEURAL NETWORKS and AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE have been used. Monthly data of Iran’s ranking in FIFA in the ten-year time span from January 1996 to December 2006 have been chosen as a time set. In designing ARTIFICIAL NEURAL NETWORKS, because of the huge amount of data, half of them have been selected as educational data, 25 percent as experimental data and the rest as value estimating data. Independent variables of this research are:

a] Match points
1-friendly matches: 1 point; 2-continent cup qualifications: 1.5 points; 3-world cup qualifications: 1.5 points; 4-continent cup finals: 1.75 points; 5-federation’s cup: 1.75 points; 6-World Cup finals: 2 points [23].

b] Match results
1-win: 2 to 3 points; 2-draw: 1 point; 3-lose: 0; 4-losing the game in penalty kicks: 1 point [23].

c] Regional Competency
1-Europe: 1.00 point; 2-South America: 0.99; 3-Africa: 0.96; 4-North and Central America: 0.94; 5-Asia: 0.93; 6-Oceania: 0.93 [23].

d] Goals scored
1-the number of goals scored during the game or in extra time [excluding the end-game penalties]
2-the value of the goals based on the competency of the teams [the relative power of the opponents].

e] Host or Guest
1-the host gets no points; 2-the guest gets 3.30 points; 3-in world cup matches, the guest does not get any points.

f] The latest ranking of the opponent in FIFA’s table.

g] Passage of Time
1-the teams’ results in the previous years are also taken into consideration for the ranking;
2-current year’s results: 8.8 points;
3-the previous year’s results: 7.8 points;
4-the results of two years before: 6.8 points;
5-the results of three years before: 5.8 points;
6-the results of four years before: 4.8 points; 7-the results of five years before: 3.8 points; the results of six years before: 2.8 points; and finally the results of seven years before: 1.8 points.

NORMALIZING THE DATA

In order to make the data more potential of accurate prediction, they should be normalized before they are used in ARTIFICIAL NEURAL NETWORKS. So before entering the network, the data is changed in a way so that they will be in the range of [L, H]; this is done, using the following formula:

\[ X_{\text{scaled}} = mX_i + b \]

That in this equation:

\[ m = \frac{H - L}{X_{\text{max}} - X_{\text{min}}} \]
\[ b = \frac{X_{\text{max}} \cdot L - X_{\text{min}} \cdot H}{X_{\text{max}} - X_{\text{min}}} \]

In this equation, \( H \) and \( L \) are the maximum and minimum of normalization, which, mostly range between 1 and -1. \( X_{\text{max}}, X_{\text{min}} \) are the maximum and minimum quantities of \( X_i \). So the above mentioned formula can be simplified as the following, which is much more common:

\[ X_n = \frac{2(X - X_{\text{min}})}{X_{\text{max}} - X_{\text{min}}} - 1 \]

The ranges of \( L \) and \( H \) differ based on the kind of issue of the intended transformation function. The largest ranges being used are [1, 0] and [1, -1], for Hyperbolic and logistic functions. In this research, the data has been normalized in the range of [1, -1].

DESIGNING THE ARTIFICIAL NEURAL NETWORKS MODEL

There are various structures of fuzzy systems settlement which have been proposed by the ARTIFICIAL NEURAL NETWORKS, the most important of which is the neurotic system based on Adaptive-Network-based Fuzzy Inference Systems, innovated by Jang [24,25]. The structure of a neuro-fuzzy system is illustrated in Picture 1. In designing the Neuro-fuzzy system, the Multilayered Feedforward Neural Network with the post diffusion training algorithm of error and Sugeno Deductive Fuzzy System with the input sequence of “difference between two Sigmoid sequences” and linear output sequence have been used and for making Non-Fuzzy moving average sequence, has been utilized.
In order to design an optimized ARTIFICIAL NEURAL NETWORK model, the topology of the system is evaluated with an eye on the transformation of different layers and the number of the neurons in the hidden neurological network, so that based on this evaluation, and also based on different changes that occurred in various member functions, and their numbers, a new fuzzy inference system for the database was devised and created. The number of the member functions used in this research is 100. Any member function is harmonized fuzzy collection from group A which ranges between [1, 0] so that:

\[ \mathcal{A} : X \to [0,1] \]

In general terms, any function which follows the mentioned structure can be used as a member function in a fuzzy collection. As mentioned before, the entering function in this research is the differential function of two [Sigmoid] functions. This function is illustrated in Picture 2. Any sigmoid function is defined as

\[ f(x; a, c) = \frac{1}{1 + e^{-(x-c)}} \]

The differential function of two sigmoid functions is based on four different factors which are the following: \(a_1, c_1, a_2, c_2\)

And: \(f_1(x; a_1, c_1) - f_2(x; a_2, c_2)\)

Picture 1: The way ANN is designed.

Picture 2: The membership sequence of the difference between two sigmoid sequences \([a_1=5, c_1=2, a_2=5, c_2=7]\)
The education [training] algorithm is repeated 500 times. The diagram of RMSE improvement in different repetitions of neuro-fuzzy network training, made to predict Iran’s National Team ranking in FIFA, is illustrated in Picture 3. As seen in this figure, the more the repetitions, the lower comes the quantity of RMSE so that in the last repetitions, no improvement is visible. It is emphasized once more that the deviations based on the normalized data are between [1, -1]; the authentic deviation should be calculated after the raw data has been transformed into Genuine Data. The quantity of 6 original standards in the evaluation of ARTIFICIAL NEURAL NETWORK model turnover is shown in Table 1.

Picture 3: The amount of RMSE in ARTIFICIAL NEUTRAL NETWORK training repetitions of the National Football team’s Status in FIFA ranking

In the above modeling, independent variables, special for a Month, should be given to the model, so that, based on the turnover evaluation, the model can almost accurately predict Iran’s ranking in the International Federation [FIFA] ranking table. Lacking independent variables for each month, like the one in regression models, is a great barrier which makes the prediction of the next few months impossible. On the other hand, this model has great potentiality in prediction. In another model, the only independent variable is time, so that the prediction of the next few months becomes possible, but, because of ignoring the other independent variables, the prediction potentially decreases. Based on this model, Iran’s ranking for the next two months, i.e. December 2006 and January 2007 are 19 and 20 respectively.

DESIGNING THE AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE MODEL

One of the most authentic techniques of prediction is the AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE model. This method is the fitting of a moving average model combined with a self-regression one, into a group of data and bringing a mathematical condition formula up. An AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE model has three parts: 1) the self-regression element 2) the accrete average and 3) the changing [moving] average.

The basic structure of AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE model is based on four levels: a) justifying and clarifying the model, b) estimating the parameters, c) recognizing and receiving the model, and d) confirmation, prediction and logicality.

The AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE \([p, d, q]\) model is general and public. In this formula, \(p\) is the self-regression base, \(q\) is the base of the changing average and \(d\) is the reduction base of the model to make it stable. What makes this model the best among the others is the suitable change to make it stable. Which is:

\[
\psi_p = (B)Z_t = \delta + \theta_q (B)a_t \\
Z_t = (1 - \beta)^d y_t \quad \text{Or/and} \\
Z_t = \nabla^d Y_t
\]

In which \(Y_t\) is the temporal series of data. In different combinations of AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE model, the quantities of \(p, d\) and \(q\) are seldom more than 2 and exactly because of this short range, most of the practical predictions are covered. In the designed AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE model for this research, \(p\) [self-regression element] equals 1, the base of the changing average and \(d\) is one as well:

AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE\([1, 1, 1]\]

And the quantities of the six original standards of turnover evaluation for the prediction of Iran’s ranking in FIFA.

EVALUATING THE OUTCOMES OF THE PREDICTION

For prediction matters, some of the standards of the turnover are used to illustrate how to learn the
relationship between the data in ARTIFICIAL NEURAL NETWORKS. 6 standards are used in this research, the first three of which are from the standard-deviation-average calculations group: a] the squared average of standard deviation [MSE], b] the square root of deviation average [RMSE], c] the squared normalized standard deviation [NMSE]. The remaining two are $R^2$ and NMSE, in which $R^2$ is the nomination coefficient and is related to NMSE: i.e., $NMSE=1-R^2$. The range of $R^2$ is $[1, 0]$ in which 1 shows the absolute accordance of the data, while zero suggests a kind of turnover which, by using the average of the real outcome of “d”, can be considered as a base for the predictions. The next two standards [yardsticks] are for the absolute deviations: the average of deviation of absolute value [MAE] and the average of the absolute value’s deviation percentages [MAPE].

Considering the fact that each standard in the turnover evaluation does a special task, in ARTIFICIAL NEURAL NETWORKS and AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE models, all of the six yardsticks are used. The results obtained by using both models are presented in Table 1.

Table 1. Performance assessment scales for different methods

<table>
<thead>
<tr>
<th>Method</th>
<th>RMSE</th>
<th>MSE</th>
<th>NMSE</th>
<th>MAPE</th>
<th>MAE</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTIFICIAL NEURAL NETWORK prediction model</td>
<td>0.1234</td>
<td>0.0152</td>
<td>0.000032</td>
<td>0.00002</td>
<td>0.0507</td>
<td>0.999972</td>
</tr>
<tr>
<td>AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE prediction model</td>
<td>3.0340</td>
<td>9.2052</td>
<td>0.02</td>
<td>2.0035</td>
<td>0.0078</td>
<td>0.98</td>
</tr>
</tbody>
</table>

As seen in Table 1, the prediction of Iran’s rank in FIFA by using the ARTIFICIAL NEURAL NETWORKS method is much superior to the one predicted by the AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE method as it meets all the standards of the turnover evaluation. The improvement rate of prediction deviation in different standards has been quite different. For instance, the RMSE has improved much more than MAE, when used in the ARTIFICIAL NEURAL NETWORKS method rather than the AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE one and this is because different standards have different calculation procedures.

**DISCUSSION AND CONCLUSION**

In today’s world, prediction is considered an important issue in different fields and it is improving and expanding every day. Managers, especially sport managers, since there are lots of variables, would like to have a special mechanism that can help them in decision making. Because of this fact, they tend to be looking for some special methods and formulas that could help their estimations get closer to the real results and their deviations be reduced to a minimum.

Paying attention to such modern methods as Neuro-Fuzzy networks and Fuzzy algorithms have caused other issues to surface in prediction studies. They have yielded different results in different uses. In some of the studies which have been conducted by using mono or multi-variable temporal Data-series, the ARTIFICIAL NEURAL NETWORK method has proved more accurate and has fit the data in more precisely, while in some other studies, traditional methods such as apparent smoothing have done better.

Analyzing the temporal data series for the prediction of an active research field has been special to the previous decades. The accuracy of this series method has been really vital in some special fields, so that the effort to make the influential effects of different models has never come to a halt. The efforts of Box and Jenkins have made AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE one of the most favored methods of prediction. During the last decade, the ARTIFICIAL NEURAL NETWORKS method has been constructed to solve the problems of complicated patterns identification, which had always challenged the researchers and had always been used in different fields, partaking of the viewpoint of intelligent data agents.

By using the Neuro-Fuzzy networks, and by looking at the previous games of the teams in the NCAA American league, Brown [2005] could predict their rankings in the next 7 weeks with the accuracy rate of 90%. Brian et al. obtained the accuracy rate of 65%, Boulier and Steckler also obtained the accuracy rate of 70%. ARTIFICIAL NEURAL NETWORKS and AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE methods have been used in this research to predict Iran’s ranking in FIFA; moreover, such different yardsticks as $[MSE \cdot RMSE \cdot NMSE \cdot MAE \cdot MAPE \cdot R^2]$ have been analyzed and compared. The results suggest that the ARTIFICIAL NEURAL NETWORKS method is superior to AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE in every aspect. For instance, concerning RMSE the deviation was considerably lower when it was used in AUTOREGRESSIVE-INTEGRATED MOVING AVERAGE and this is because the data used to predict Iran’s ranking in FIFA is non-linear. If linear data were to be used, the results would be quite different or even contrary.

As Glickman and Stern [2005] asserted that past and present conditions, plus management status are really
important, so in this research two different possibilities have been pictured to predict Iran’s ranking in FIFA: the first situation is applicable to predict the ranking before FIFA Artificial Neural the results, when such independent variables as Iran’s ranking in FIFA at the end of each month, Iran’s total points at the end of the month, Match results including Win, Lose and draw, The location of the game, the type of the match [Friendly, Continental cups qualification, World Cup qualifications, Confederations Cup, Asian Cup finals, world cup final round] The opponents ranking and points in FIFA in the previous month are obvious and obtainable.

In the 2nd situation none of the above-mentioned variables are clear so that there will be only one variable such as Time which is considered as a sole criteria based on which, for example, Iran’s ranking in the next four months is predicted.

Because of the good outcomes that were achieved by using the ARTIFICIAL NEURAL NETWORK method, Iran’s Football Federation can use this method for its future programming. As we know that Iran’s or any other country’s ranking are in close relation to the management of that country’s Football Federation and even the Organization of Physical Training, the results of this study can be a wonderful yardstick against which the turnover of the past and present federation officials can be evaluated. Also, the officials of Iran’s football federation can use this method as a kind of self-evaluation procedure. However, it should be mentioned that the results of this research may be influenced by such elements as chance, Iran’s opponents’ ranking positions in the coming months, major players’ injuries and the turnover of Iran’s Organization of Physical Training as well as the Football Federation’s itself.

The results also suggest that the number of the matches that Iran’s National team will play in each month versus those teams with a good ranking in the FIFA’s table can considerably influence and improve Iran’s ranking in FIFA’s monthly Artificial Neural; To make this possible, powerful sponsorship is a must.

On the other hand, the experimental results of the present and some other research studies have shown that the combination of Artificial Networks plus Fuzzy logics with the ARTIFICIAL NEURAL NETWORK method yields more accurate results and decreases the deviation considerably. Moreover, as the ARTIFICIAL NEURAL NETWORK method does not require precise and absolute data, neither a big range of data, it can be very accurate and useful in predicting Iran’s ranking by FIFA and is assuredly a better method in comparison to the previous traditional ones. And finally it is suggested that researchers take counsel with some football and other specialists in doing the prediction and compare their viewpoints to the results of this study.

REFERENCES:
Résumé:
Prévision du classement des athlètes dans les sports est une tâche complexe, tout comme d'autres sujets dans la vie politique et l'économie. Mais aujourd'hui, il ya une certaine utilisation de modèles qui, nous pouvons prédire, dans une certaine mesure, les résultats futurs et les classements. Le but de la présente étude est de fournir un modèle de prédiction basée sur ARTIFICIELLE Networks et autorégressive-moyenne intégrée NEUTRE Moving, de sorte que l'on peut anticiper le rang de l'équipe nationale de football de l'Iran [NFT] dans FIFA.

Mots-clés: modélisation, prévision, réseaux artificiels neutres, le classement de la FIFA, autorégressif-moyenne mobile intégrée

INVESTIGATION AND SELECTION OF THE APPROPRIATE PROMOTION MIX FOR IRAN’S FOOTBALL PRO-LEAGUE.
THE AHP METHOD

SARDAR Mohammadi¹, NARGES Esmaeili²

¹Department of Physical Education and Sport Science, University of Kurdistan, IRAN
²Tarbiat Moallem, University of Tehran, IRAN

Abstract:
For the purpose of the investigation and selection of the appropriate promotion mix for the Football pro-League of Iran, 13 experts in sport marketing responded to the researcher-designed questionnaire. The face and content validity has been proved by experts and its reliability as due to the inconsistence ratio of the questionnaires which is less than (0.1) can be proved as well. For data analysis the AHP method and the Expert Choice (11) software were used. The results showed that in the second level of the hierarchy, the advertising (0/625) ratio was dominant to public relations (0/375). In the third level, among the advertisement and public relation tools, TV advertising (0/522) and the media as one of the public relation tools had respectively the first and the second priority. We can say that, for improving football pro-League marketing, advertising is the most important criteria and TV advertising is the most important choice of promotion mix for Football pro-League.

Keywords: Promotion mix, Analytical Hierarchy Process, sport marketing, football pro league

INTRODUCTION
Modern Marketing is something beyond just manufacturing good products, appropriate pricing, and easy access to the goods. The organizations need to have relation with their customers. Various factors justify the organization’s need to communicate with their customers, among which we can mention the increasing distance between the manufacturer and the consumers which causes numerous problems in creating a direct communication with the customers and heavy competition among manufacturers and organizations engaged in an industry (Venos et al., 2008).

The marketing communication program of each organization is called the promotion mix and consists of a combination of advertising, public relations, sales promotion and personal sales, and the organizations use it in order to follow up their marketing goals (Haqparast, 2000). Communication has turned in its various forms into a specialized subject, among which advertising, public relations and interpersonal communication techniques are of great importance (Rezaie, 2006). Marketing as an interdisciplinary knowledge makes use of communication techniques as one of its components. This part is called promotion mix (Namini, 2006). Establishing an effective communication today, in order to fulfill marketing goals, is one of the main preoccupations of managers in any sport organization. In fact among the most important and the most effective elements which make a link between sport events and the profitability of sport industry are advertisement and promotion (Hasan zadeh, 2004). In some countries the biggest share of marketing expenditure is allocated to the promotion program.

Even in many corporations the total promotion expense exceeds the total production expense (Venos, 2008). Therefore, we can assume that one of the most important responsibilities of the sport marketing management is to assign the most efficient combination of promotion mix. By considering the fact that one of the long term goals in any sport is to develop it quantitatively and qualitatively, sport organizations need to be capable of competing with each other in order to reach this goal (Hasan zadeh, 2004). This goal can be met with the aid of sport marketing results and especially by the use of an appropriate promotion mix.
Since the football industry is regarded as one of the financially profitable industries, with a high added value, it is obvious that proper planning for promoting this sport can help to flourish it at both national and international levels (Falahi, 2009), attract major investments (Falahi, 2009; Kazemi, 2006; Elahi, 2007), increase the number of people attending the activities related to this sport (Jalilian, 2004), increase the customers and financial sponsors (Falahi, 2009), decrease the financial dependence of the country’s football upon governmental financial credits (Falahi, 2009; Kazemi, 2006; Jalilian, 2004), increase the construction of sport facilities (Falahi, 2009), and eventually the higher profitability of this sport. Not many studies have been conducted in our country in respect to promoting this sport and considering the problem of Iran’s pro-league of football, and it seems necessary to carry out further research in this area.

The studies already conducted consider the problems of Iran’s pro-league to be the small number of spectators in the pro-league (Falahi, 2009), the low price of the tickets (Kazemi, 2006), the governmental possession of the teams and thus their heavy dependence upon the government (Elahi, 2007), unpredictability of the majority of the teams and the existence of a black market for selling the tickets of some matches (Falahi, 2009; Elahi, 2007).

Considering the gradual movement of the clubs toward privatization and their coming out of dependence upon the government, the profitability of the teams, the constant presence in this highly competitive and unstable field of sport, and the high costs of keeping clubs make it necessary to generate incomes from different resources.

The concept of promoting this sport is worth consideration with respect to its importance in attracting fans, increasing the number of customers, and making money for Iran’s football pro-league. While foreign researchers used to conduct holistic and fundamental research studies on the series of marketing elements in the early 90’s, they now focus on each individual element and then conduct detailed studies.

Unfortunately the few research studies that have been conducted on sport marketing in Iran have focused on the promotion mix as a whole and in general (Meamari, 2007; Kazemi, 2007), and there are very few studies on each one of the marketing elements individually and separately (Kazemi, 2006; Ghimi, 2008). Keeping up with other advanced countries in the area of sport marketing and immediately filling up the 20-year gap in sport marketing research encouraged the researcher to study the suitable promotion mix for Iran’s Football Pro-League and to start a path in this area and maybe come to provide some solutions and suggestions for sport marketing managers in the football industry and help them know the promotion mix.

MATERIALS AND METHODOLOGY

In this survey, the descriptive method has been applied and, in order to define the hierarchy tree of decisions, interviews with experts and also books and articles about this issue have been used. In order to collect the ideas, a researcher-made questionnaire of promotion mix has been used. In the researcher’s opinion, the statistical society was composed of 13 sport marketing experts, and the sample was set equal to the society. Talking about the experts, we mean individuals who wrote books, articles, theses, or any research works in the sport marketing field. These experts were chosen after referring to Sid and Irandoc websites, sport magazines and to the theses of physical education faculties on sport marketing.

Regarding the purpose of this work, the analytical hierarchy process for decision making was considered as the most suitable method for data analysis. This method starts with providing a hierarchy tree of decisions. The hierarchy tree of decisions shows the factors under consideration with respect to the choices of the analyzed opponent, and then a series of pair comparisons made. The comparisons define the weight of any single factor for the opponent choices, and ultimately integrate the matrices resulted by the pair comparisons, so that the optimized decision can be made easier. Considering the fact that the data analysis method was based on the AHP model, firstly, the incompatibility rate of the pair comparisons for any respondent was checked, and then, we made sure that an acceptable incompatibility rate (less than 0.1) existed, that the respondents’ ideas were integrated, and that the group’s pair-comparison matrices were extracted. The decision hierarchy tree has various levels, considering the issue for which a decision is supposed to be made. The first level of each tree expresses the goal of decision making, and the last level shows the choices that are being compared.

The mediate level shows the criteria which act as benchmarks for comparing the choices (Adel, 1995). In the first level the suitable promotion mix for Iran’s football pro-league was taken as the main goal, and then, in the second level, by consulting the experts and masters, since advertising and public relation are used in Iran football Pro-League, among the promotion mix tools, which consist of public relation, advertising, sales promote and personal sale, public relation and advertising were selected independently. In the third level, choices as promotional and public relations were considered (Fig. 1).
Selection of the appropriate promotion mix for the Football pro-League of Iran

**PUBLIC RELATION**
- Media
- Holding Seminar and Conference
- Publishing

**ADVERTISING**
- Television
- Radio
- Outdoor
- Magazine
- Newspaper
- Internet

**Fig. 1. RESULTS** The hierarchy tree of decision

The findings of the research, which involve the synthesized matrix of the promotion tools and the overall priority of each of the criteria and choices are shown in Tables 1-4.

**Table 1. Synthesized matrix of promotion tools**

<table>
<thead>
<tr>
<th>Promotion tools</th>
<th>Synthesized matrix of promotion tools</th>
<th>Overall priority</th>
<th>Criteria of importance</th>
<th>Incon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>1</td>
<td>0/625</td>
<td>1</td>
<td>0/00*</td>
</tr>
<tr>
<td>Public relations</td>
<td>0/6010</td>
<td>0/375</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 1, in the second level of the hierarchy tree of decision, the importance of advertising tools and of public relations and their overall priority have been shown, and the inconsistency ratio of the promotion tools is (0/00).

**Table 2. Synthesized matrix and overall priority advertising tools**

<table>
<thead>
<tr>
<th>Advertising tools</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Outdoor</th>
<th>Internet</th>
<th>Radio</th>
<th>Overall priority</th>
<th>Choice preference</th>
<th>Incon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td>1</td>
<td>4/6555</td>
<td>5/6235</td>
<td>6/117</td>
<td>6/8472</td>
<td>6/9383</td>
<td>1</td>
<td>1</td>
<td>*0/03</td>
</tr>
<tr>
<td>Newspaper</td>
<td>0/2147</td>
<td>1</td>
<td>1/133</td>
<td>1/4772</td>
<td>3/8964</td>
<td>3/3923</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Magazine</td>
<td>0/1778</td>
<td>0/8821</td>
<td>1</td>
<td>1</td>
<td>0/8821</td>
<td>4/2111</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Outdoor</td>
<td>0/1634</td>
<td>0/6769</td>
<td>1</td>
<td>1</td>
<td>2/8257</td>
<td>3/7606</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td>0/4604</td>
<td>0/2566</td>
<td>0/2642</td>
<td>0/3538</td>
<td>1</td>
<td>1/2599</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td>0/1441</td>
<td>0/2947</td>
<td>0/2374</td>
<td>0/2659</td>
<td>0/7937</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 2, in the third level of the hierarchy tree of decision, the importance of advertising tools and their overall priority have been mentioned, and the inconsistency ratio of the advertising tools is (0/03).
Table 3. Overall priority and synthesized matrix of each of the public relation tools

<table>
<thead>
<tr>
<th>Public relation tools</th>
<th>Synthesized matrix of each of the public relation tools</th>
<th>Overall priority</th>
<th>Choice preference</th>
<th>incon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Creating relations with the media</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creating relations with the media</td>
<td>1</td>
<td>5/0132</td>
<td>7/3952</td>
<td>7/945</td>
</tr>
<tr>
<td>Holding ceremonies &amp; celebrations</td>
<td>0/1352</td>
<td>1</td>
<td>2/4338</td>
<td>5/4146</td>
</tr>
<tr>
<td>Publishing booklets, brochures, organizing charities</td>
<td>0/1352</td>
<td>0/4108</td>
<td>1</td>
<td>2/8506</td>
</tr>
<tr>
<td>Holding conferences and seminars</td>
<td>0/1258</td>
<td>0/1846</td>
<td>0/3507</td>
<td>1</td>
</tr>
</tbody>
</table>

According to Table 3, in third level of the hierarchy tree of decision, the importance of the public relation tools and their overall priority have been mentioned, and the inconsistency ratio of the advertising tools is (0/07).

Table 4. Overall priority and inconsistency ratio of promotion

<table>
<thead>
<tr>
<th>The choice of promotion mix</th>
<th>Overall priority</th>
<th>Choice preference</th>
<th>Overall incon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising through TV</td>
<td>0/310</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Public relations through creating relations with the media</td>
<td>0/267</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Advertising in newspapers</td>
<td>0/086</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Holding ceremonies and celebrations</td>
<td>0/080</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Advertising in magazines</td>
<td>0/087</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Outdoor advertising</td>
<td>0/068</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Publishing booklets and brochures, organizing charities</td>
<td>0/039</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Internet advertising</td>
<td>0/027</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Radio advertising</td>
<td>0/025</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Holding seminars and conferences</td>
<td>0/020</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 4, among the promotion mix tools, television advertising was the most important and public relations through holding seminars and conferences were the least important, and the overall inconsistency ratio is (0/05).

**DISCUSSION AND CONCLUSIONS**

In the second level of the hierarchy tree of decision, where the criteria were dually compared, the findings showed that among the promotion mix tools (in this work we mean advertisement and public relations), advertisement with a weight of 0.625 is more important than public relations with a weight of 0.601. The research conducted in this field affirms that the advertisement enjoys the overall priority among other promotion mix tools and this result corresponds with the results of the present work (Haqparast, 2004; Rezaie, 2006; Namini, 2006; Rajbaran, 2008; Sabory, 2007).

Considering the research conducted in the field, it could be said that in the present era advertisement is of extraordinary importance and has a special position especially after the development of technologies, and emergence and application of the modern media, raising awareness of individuals regarding modern goods and services. Hence it seems essential for the football pro-league officials to be aware of technology development and application of the modern media for advertisement, and, as the most efficient method for promoting Iran’s football pro-league was known to be advertisement, it is vital for the officials to consider more credit for advertisement in order to gain more success in promoting the League.

In the third level of hierarchy, where the choices were dually compared, the results showed that among the choices of advertisement, the TV advertisement with the overall priority of (0.522) gained the most success in comparison with radio advertisement with the overall priority of (0.041), internet advertisement (0.046), outdoor advertisement (0.115), magazines (0.131) and newspapers with the overall priority of (0.144). Some have shown the TV advertisement as the strongest tool among the measured tools of promotion mix (Rezaie, 2006; Namini, 2006; Samadi, 2008). They have also introduced the TV advertisement as
the oldest and the most efficient advertising method (Deng, 2009). The TV advertisement has also been evaluated as an important factor due to raising sales volume, absorbing new customers, increasing the market share, stabilizing the trademark in the client’s minds and making them faithful to the brand (Ho Hsu et al., 2009). Some others have assessed the role of the mass media, especially the television, in people’s vision as meaningful (Ghafori, 2003) and have mentioned it as an effective factor in creating awareness and positive attitude towards sports (Herrera, 2002). In contrast to this finding, among advertising tools, some have put postal advertisement as the first priority and television ads in the fourth rank (Haqparast, 2002).

Although television advertisement is generally costly, its importance outweighs other promotion mix tools due to numerous reasons like its vast coverage, plenitude of seeing the ads and its influence, combination of sound, motion, and colorfulness in order to create a specific attraction for the senses, its high accessibility and the role it can have in absorbing new customers, increasing the market share, stabilizing the trademark in the clients’ minds. As advertisement was introduced as the most efficient media and promotion tool for the football pro-league, the officials need to allocate considerable importance for that.

In the third level of hierarchy, the findings showed that among public relation tools, the relation through the media, with a final weight of (0.657), has the highest importance compared with other public relation tools like seminars and conferences, with a final weight of (0.048), publishing booklets, brochures and books (0.97), organizing charities, holding ceremonies and celebrations (0.198). Some have mentioned the public relations in their research as one of the important tools of sport marketing and have acknowledged that public relations play an important role in developing the teams through creating relations with the media (Hopwood, 2005; John, 2000). They have also evaluated its role as impressive in supporting the teams, creating more faith, attracting more fans and raising the motives of the addressees (Anderson, 2005; Fabrice, 2008; Jacquie, 2007). Some others have expressed the public relations through media coverage as one of the major constituents of the link between sports and society, and have recognized its application essential to establish a more effective relation (Mangold, 2009; Wan Woo, 2008; Jacquie, 2007). Some others believe its role as effective in holding sport festivals and making the customers aware in the celebrations, and so consider it necessary to conduct more research in this regard (Summer, 2008). On the other side, some say publishing scientific articles and organizing scientific seminars is the most influential among other public relation tools, a belief which does not correspond with the findings of the present work (Haqparast, 2002; Samadi, 2008). This lack of correspondence can be said to be due to the difference in the type of goods and services. Ultimately we should say that what nowadays matters in promoting different products, is the application of an integrated promotional mix (that is using different promotional methods to send a single message). Based on this belief, the football pro-league officials are suggested to take the suitable promotion mix according to the overall priority of any of the main promotion methods considered in Table 4, and the ranking of promotion and public relation tools considered in Tables 3 & 4, together with paying attention to the league’s internal circumstances and the available budgets.

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ENQUÊTE ET SELECTION DES LA COMBINAISON APPROPRIÉE DE PROMOTION POUR LE PRO FOOTBALL-LIGUE D'IRAN, SELON LA MÉTHODE AHP

Résumen:
Aux fins de l’enquête et la sélection de la combinaison appropriée de promotion pour le football pro-League de l'Iran, 13 experts en marketing du sport ont répondu à l'chercheur conçu questionnaire sur la promotion de mélanges. La validité apparente et le contenu a été prouvé par des experts et sa fiabilité en tant que raison du taux d'incohérence des questionnaires qui est inférieure à (0.1) peut être prouvé ainsi. Pour la méthode des données AHP analyse et le choix d'experts (11) logiciels ont été utilisés. Les résultats ont montré que dans le second niveau de la hiérarchie, de la publicité (0.625) était dominante à la relation publique (0.375). Dans le troisième niveau, entre la publicité et des outils de relations publiques, la publicité TV (0.522) et les médias comme l'un des outils de relations publiques avaient respectivement la priorité première et deuxième. Nous pouvons dire que, pour améliorer le football pro-League marketing, la publicité est le critère le plus important et de la publicité TV est le choix le plus important du mix promotion pour le football pro-League.

Mots clés: mix de promotion, la méthode de hiérarchie, le marketing sportif, le football ligue professionnelle,

THE IDEALS OF THE OLYMPIC MOVEMENT

Mohammadi. SARDAR

University of Kurdistan, Sanandaj, IRAN

Abstract:
A review on the aims and ideals of the originator of the Olympic Movement is a sign of humanism, simplicity and reverence for the human race regardless of skin colour, political sect, tenet and social and economic base. The centenary workbook of the followers of this attitude also indicates the sincere attempt that has tried to raise the flag of the Olympic Movement and to develop its humanitarian goals all over the world by policy making and selecting various methods. Accordingly, this article is willing to study the ideals of the Olympic Movement. The method used is historical and uses documents published in articles, magazines and on the internet to elaborate on the main ideals of the Olympic Movement (Citisus, Altius, fortius, education principle, the principle of sincere and friendly match, the principle of the expansion of international friendship and understanding, the principle of developing equal chances, the principle of cultural manifestations in the Olympic Games, independence and inscrutability).

As the method in this research is documentary; there is no statistical sample. The instruments are also articles, theses, the internet, etc., performed by studying, using strap cards, categorizing, codifying and analyzing the content of the data. Finally we come to this important matter through the principles mentioned briefly that as far as holding the Olympic Games has proceeded, it has made a deviance from the mentioned and critical principles in the Olympic Charter and if those responsible in the National Olympic Committee and the International Olympic Academy do not pay attention to this important matter, it is possible that in the next periods and specially in the 21st century this movement faces irrecoverable problems.

Keywords: Olympic ideals, education principle, friendly match principle.
INTRODUCTION

According to the philosophy and tradition remained from ancient Greece and the ideal of the originator of the modern Olympics, the Olympic Games are held with the purpose of spreading peace, friendship (Behmanesh, 1987), health, respect and international understanding, and finally as a means to reach an ideal human society (Chalip, 1991). The Olympic Games have a great historical background and the lovers of the Olympics are always trying to keep the originality of the games according to the provisions mentioned in the Olympic Charter and far from any sort of interference and exertion of political opinions, commercial advertisements etc.

From Pierre de Coubertin’s attitude, the originator of the International Olympic Committee and of the new olympiad period, the Olympic Games is not just a sport event but a critical point in the cultural and social wide movements, the movements which provide means of growth and evolution for the people and changes the world into a place to live healthily in (Mohammadi, 2011).

Coubertin’s proposal to hold the modern Olympic Games was in fact a solution to terminate deep political-social crises in France. Like many of his counterparts he believed that the solution to the social, political and cultural problems of his country is to transform the current circumstances of the society. He pursued the development of sport clubs and following that arose to establish a greater movement that was called the Olympics. In order to finalize his though, he requested a hand from ancient Greece and stepped stably on this path with exact and accurate organization and transferred these principle all over the world. He claimed: “Participation of the youth in sport events results in the appearance of a movement. A movement which can terminate international quarrels in a good way and also spreads message of peace, friendship, and understanding between the nations”.

In other words, Coubertin considered the Olympic Games a basis for making optimal social changes; hence, he named this thought “olympism”. There is a great emphasis on nurturing and empowering moral and physical traits which are the basis of sports in the statute of the International Olympic Committee.

Sport is considered as a means of teaching and rearing the youth because there is a very intimate relationship and understanding among countries in sport places and matches. Gathering young athletes throughout the world at a specific time and place every four years has created the biggest and the most unique sport festival which originates from the principles and bases of the Olympic Charter. If the ultimate aim of the Olympic Movement is to develop and spread the basis of the Olympics and to reach the goals of olympism, it is required to know these principles and goals in a better way.

Coubertin thought about attracting the youth into sport environments in a period that the society of France was involved in great political, social and cultural crises. He put forward the idea of establishing sport institutions in the international arena with the vast view and universal sight that he had toward education; hence, Coubertin and some of his residue and educated friends established the International Olympic Committee by holding a meeting at the Sorbonne University in Paris, on June 23, 1984. Coubertin established this international organization to end the crises with the help of the Olympic Games. Like many of the educational experts of his time, he believed that it is possible to solve many of the social crises by sport. He also believed that making an absolutely competitive organization can encourage the youth of France and can wake them up from their negligence dream. He spread these goals throughout the world and created a universal movement that was very effective in solving political quarrels and disputes between nations.

In 1984 Coubertin wrote: “why did I revive the Olympic Games? This is the answer: in order to empower sport to the extent that it can keep its own continuum and independence; to empower it in order to perform the role appointed to it in this world in the field of education; to exalt the athletes that their physical activity is essential in order to keep the general spirit of sport competitions”.

The aims of the Olympic Movement have originated and spread from Coubertin’s statements. These aims are put forward in the Olympic Charter:
1. Promoting and spreading those moral and physical traits which are the basis of sport.
2. Educating the youth by means of sport in order to bring understanding between them and their friends and also to contribute to making a more peaceful and better world.
3. Promotion of the Olympic principles throughout the world and making a universal benevolence.
4. Gathering the athletes throughout the world in a huge festival every four years in the Olympic Games.

According to the quadruplet aims, we figure out that the Olympic Games is something beyond holding several games every four years in some part of the world. In fact, the basic moral and educational problems of the Olympic Movement are hidden in its nature at the international level. Coubertin has described the Olympic Games as a perfect school of education and the maker of acceptable human behaviour. A school by which it is possible to transfer various cultural, educational and social aims to the adolescents. Now, on the threshold of the 21st century, we should check and see to what extent the Olympic Movement has diverted from Coubertin’s view in practice. Though Coubertin and other former thinkers of this movement, among its ideals and the hopes they had for it, have written a lot of books and articles about it, we should acknowledge that there is no simple and clear definition which can be the basis of planning yet. Hence, as much as it is done in the field of the philosophy of the principles and aims of the Olympic Movement, it is too little yet. Therefore, this research is meant to recognize the ideals and aims of the Olympic
Movement in order to specify the effect of these aims and ideals on its future.

**MATERIALS AND METHODOLOGY**

The method of performing this research is historical and documentary, in an attempt to investigate the ideals and aims of the Olympic Movement by using documentary subjects in articles, books, magazines, theses, dissertations, the internet etc. This article is documentary, so there are no society and statistical sample. The instruments of this article are articles, books, magazines, theses, dissertations, the internet, etc. which is done by studying, using strap cards, categorizing, codifying and analyzing the content of the data.

The subjects covered in this study are:

1. the Olympic Movement
2. *Citius, Altius, Fortius*
3. the education principle
4. the principle of friendly and sincere match
5. the principle of developing international understanding and friendship
6. the principle of establishing equal chances
7. the principle of cultural manifestations in the Olympic Games
8. independence and inscrutability.

In some cases, there are not enough documents or documentary evidence in order to explain completely, which can be considered as one of the limitations of this research.

**RESULTS**

The findings of this part investigate the ideals of the Olympic Movement from different aspects. The Olympic Movement: several organizations are involved in the institution of the Olympic Games, shaping it. The rules and procedures according to which these organizations work are mentioned in the part of olympic. This committee is addressed as the Olympic Government because the task of solving problems and making vital decisions such as choosing the host of the games and planning the Olympics belongs to this committee.

Three organizations form the Olympic Committee at the professional level:

1. the International Federations (IFs): the parties controlling each sport (for example: FIFA or Football International Federation, FIVB or Voleyball international federation).
2. the National Olympic Committee (NOCS): directs the Olympic Movement in each country (for example: USOC or the National Olympic in the United States)
3. the committee planning the Olympic Games (OcoGs): committees responsible for controlling special events in the Olympics (Mohammadii, 2011).

**DISCUSSION AND CONCLUSIONS**

The Olympic principles can be stated in the form of exact and definite aims that the Olympic Movement wants to be recognized. It is obvious that the International Olympic Committee and the National Olympic committees have not followed these principles and goals in a uniform manner and with a similar purpose. The definitions stated for these principles do not have a general character and firmness and are used more for putting problems forward and discussing them.

1. **Citius, Altius, Fortius**

The principle of “Citius, Altius, Fortius” can be considered as a principle needed to reach the highest levels in a sport. Contrary to the current idea, in his time that emphasized on keeping the middle and satisfaction extent, Pierre de Coubertin encouraged reaching the highest levels. He thought that “trying and making attempt donate the most pleasure to man and success is not an aim by itself; but a means to reach the highest positions”. The spirit of this principle can be found in the famous motto of the Olympics. These mottoes have remained from that time up to now and have become objective in competition of the athletes and have created a lot of beauties and complex movements in the Olympic festivals.

The National Olympic Committee follows reaching the best levels by various methods:

- selection of the best sport teams to participate in the Olympic Games and the continental ones;
- respecting the most outstanding athletes and elite coaches;
- attending the committees holding games in the citizen country in order to supervise the exact and complete performance of the games;
- planning for the camps and the preparatory games for the sport teams
- cooperating with other organizations in order to extend buildings and existing sport spaces and also to improve the best ways to use them in sport activities.

The mentioning of these aims brings about important problems automatically. The pursuit of the principle of the best is an important matter and reaching it requires an important argument about determining standards and records. The general ideas of the Olympic Games and of the continental ones, involving the criteria of choosing the athletes and the records needed in order to choose national team members in various majors, are scrutinized seriously (Shantz, 1998).

2. **The principle of education**

Since all of the founders of the National Olympic Committee have been among the experts and thinkers in the field of education and have been among the elites of this scientific field in their own period, they have paid a lot of attention to education. Coubertin wrote an article in 1890: “Education has a great importance in people’s lives nowadays. Sport constitutes the main and spiritual part of this education. Sport not only strengthens the muscles but also perfects
personality. This aim is portrayed in the traditional Olympic Games and the belief that says practice and competition should be antecedents in order to build the permanent personality of the athletes”.

The principal matter in the Olympic Games is not winning, but participating. The most significant work in life is not to win but to try. The most basic principles are not defeating but combating well.

In this article Coubertin reminds that the basis of attendance in competitions and sport fields is not winning, but participating and it does not exhibit defeat or victory. He emphasises attempting which should be part of people’s lives. The most important of all is that he stresses on a sport that gives people a chance to know themselves and provides the possibility of growth for them. Accompanied by this aim, other problems turn up. One of them is that there is not necessarily any educational aspect in physical activities. Some scientific observations demonstrate that some difficult sport activities have pathogenesis aspects before having educational aspects (Sagadi, 2000).

3. The principle of sincere and friendly match

This principle conforms totally with one of the Olympic aims: “Athletes should obey rules and should not follow getting dishonest privileges by using barred tonic drugs or other mediums. In the Olympic Games, some of the athletes commit such crimes to win medals. The athletes should regard each other not as enemies but as playmates. They should not forget respect while they are confronted with each other seriously. The attempt of the executives of the Olympic Movement can be supplying a space in which coaches, managers and athletes compete with each other in mutual understanding”.

The subjects that can be discussed here are:

- Is it possible to draw a distinction between scientific acceptable mediums and scientific unacceptable mediums?
- What can be implicated from wrong score in the framework of the Olympic Games nowadays?
- How can managers, coaches, supervisors and athletes show severe reaction to dishonest and wrong sport methods (Sajadi, 2006)?

4. The principle of the development of international friendship and understanding

One of the most desirable points about the Olympics is that international sport leads to international friendship, meaning that the people of the world should make better understanding of each other through games and therefore resort less to force in order to solve their problems. That is why, according to one of the provisions of the Olympic Charter, the Olympic International Committee requires the host country to give entry visa to all of the eligible participants without any attention to their citizenship.

Exchanging presents and sport garments in the olympic village and the attendance of all of the athletes and officials in the opening and ending ceremonies are other manifestations of this ideal. But there are some people who believe that the current way of using national clothes, national flags and songs contribute more to enemity than friendship. In order to prove this claim, they refer to the periods of the Olympic Games that have been empty of friendship due to sanctions and political inimical operations (Yerles, 1994).

5. The principle of establishing equal chances

This principle, which follows the principle of education, underlines the observance of equality and parallelism in sharing educational chances for all the people. If we assume that sport is a sort of education so we should give it to everyone equally, and according to Coubertin, we should perform the principle of liberalism in rearing the youth. For example in order to encourage 50 to do sport exercise, we should give a chance to 100. From the 50 who practiced in a particular major, we should choose 20 and take them to the extent of specialty. From the 20 who are under proficiency instruction, we should choose 5 with outstanding abilities. This continuum circuit can be broken because each circuit emanates from the previous one. In spite of the importance of establishing equal chances, there is a great inequality in sport competitions which has become the leaven of different societies. For example, in Iran most of the national teams are composed of the youth of the capital cities, those living in the center and in the prosperous social and economic places.

At the international level, most of the medals are devoted to the athletes who are citizens of developed countries. They estimate their value by gold and dollar equivalents while the athletes of the third-world countries do not have such privileges. Another important point here is making equal chances for women. Though the International Olympic Committee has put the patriarchy beliefs aside, yet by a look at the current structure, it can be observed that both memberships and programs are all to the benefit of men. For example, if we consider the Olympic Games in Athens in 2004, the male participants were twice as much as the female ones. The programs of the games for men were greater too in a way that the programs of the women were restricted only to some limited sport events. Of course, this matter was somehow compensated in the 2008 Olympics (Shantz, 1998).

6. The principle of cultural manifestations in the Olympic Games

Coubertin also wanted to promote the human culture by encouraging pictorial arts beside the Olympic Movement but it was not attended to as much as it deserved. He believed that there is a must to open the doors of shrines and to invite all of the people to the world of human culture. It was as a result of his resistance that simultaneously with the Olympic Congress in 1906, some matches occurred in the fields of music, sculpture, painting, literature and architecture, and gold, silver and bronze medals were distributed among the winners. It is worth saying that Coubertin himself sent a poem to these matches by his nickname and was awarded a gold medal. From 1948, artistic festivals stood instead of
these games and from that time, simultaneously with the Olympic Games, artistic and cultural festivals are held, which adds to the prosperity of the Games.

On the other hand, modern architecture in the structure of the Olympics and the popularity of artistic sports such as gymnastics, diving, etc. attracted the attention of the people to the beauty of physical activities.

Nowadays, we observe great artistic festivals, films, concerts, first-hand theaters and exhibition of the masterpieces of famous artists in the Olympic Games (Ritter, 1987).

7. Independence and inscrutability

As mentioned earlier, like his advisor and incentive, Fredrick Lophi, Coubertin was thinking about finding social and cultural procedures instead of using political ones in order to solve different problems and difficulties that France was facing. Hence, he was always a supporter of the separation of sport from political and governmental interferences. He accepted no governmental responsibility and separated his political records totally from educational and sport affairs. Even at the time of establishing the International Olympic Committee, he refused membership in this committee in a free manner and allocated all his attempts to make the membership in this organization according to activity, commitment and sport dutifulness because he was always afraid of exerting political forces. The leaders of the International Olympic Committee who leaned at the presidency seat of this organization after Coubertin respected his beliefs and even in some very critical points they could prevent the force and interference of governments and political critics. That is why nowadays the International Olympic Committee has performed better than similar organizations in the world in its commitment to keep sport independent and inscrutable, and it is well-known for this. A witness of this claim is the respectable resistance and perseverance of the International Olympic Committee against the severe pressures imposed by one of the powerful national Olympic Committees that wanted a revision in the Olympic affairs of 1980. In spite of all these, it should be accepted that the performance of this belief and keeping the motto “policy does not mix with sport” in this world and in the circumstances that the world is facing at the beginning of the 21st century, we need to establish and follow a very complex strategy. The reality is that today’s world cannot perform the philosophy of separation of sport from policy. In most countries such as Iran, providing facilities for the participation of the athletes in the Asian Olympic Games is frequently on the government. Olympic international owes its power and position to following political methods too. That is why Lord Kilanin, in the period of his presidency in the International Olympic Committee, reasoned in this way: “it is not possible to imagine sport from policy separated any more; but it is possible to keep sport away from political jobberies (Yerles, 1994; Sajadi, 2006).

EPILOGUE

If Coubertin were present in the beginning years of the 21st century and in the 2008 Olympics, his feelings would be maybe drowned in the waves of consent and amazement. Today, the Olympic Movement has become a universal movement and the attendance of 120 members in the last session of IOC with various races, colours, religions and social-economic categories demonstrates the anticipation of all countries from this important event.

According to the principles studied briefly, we come to this important conclusion that as far as holding the Olympic Games has proceeded, it has diverted its way from the important principles in the Olympic Charter and if those responsible in the National Olympic Committee and the International Olympic Academy do not deal with this important matter, this movement may face irrecoverable problems in the following periods and especially in the 21st century.

As a final conclusion, we can acknowledge that getting far from the Olympic ideals has brought about today’s threats and getting close to these goals, that emanate from the thoughts of the originators of this movement, can rescue this great movement. In fact, it is necessary to deal more with spiritual and main bases of sport in order to keep public support, perform fair plays and offer equal chances and in order to avoid matters such as professionalism, political tensions and problems, racism, political priority, etc. in sport and in order for the Olympics to return to its main path which is establishing friendship and peace in the world. One of the main tasks of the Olympic Academy in any country is checking matters such as helping the National Olympic Committee in that country so that they do not divert from the Charter and the main principles of the originators of the Olympic Movement while performing duties and so that they reinforce and promote these principles which originate from a disciplinary thought.

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IDÉAUX DU MOUVEMENT OLYMPIQUE
Résumé:
Un examen sur les objectifs et les idéaux de l’auteur du mouvement olympique est un signe de l’humanisme, la simplicité et de respect pour la race humaine, sans aucune attention à la couleur de la peau, secte politique, principe et la base sociale et économique. Le classeur centenaire des partisans de cette attitude indique aussi la tentative sincère qui a tryed de hisser le drapeau du mouvement olympique et à développer ses objectifs humanitaires dans le monde entier par l'élaboration des politiques et le choix des méthodes différentes.
En conséquence, cet article est disposé à étudier les idéaux du Mouvement olympique. La méthode utilisée est historique, qui utilise des questions documentary dans les articles, magazines et Internet pour des précisions sur les idéaux principaux de Mouvement olympique (Citius, Altius, Fortius, l’éducation principe, le principe de correspondance sincère et amicale, le principe de l'expansion de International amitié et la compréhension, le principe de l’égalité des chances en développement, le principe de manifestations culturelles dans les jeux olympiques, l'indépendance et impénétrable).
Comme la méthode de cette recherche documentaire est, il n’ya pas un échantillon statistique. Les instruments de la recherche sont aussi des articles, thèses, etc Internet qui sont effectuées par l'étude, l'utilisation de cartes de courroie, la catégorisation, la codification et l'analyse du contenu des données. Enfin nous arrivons à cette importante question à travers le bref les principes mentional que dans la mesure du maintien des Jeux Olympiques a procédé, il a fait un écart par rapport aux principes énoncés et critique dans la Charte olympique et si les responsables du comité national OLYMPIQUES et l'Académie internationale olympique ne faites pas attention à cette importante question, il est donc possible que dans les périodes à venir, et spécialement dans century21 ce mouvement face à des problèmes irrécupérables.
Mots clés: idéaux olympiques, principe de l’éducation, le principe match amical

A STUDY ON THE CORRELATIONS BETWEEN THE MOTOR AND THE COGNITIVE INTELLIGENCE QUOTIENTS OF STUDENTS IN FOOD SCIENCE

Liliana NANU, George Danut MOCANU

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract: Intelligence is not a generally valid criterion, each individual having his own array of knowledge and skills, which sets him apart from all the others. Moreover, no individual can be labeled “stupid”, just because he might or might not have mathematics, biology, linguistics or sports related knowledge, due to the fact that he certainly excels in other fields.

Keywords: Intelligence of the language, mathematic intelligence, visual intelligence, cognitive intelligence

Man is a live, hyper-complex system, a synergy between body and spirit, considered to be the mere essence of life on earth, due to his unparalleled evolution, regarding but not resuming to biological and psycho-social aspects.

From the earliest times, it became obvious that people are different, both physically and intellectually, philosophy being the science that has dealt with the differences between people, rightfully determining the fact that some people have increased physical skills, others are more intellectually gifted, thus being able to better cope with day-to-day issues.

Gilles Azzopardi is the author of one of the most complex definitions of intelligence, stating that “intelligence is a mental aptitude which involves, among others, the ability to reason, foresee and solve problems, think in an abstract manner, understand complex situations, learn fast and fully make use of past experiences”.

In modern society, the theory according to which intelligent people are prone to be more successful, powerful and influential, while less intelligent people are seldom marginalized and rejected, seems to have lost its relevance. It would be fundamentally wrong to assume that someone is not intelligent simply because he or she has little to no math, sports or biology skills, as they might be stellar in many other aspects.

Moreover, it must be stated that intelligence is not even a concept, each person being individually better at some things and bad at others.

Intelligence is not a homogeneous concept. As a matter of fact, there are many types of intelligence: verbal, non-verbal, emotional, cultural, motor, etc. Besides, tests
determining the intelligence level might be influenced by an entire array of factors, such as the subject’s gender – boys will give better answers to spatial items, while girls are prone to give better answers to verbal items. The same theory applies to tests determining motor ability, where boys score better at strength evaluations and girls score better at coordination and agility ones.

Through its approach, the hereby paper aims at stressing upon the motor and cognitive intelligence level of students in Food Science (FSIA), analyzing the evaluation and correlation of the processed data.

The research goal consists of evaluating the motor and cognitive intelligence quotient of the Food Science students.

The purpose of the paper is to inform, stress upon and correlate the data concerning the motor and rational intelligence level of the Food Science students, in particular, and young adults aged between 19 and 25, in general.

The working hypothesis assumes that a good level of information and better yet a good management of the cognitive and motor skills may positively influence the evolution of personal events.

The employed research methods are as follows: analysis of specialised literature, educational observation, physical test, polls, mathematical methods, the psychometric method.

The scientific approach has taken place between November 15, 2011, and March 15, 2012, on a lot of 197 students of which 86 boys and 111 girls.

The motor intelligence or physical training test (IQP) was structured as a complex of coordinated moves, in 16 steps, the results being assessed by allotting one point for each correctly executed move. The final score has been evaluated as follows: 15-16 points = very good results, IQ – around 130, 13-14 points = good result, IQ – around 120, 11-12 points = above average result, IQ – around 110, 9-10 points = below average result, IQ – around 100.

The cognitive intelligence tests have been assessed in accordance with the data supplied by the specialised literature and edited by Horst H. Siewert.

Three cognitive tests have been selected: a language intelligence test – IQL – (30 items), a mathematical intelligence test – IQM – (29 items) and a visual intelligence test - IQV – (40 items).

The evaluation was made by giving one point for each correctly approached item, as follows:

- **the language intelligence test** – 26 - 30 points = very good results, IQ – around 130, 23-25 points = good result, IQ – around 120, 20-22 points = above average result, IQ – around 110, 17-19 points = below average result, IQ – around 90, 13-16 points = weak result, IQ – around 80, 12 points and below = very weak result, IQ below 70
- **the mathematical intelligence test** – 26-29 points = very good results, IQ – around 130, 23-25 points = good result, IQ – around 120, 20-22 points = above average result, IQ – around 110, 17-19 points = below average result, IQ – around 90, 15-16 points = weak result, IQ – around 80, 14 points and below = very weak result, IQ below 70
- **the visual intelligence test** – 35-40 points = very good results, IQ – around 130, 31-41 points = good result, IQ – around 120, 27-30 points = above average result, IQ – around 110, 26-28 points = below average result, IQ – around 90, 11-16 points = below average result, IQ – around 90, 10 points and below = very weak result, IQ below 70

After having processed the results of the motor, language, mathematical and visual intelligence tests, considering the information given by the specialised literature, the conclusion infers that the tested students scored below average values at the motor intelligence tests (98.5), above average at the language intelligence tests (109.7) and below average at the visual and mathematical intelligence tests. Gender-wise, boys scored lower values than girls in three of the four applied tests – table 1.

### Table 1.

<table>
<thead>
<tr>
<th>Statistic data</th>
<th>∑</th>
<th>x</th>
<th>σ</th>
<th>± m</th>
<th>V%</th>
<th>t</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIFFERENCE BETWEEN RESULTS - BOYS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IQL</td>
<td>1207</td>
<td>97.9</td>
<td>4.3</td>
<td>13.6</td>
<td>0.20</td>
<td>0.08</td>
<td>0.001</td>
</tr>
<tr>
<td>IQL</td>
<td>1344</td>
<td>109.2</td>
<td>3.6</td>
<td>9.4</td>
<td>0.18</td>
<td>0.69</td>
<td>0.09</td>
</tr>
<tr>
<td>IQL</td>
<td>1687</td>
<td>87.3</td>
<td>2.8</td>
<td>7.7</td>
<td>0.11</td>
<td>0.67</td>
<td>0.09</td>
</tr>
<tr>
<td>IQL</td>
<td>1242</td>
<td>101.3</td>
<td>3.4</td>
<td>9.1</td>
<td>0.15</td>
<td>0.20</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>DIFFERENCE BETWEEN RESULTS - GIRLS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IQL</td>
<td>1568</td>
<td>99.1</td>
<td>3.1</td>
<td>14.6</td>
<td>0.04</td>
<td>0.03</td>
<td>0.0006</td>
</tr>
<tr>
<td>IQL</td>
<td>1752</td>
<td>110.3</td>
<td>2.5</td>
<td>8.9</td>
<td>0.02</td>
<td>0.65</td>
<td>0.14</td>
</tr>
<tr>
<td>IQL</td>
<td>1444</td>
<td>91.3</td>
<td>2.7</td>
<td>11.5</td>
<td>0.03</td>
<td>0.42</td>
<td>0.07</td>
</tr>
<tr>
<td>IQL</td>
<td>1541</td>
<td>97.7</td>
<td>2.9</td>
<td>10.9</td>
<td>0.05</td>
<td>0.07</td>
<td>0.001</td>
</tr>
<tr>
<td><strong>DIFFERENCE BETWEEN RESULTS - BOYS AND GIRLS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IQF</td>
<td>1387</td>
<td>98.5</td>
<td>3.7</td>
<td>14.1</td>
<td>0.1</td>
<td>0.05</td>
<td>0.0008</td>
</tr>
<tr>
<td>IQL</td>
<td>1548</td>
<td>109.7</td>
<td>3</td>
<td>9.1</td>
<td>0.1</td>
<td>0.67</td>
<td>0.11</td>
</tr>
<tr>
<td>IQM</td>
<td>1265</td>
<td>89.3</td>
<td>2.7</td>
<td>9.6</td>
<td>0.07</td>
<td>0.54</td>
<td>0.08</td>
</tr>
<tr>
<td>IQV</td>
<td>1391</td>
<td>99.5</td>
<td>3.1</td>
<td>10</td>
<td>0.1</td>
<td>0.13</td>
<td>0.001</td>
</tr>
</tbody>
</table>
From a statistical perspective, considering the arithmetic mean of the two groups, both boys and girls, one can infer that girls scored 99.1 points on average, compared to the boys’ average of 97.9 points, thus resulting in a difference of 1.2 points between the two groups. At the language intelligence evaluation, both groups scored similar values, while at the mathematical intelligence evaluation, the girls scored higher values by 0.6 points than boys and at the visual intelligence, the boys scored higher values than girls by 1.4 points – image 1.

In both cases, the variance coefficient for both groups shows great homogeneity and little variability, even if the difference between the two groups is significant, in all the three tests. The standard deviation of the boys has a greater value than the one of the girls. The “t” variable has almost equal values for both groups, being nonetheless below the significance threshold (P>0.05), the two groups showing minimal differences. The comparative analysis of the motor and cognitive intelligence quotients of the boys group (n=86) and the girls group (n=111) is shown in Table 2.

<table>
<thead>
<tr>
<th>Test</th>
<th>BOYS</th>
<th>GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x ±m</td>
<td>t</td>
</tr>
<tr>
<td>IQF</td>
<td>97.9 ±13.6</td>
<td>0.08</td>
</tr>
<tr>
<td>IQL</td>
<td>109.2 ±9.4</td>
<td>0.69</td>
</tr>
<tr>
<td>IQM</td>
<td>87.3 ±7.7</td>
<td>0.67</td>
</tr>
<tr>
<td>IQV</td>
<td>101.3 ±9.1</td>
<td>0.20</td>
</tr>
</tbody>
</table>

The “t” variable has almost equal values for both groups, being nonetheless below the significance threshold (P>0.05), the two groups showing minimal differences. The comparative analysis of the motor and cognitive intelligence quotients of the boys group (n=86) and the girls group (n=111) is shown in Table 2.

The intensity of the connection between the four variables, motor, language, mathematical and visual intelligence was computed based on the calculation of the simple correlation “r”, in which case when the coefficient reaches ±1, the intensity of the connection is strong, and when the coefficient reaches 0, the intensity of the connection is weak. The analysis of the correlations between the four intelligence tests proposed to the Food Science students has proven that the intensity of the connections between the tests is average; therefore it is safe to assume that they are interdependent (Image 2).

It can be concluded that the students have above average language skills, but limited motor, mathematical and
visual skills, mostly determined by the courses they had taken in high school.

Consequently, the above results confirm the working hypothesis, according to which, when based on a thorough level of information, but most importantly, on a good management of the cognitive and motor skills and knowledge, an accurate assessment of the personal intelligence can be carried out, which could further positively influence a successful life.

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PROJECTING THE STRENGTH LEARNING UNIT TO THE LOWER SECONDARY (ADVANCED VALUE GROUP - 8TH GRADE)

George Danut MOCANU
Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
Projecting learning units on value groups requires a more complex than the one imposed when planning frontal activities, claiming varied means or complicating them and including a different dosage, considering the fact that the work time is identical for all the groups, which renders the motor ability related themes prohibitive for an alternate approach of the work groups. The variety of means included in the experimental curricula for each motor ability and value group, similarly to the relative dosages, with a superior and inferior limit (Example: 2J3 series x 4J12 repetitions), allow the teacher to adapt the educational process based on the existing material conditions, but most importantly, based on the students' reaction to the proposed means.

Keywords: Lesson plan, differentiated approach, accessibility, muscular strength, effort dosage

INTRODUCTION
Strength is the motor ability we exclusively need in order to be able to move. Therefore, increased attention must be granted to the dosage of the effort, through an optimal effort potential – workload quota, any excess leading to great neuro-muscular tension, with negative effects on the nervous, circulatory and respiratory systems. With regard to educating the force potential at various ages, specialists fail to reach an agreement. In the first phase of puberty, the solicitation value must not be greater than 30% of the body’s mass, reaching 75% at 14 years of age. Once the body has fully matured, the solicitations may be equal or greater than the mass of the body. Given the functional particularities of the lower secondary students, the annulment or reduction of the pauses in order to increase the intensity of the effort is prohibited, the only option being in this case the increase in the work frequency. The breaks given after each training cycle lead to a better effort management. The pauses are longer when strength is trained together with speed or handiness, as the nervous system requires an optimal excitability and thus the body must be allowed to rest. When strength is trained in combination with endurance (mainly developed through circuit exercises), the pauses can be shortened.
WORK HYPOTHESIS AND CONTENT OF THE EXPERIMENT

The students were divided into three value groups, which allowed a better selection, planning and rational dosage of the employed action systems, also diversifying the working method based on the real potential of the students.

The advanced value group was subject to a level of training that exceeds the medium level of the students, the number of students included in this group being more reduced, boys being numerically superior to girls. The concerns related to developing strength were focused on different muscle groups and segments and tested at the end of the two theme cycles (superior and inferior limbs for the first one, back and abdomen for the last one). Moreover, at the end of the second cycle, there are four lessons that educate the endurance strength by the circuit work method, alternating and training all the muscle groups. The first lesson system was put into practice in November-December and consisted of 8 lessons.

The allotted time is greater than the one of the first two lessons (10'-15'), due to the combination of alternative themes and making up for a great debut of the indoor activities. In the other lessons, the number of themes increases (the applicable skills are introduced, together with the gymnastics equipment, which require great efforts and thus educate strength better) – therefore, the allotted time shall be reduced (8'-10'). The manners of manifestation are approached with the strength of the inferior legs and the planned means are diversified (exercises with the weight of the body – squats, jumps, tractions, throwing medical balls, cane, gymnastics bench and fixed ladder), alternating the individual work with the one in pairs for each value group. The effort was directed towards the development of the muscle groups, gradually increasing the value of stimuli for new adaptation forms. For length reasons, the paper only presents the first lesson system for the advanced value group.

CONCLUSIONS AND RECOMMENDATIONS

- Less demanding exercises are recommended (medical balls, sand bottles, light weights, the weight of the body), and those based on external endurance and increased effort must be considered based on the features of each student. No matter what the employed means might be, the muscles and joints must be prepared before the beginning of the strength training.

The execution order of the strength exercises can be carried out in two ways:

1. vertical planning: the exercises are different, allowing the muscles to rest and further training other muscle groups through new exercises. The positive effect is given by the faster and better recovery, thus reducing the allotted time period;
2. horizontal planning: the same exercise has to be repeated many times without combining any other exercises.

The effort leads to hypotrophy and local muscular fatigue, the allotted time being greater than in the first case.

The unknown exercises or the ones not mastered well enough aimed at developing weak muscle groups must be avoided; the effort must be applied gradually and the number of repetitions must be determined individually.

The strength exercises must be alternated with the relaxation ones, which are aimed at resting the contracted muscle fibers.

The static exercises must be alternated with dynamic ones (at the higher value groups), in order to increase the efficiency; in the first lessons of the theme cycle, no increased intensities will be employed – execution speed, movement amplitude – slow and controlled movements will be used in order to prevent the ligament ruptures and tendon ruptures;

Determining the tempos and recovery intervals must be individualized, even if the action is complicated, the force effort leading to a rapid depletion of the energy resources.

Concerning the medium values, the 30” pauses allow the recovery of only 50% of ATP and CP – therefore the effort is not well tolerated, the 60” ensure an increased concentration of lactate, and those that last between 3’ and 5’ allow the full recovery of the ATP and CP.

The individualization of the effort can be carried out through various ways:

1. by respecting the work time and predetermined pauses, but the effort must be dosed individually;
2. each student modifies the work time and pauses duration based on his or her own needs, in order to carry out an imposed number of repetitions (harder to achieve in the physical education lessons that approach at least two lesson themes).
**Table.** Projecting the “Strength” learning unit, 8th grade

Lesson no. 8; Theme cycle: 1; Value level group: **advanced**; Period: **November - December 2007**

<table>
<thead>
<tr>
<th>Nº</th>
<th>Ref. Ob.</th>
<th>Ob. Major Ops.</th>
<th>Content Details</th>
<th>Examples of learning activities</th>
<th>Estim. dose</th>
<th>Resources</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.1 1.2 1.3 3.1 3.2 3.3 4.1 4.2</td>
<td>Educating the segment force and surface Explosive force Mobility</td>
<td>In pairs, back to back, with the arms up and one hand joining a gymnastics cane, alternatively lunging forward while the partner broadly extends and arches the shoulders (3 x 30” per student) Lunging forward on the right foot, changing the lunging leg by jumping (3 x 12 repetitions) From laying face down on the gymnastics bench, tractions on one arm (changing the arm after each repetition) (4 x) Chained length jumps (3-4 x 6 jumps). Actively exercising during breaks</td>
<td>10’–15’</td>
<td>Gymnastics canes Gymnastics benches</td>
<td>Predictive</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>same same same</td>
<td>same</td>
<td>From resting one leg on one of the fixed ladder’s steps, arms on another step at shoulder level, lifting and lowering the body with the other leg being strapped to a heavy object (2 x 12 repetitions) From laying face down, the legs on the gymnastics bench, push ups while clapping the hands (2 x 7 – 10 repetitions) Squats on one leg, alternated with jumps and rotating the body by 90° or 180° (2 x 25”) In pairs, face down, heads near, rested on one arm and reciprocally touching one hand (3 x 30”) Exercises educating the respiration during the breaks</td>
<td>same same same</td>
<td>Fixed ladders Gymnastics benches</td>
<td>Current</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>same same same</td>
<td>same</td>
<td>Repeated jumps over 4-5 obstacles of different heights (30 – 40 – 50 – 60 cm) (3 x) In pairs, face to face, passing the large medical ball through various means, the distance between partners being of (6 – 9 m) (2 x 1) Lifting the gymnastics bench, which has one margin on the fixed ladder (lifting it from the ground side above the head and getting it down again) (2 x 10-12 repetitions) Transporting the partner in the back (2 x 10 – 15 m) In pauses – rotations, swings, swirls, muscle training extensions</td>
<td>8’–10’</td>
<td>Obstacles Medical Balls Gymnastics benches Fixed Ladder</td>
<td>Current</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>same same same</td>
<td>Idem L3</td>
<td>same same same</td>
<td>same same same</td>
<td>same same same</td>
<td>Obstacles Medical Balls Gymnastics benches Fixed Ladder</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>same</td>
<td>Optimizing the strength of the arms and legs through complex efforts Segment mixed and dynamic force</td>
<td>Tractions on a fixed rod, alternated with moment of maintaining the hanging position, with bent arms (2 x 7 – 8 repetitions) Laying down on a side, knees flexed and feet pointing up, the partner puts the hands on the other one’s feet, followed by a strong extension of the legs, trying to win the partner over (2 x 10 – 15 repetitions) Hanging from the last step of the fixed ladder (up), descending on the arms, keeping the legs flexed (2 series) In pairs, crouching, one leg extended frontally, holding both hands and jumping from one leg to the other (2-3 series x 20”)</td>
<td>same Fixed ladder</td>
<td>same</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>same same same</td>
<td>same</td>
<td>same same same</td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
<td>same same same</td>
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<td>same same same</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>same same same</td>
<td>same L7</td>
<td>same same same</td>
<td>same idem</td>
<td>Self-evaluation</td>
<td></td>
<td></td>
</tr>
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</table>
REFERENCES:

LA METHODOLOGIE DE PROJECTION L'UNITE D'APPRENTISSAGE DE RESISTANCE A LA VALEUR GROUPE INFERIEUR SECONDAIRE AVANCE (8È ANNEE)

Résumé: La projection des unités de valeur impose un effort plus élevé que celui demandé par les activités frontales, soit en utilisant des moyens variés, soit en compliquant quelques moyens communs et le dosage différencié, tandis que la durée reste la même quelle que soit le groupe d’élèves entraîné, les thèmes abordant des qualités restrictives aux groupes de travail. La variété des moyens inclus dans le programme expérimental pour chaque aptitude physique et groupe de valeur, tenant compte des limites inférieures et supérieures (Exemple: 2-3 séries x 4-12 répétitions), permet au professeur d’adapter le processus éducatif aux conditions matérielles existantes, mais notamment à la réaction des élèves aux moyens proposés.
Mots clés: plan de leçon, traitement différencié, accessibilité, force musculaire, dosage de l’effort

DEVELOPMENT LEVEL OF COORDINATION SKILLS IN ELEMENTARY SCHOOL PUPILS

Petronel MOISESCU¹, Ali GÜRBÜZ²

¹“Dunarea de Jos” University of Galati, ROMANIA
²Department of Physical Education and Sports, Mimar Sinan Fine Arts University, TURKEY

Abstract:
The degree of motor skills manifestation changes with age. To put it simply, three periods of development may be found: a growth phase in childhood and adolescence, a “plateau” phase, and a decrease phase in adulthood. Individual development exhibits, as specialised literature noticed and described, sensitive and critical periods. Sensitive periods are characterised by the more intense response of the body to external stimuli in certain periods. In return, critical periods are seen either as a phase when it is necessary to apply certain stimuli to reach well determined development effects, or as a stagnation, if not plain involution phase.
Keywords: Pupils, elementary education, physical education curricula, motor skills, coordinative skills.

INTRODUCTION
Elementary school includes pupils aged 7-11, an age group representing an essential moment in the child’s life due to the changes that occur. Small children (pre-puberty 6–11 year-old girls and up to 12 year-old boys), characterised by the beginning of school and an impetuous gestural behaviour, display an overt attraction towards sport and sporting competitions. This age (as children are small and light) may be considered a highly favourable stage in learning for the basic technical training.
Training coordination, according to specialists, should be introduced when the plasticity of the nervous system is high, and motor habits have not yet become permanent. The scope of coordination training changes in adolescence, when the physical development alters the motor habits already formed. During this stage, the refining of motion should be more important than acquiring new motor skills. In the post-adolescence stage, coordination training may be brought again to a new higher level.
In order to achieve the analysis of the parameters of coordination skills, a set of 11 sporting tests was used, divided according to the 5 manifestation forms of the coordination skills. Thus, in order to assess and regulate the dynamic and spatial-temporal parameters of the motor act, 2 tests were used, viz. marking leaps, and ball throwing to a target with the back turned; to assess balance, 3 tests were used, viz. balance on the gym bench, the dynamic balance test, and the backwards walking balance test; to assess rhythm, the sprint in a given tempo was proposed as a test; to assess spatial orientation, the 4th manifestation form of coordination skills, the square test and the distance assessment test were used; to assess movement
coordination, the relay, hexagonal obstacle and Matorin tests were used.

The motor test was performed on a lot of 255 boys aged 7-11, out of whom 64 pupils aged 7 and 8, 63 boys aged 8 and 9, 63 boys aged 9 and 10, and 65 boys aged 10 and 11. The tests were organised and carried out in the city of Galați.

As a result of the tests applied to the subjects, the statistical indices were calculated, concerning the value distribution and result homogeneity. The average obtained from these measurements are shown in Table 1.

To assess the coordination skill, i.e. “the assessment and regulation of the dynamic and spatial-temporal parameters of the motor act”, two tests were used, viz. “marking leaps” and “backwards overhead ball throw to a target”.

In the event called marking leap a continuously increasing progress is to be observed, with different growth rhythms. The boys’ performance has an average of 12.23 cm in the first grade, and an average of 5.39 cm in the fourth grade, thus registering an increase of 107.69%. At the same time, the progress in absolute value during the four years of study is 6.84 cm.

The most significant progress is seen in the third and fourth grades. Thus, in absolute value the progress made is 3.68 cm, and 2.21 cm respectively.

The analysis of the indices on homogeneity in this test evinces that the standard deviation is between 4.23 and 1.1, and the variability coefficient is between 34.57% and 20.31%. The highest homogeneity is recorded at the end of the cycle, i.e. in the fourth grade.

The second test, backwards overhead ball throw to a target, shows that the subjects’ performances go up with age. Boys register a progress index of 44.65% during the four years.

In absolute value, the boys’ progress is 1.92 points. The best performance occurs in the second and third grades when the group averages increase by 0.94 points, and 0.56 points respectively, meaning an increase of 21.9%, for the second grade, and 10.61% for the third grade.

Just like in the initial test, the highest homogeneity occurs in the fourth grade, i.e. at the end of the cycle.

### Table 1. Centralisation of the 4-year evolution of coordination skills in boys (n=255)

<table>
<thead>
<tr>
<th>No.</th>
<th>Manifestation forms of the coordination skills</th>
<th>Test</th>
<th>grade</th>
<th>Subject no.</th>
<th>$X$</th>
<th>$\delta$</th>
<th>$\text{cv}$</th>
<th>$\pm m$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assessment and regulation of the dynamic and spatial-temporal parameters of the motor act</td>
<td>Marking leap (cm)</td>
<td>1</td>
<td>64</td>
<td>12.23</td>
<td>4.23</td>
<td>34.57</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>63</td>
<td>11.28</td>
<td>3.24</td>
<td>28.74</td>
<td>0.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>63</td>
<td>7.60</td>
<td>1.55</td>
<td>20.43</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>65</td>
<td>5.39</td>
<td>1.10</td>
<td>20.31</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ball throwing to a target (pct)</td>
<td>1</td>
<td>64</td>
<td>4.30</td>
<td>1.98</td>
<td>46.11</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>63</td>
<td>5.24</td>
<td>2.33</td>
<td>44.54</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>63</td>
<td>5.79</td>
<td>2.24</td>
<td>38.61</td>
<td>0.28</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>65</td>
<td>6.22</td>
<td>1.96</td>
<td>31.48</td>
<td>0.24</td>
</tr>
<tr>
<td>2</td>
<td>Balance maintenance</td>
<td>Balance on the gym bench (sec)</td>
<td>1</td>
<td>64</td>
<td>26.90</td>
<td>3.65</td>
<td>13.57</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>63</td>
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To assess the coordination skill named “balance maintenance”, three tests were applied, viz. balance on the gym bench, the dynamic balance test, and the backwards walking balance.

The results of the test gym bench balance prove the increasing differentiated evolution of the performance achieved according to the grade. In regard of the boys’ group averages, this test displays an ascending evolution with age. Thus, from a group average of 26.9 sec at the beginning of the elementary school cycle, the end of the school cycle brings an average of 15.39 sec, which represents a progress of 42.78%, i.e. an improvement of the average by 11.51 sec. Notable performances were obtained in the fourth grade, when the group average improves by 26.05%, viz. 5.42 sec in absolute value.

The standard deviation improves, from a value of 3.65 in the first grade and a variability coefficient of 13.57% to values of 1.44 for the standard deviation and 9.39% for the variability coefficient.

The second test applied to assess the ability to maintain the balance, i.e. the dynamic balance test indicates a continuous increase of performances.

The evolution of the group average during the four years shows a total progress of 17.5 cm, respectively 27.18%. The sharpest increase occurs in the fourth grade, when the group average improves the third grade average by 12.68 cm, representing 6.81 cm in absolute value.

By the additional analysis of the homogeneity indices in this test, a homogeneity increase is noticed from the first grade to the fourth grade. The standard deviation evolves from values of 17.12 in the first grade to values of 4.61. The situation is similar in the case of the variability coefficient (26.20 – 9.84).

In the test named backward walking balance the evolution of the data presented shows that the improvement of the group average is uniformly slow during the four years, with an increase between 4.24 and 5.24 points per year.

In this test, the most significant increases register in the second grade when the group average increases by 5.24 cm as compared to the first grade. Speaking percentually, the increase is 15.78% during the four years of the cycle, the group average undergoes an improvement by 41.84%, respectively 13.89 points in absolute value.

Regarding the homogeneity of all subjects in the third test, it may be said that the standard deviation is comprised between 6.22 and 2.97, and the variability coefficient is between 18.73% and 6.29%. The highest homogeneity occurs at the end of the cycle, viz. in the fourth grade.

The third form of manifestation of the coordination skills – rhythm sense – was applied to the male subjects as the test named “sprint in a given rhythm”.

The subjects make a total progress of 0.78 secs in absolute value during the four years, respectively 47.38%. The lowest progress is made in the third grade, 0.04 secs, and the highest in the fourth grade, when the group average increases by 36.92%, respectively 0.51 secs in absolute value.

Regarding the homogeneity of all subjects in this test, it may be noticed that the standard deviation is between 0.49 – 0.27 and the variability coefficient is placed between 43.48% and 15.87%.

The highest homogeneity is seen in the first grade.

The fourth form of manifestation of the coordination skills – spatial orientation – was a battery of two tests was used, viz. the square test and the distance assessment test.

For the square test, the performance increases differently, according to the grade of the subjects.

The progress made during the four years of study is 5.24 secs in absolute value, which is slightly superior to the progress made by the girls. From a value of 14.68 secs in the first grade, the fourth grade reaches a group average of 9.44 secs. Percentually
speaking, the increase is 35.67%, the highest increase of the group average is obtained in the fourth grade, which witnesses a 22.07% progress as compared to the previous grade, viz. an increase of 3.02 secs in absolute value.

Analysing the evolution of the indices regarding the homogeneity of this test, an increase may be seen from the first grade to the fourth grade. The standard deviation evolves from values of 2.37 in the first grade to 1.23, the same being valid for the variability coefficient: 16.16–12.99.

The second test selected for administration to subjects – the distance assessment test – shows that the group averages register an ascending evolution.

The evolution of the subjects’ averages starts at a performance of 216.41 cm in the first grade, and reach a performance of 100.97 cm, viz. an increase of the performance by 115.48 cm, i.e. 53.35%, the improvement of the group average is relatively constant along the four years of the study, with higher progress in the third and fourth grades. Thus, the fourth grade improves the group average by 26.04% as compared to the previous grade, and the third grade improves the group average by 24.28%, in absolute value, these increases are 43.78 cm and 35.55 cm respectively.

When analysing the variability coefficient, it may be noticed that it displays a slight improvement over the four years analysed. At the beginning of the cycle, i.e. in the first grade, it has values of 34.38%, reaching (in the fourth grade) values of 22.56%. The highest homogeneity is found at the end of the learning cycle, i.e. in the fourth grade.

The fifth manifestation form of the coordination skills – movement coordination – was assessed by using a battery of tests, viz. relay, hexagonal obstacle and Matorin.

In the first test applied to assess the general coordination of movements, viz. relay, it may also be observed that the evolution of the group averages is positive, increasing with age. The boys register a progress index of 14.61% during the four years of study. In absolute value, the progress made is 2.37 seconds. The highest progress is made in the third grade, when the value of the performance as compared to the previous grade is improved by 7.78%, respectively 1.21 seconds in absolute value.

Regarding the homogeneity of all subjects in the relay test, it is noticeable that the standard deviation is within the interval 1.99 – 1.01, and the variability coefficient is under 11.34%, the highest homogeneity is seen at the end of the cycle, i.e. in the fourth grade.

The analysis of the second test, hexagonal obstacle, shows that the evolution of the movement coordination skill increases differently, function of the grade the subject is in. The progress in absolute value is 20.99 secs, respectively 45.56%. The sharpest increase in the group average occurs in the second grade, when the absolute value of the increase is 11.74 seconds, i.e. 25.49%.

In respect to the homogeneity of all the subjects in this test, it is noticeable that the standard deviation is between 14.44 and 2.1, and the variability coefficient ranges between 14.7% and 7.0%. The highest homogeneity is registered at the end of the cycle, in the fourth grade.

The averages evolution in the third test, i.e. Matorin increases in time. In the boys’ case, the progress made in the four years under study is 42.96 degrees, i.e. 16.66%. Most progress occurred in the second and third grades, when the increase is 20.76 degrees, respectively 12.22 degrees in absolute value. Percentually, these values are 8.05% and 4.39%.

The analysis of the variability coefficient in the Matorin test yields a slight increase during the four years under investigation. At the beginning of the cycle, in the first grade, its values are 10.98%, while in the fourth grade they are 5.92%, as expected, the highest homogeneity is registered in the fourth grade.

CONCLUSIONS

Regarding the coordination skills, all the five manifestation forms are characterised by an increase with age. Specialised literature does not contain standardised descriptors for these manifestation forms. Our experiment confirms the assertions of all the experts in the field, i.e. young pupils are the most prone to developing coordination skills, because these are in a progressive dynamics, viz. these indices are improvable. They are in continuous progress for all subjects, but the sensitive periods differ according to age. The periods characterised by the highest increase are the third and the fourth grades, as follows:

1. the assessment and regulation of the dynamic and spatial–temporal parameters of the motor act – the third grade;
2. balance maintenance – third grade;
3. rhythm sense – fourth grade;
4. spatial orientation – third grade;
5. movement coordination – third grade.

The variability coefficient (calculated as percent) expresses the ratio between the standard deviation and the arithmetic average, providing the possibility to measure the homogeneity degree of the group(s), thus enabling the comparison among groups measured with different measurement units.

The closer to zero the variability coefficient, the weaker the variation, and the higher the homogeneity of the group, as the average has a high degree of significance. The higher the variability coefficient, the more intense the variation, the more heterogeneous the group, and the average is accordingly less significant. It may therefore be stated that this index may be used as a test in implementing the grouping method.
In this respect, our approach was to cumulate all the values of the variability coefficients in order to determine the class with the highest level of homogeneity on the whole; considering that homogeneity increases towards the end of the learning cycle, it may be concluded that the fourth grade is the most favourable for the development of coordination skills.

REFERENCES

THEORETICAL CONCEPTS OF EARLY EDUCATION/ DEVELOPMENT OF CHILDREN’S MOTOR AND PSYCHOMOTOR SKILLS THROUGH JUDO

Adriana NEOFIT, PhDc
University of Piteşti, ROMANIA

Abstract:
The issues related to the early education and development of motor and psychomotor skills is of tremendous importance nowadays, that is why it is necessary to approach the didactic strategies able to develop and educate the components of psychomotor skills in judo, thus developing the ability to analyse situations, take decisions, and coordinate motions from a visual-motor and auditory-motor perspective, correlated with the education/ development of attention and concentration ability, the static and dynamic balance, the spatial-temporal orientation, general and intersegmental coordination, kinaesthetic sense and muscle tone.

Keywords: Judo, motor skills, psychomotor skills, education
INTRODUCTION

Nowadays, children’s sports training has raised heated debates on a global level, as its role in psychomotor development and health maintenance is well-known.

Judo – “it may have, in a more complex vision, various meanings. It may be a sport, an art, a discipline, a recreational activity, a fitness program, a means of defence or even a way of life.”

Judo – “it is a sport with a complex manifestation of all motor skills: strength, speed, endurance, skill, and mobility.”

Analysing these perspectives, the theoretical basis of the issue of education/development of children’s motor and psychomotor skills through judo may be defined as: the systemically conceived scientific argumentation of the totality of components of the early education/development of children’s motor and psychomotor skills through judo, aiming at improving the children’s morpho-functional and mental abilities, expressed in developing social relations or positive results in competitions of all levels.

THEORETICAL AND PRACTICAL IMPORTANCE OF THE PRESENT RESEARCH

The theoretical importance of the present paper is the contribution to developing the knowledge in the field, delimitating the issues pertaining to the education/development of children’s motor and psychomotor skills through judo, identifying and synthetically presenting those theoretical concepts supporting this approach.

METHODS

a) The study of bibliography

The study of specialised literature, documentation represents the first step in the investigation and allows for the enlargement of ideas, and opening of perspectives on the evolution of the various aspects of the topic under analysis.

The scientific documentation and bibliographical documentation to support the research were performed by consulting the resources in the libraries in the National Sports Research Institute in Bucharest, the library of the University of Piteşti, U.N.E.F.S. Bucharest, the “V. A. Urechia” library of Galaţi, as well as online resources.

The perused papers belong to Romanian and foreign authors (dictionaries, treatises, courses, monographies, sporting and judo-specialised information bulletins, pedagogical articles in specialised magazines, Ph.D. theses).

The information considered of interest were used selectively, according to their importance for the topic of research, after being included in work sheets function of the domains of interest for the paper outline.

The authors studied wrote on aspects related to:
- aspects and issues of the topic title – issues of pre-school education: J. Bandet, A. Brata., V., Bissing, E., Firea, Z Grosz, M. Stănescu;
- papers on the general didactics of sports and physical education: E. D. Colibaba, A. Kruger, G. Raţă;
- papers on measuring and assessing activities in sports and physical education: M. Epuran, A. Haag, V. Munteanu, V. Oprea, C. Petrescu, R. Thomas, E. Verza;

b) The observation method

As a method, observation presupposes the close and systematic follow-up of the subjects’ reactions, from a motor, psychomotor, psychic, social point of view, in order to grasp the essentials.

Our research used the observation method on children aged 4-6/7, in view of gathering information on the motor and psychomotor potential of pre-school children in regard of their early education/development through judo.

Out of the types of observation, the following were used:
- observation involving the researcher into the various stages of the research (observing the subjects, in the context of the age-specific and the educational act)
- indirect observation, studying the documents and consulting specialised third parties in view of clarifying certain aspects under investigation.

The results obtained as a result of observation were put down and interpreted as a constitutive part of the present paper.

The starting hypothesis is: identifying the theoretical concepts relevant to approaching the early education/development of children’s motor and psychomotor skills through judo may constitute the support element able to focus the research on this direction.

PURPOSE

The study of specialised literature and the identification of the theoretical aspects leading to
approaching the issues of the early education/development of children’s motor and psychomotor skills;

- Pros and cons in regard of the early education/development of children’s motor and psychomotor skills through sports.

**OBJECTIVES**

- Consolidating the theoretical knowledge in the field and the scientific research, in view of finding the present stage of the knowledge of the specific concepts pertaining to the early education/development of children’s motor and psychomotor skills through judo;
- Identifying the national and international organisational framework of early education, the educational-formative aspects through sports at a young age;
- Finding the motor and psychomotor aspects and their correlation with the peculiarities of the bio-psycho-motor development of pre-school children.

In this context, it is necessary to have a bird’s eye view of the sports training and differentiate it from elite athletes’ training (in another manner than by the quantitative reduction of training sessions).

As a result, children’s sports training should respond to their specific needs in view of attaining long-term objectives. Sports training should start with the initiation and consolidation of the basic motor skills, so that the children could improve their psychomotor skills and technical abilities.

A long-term physical training plan should be devised appropriately, starting by acquiring a basic level whereupon the athlete will build his adult sporting and human performance, through specialisation and progressive adaptation of the training volume and intensity.

To make sure that the physical and mental balance is maintained, it is necessary to define the objectives and stages of each development period of the judoka, and to strictly abide by the principle of the multilateral training.

To identify the psycho motor behaviour in the formative stage, i.e. of initiation in judo at the age of 4-6/7, a global analysis is required in point of the concept of psycho motility correlated with the peculiarities of the age.

Thus, in training athletes, it should be stressed that as early as possible, all the components of psycho motility should be trained, acquiring as many skills as possible, abilities specific to motor acts and actions, which will become the basic motor possessions, necessary in judo-specific elements and technical procedures.

The main components of psycho motility that should be taken into account in approaching training are as follows: the corporal scheme, laterality, ambidextrousness, spatial orientation, tempo, rhythm, external perception (visual, auditory, olfactory) and internal perception (kinaesthesia), visual differentiation, visual memory (gesture and image reproduction), auditory differentiation (different sounds and frequencies), auditory memory (reproducing sounds associated with movement), attention and concentration, balance, movement combination (coupling) ability – specific dynamic coordination.

At the age of 4-6/7, the main aspects that may be improved during training are:

- forming skills of spatial and temporal orientation, as well as trajectory, direction and speed assessment;
- educating the proper bodily scheme (knowledge of the body planes, body parts, segment motion, body motion on the whole);
- acquiring the spatial, distance, size, position, shape notions;
- educating the ability to regulate differently the degree of muscular tension (muscle tone);
- forming the ability of voluntary control in maintaining static and dynamic positions;
- developing attention and forming the ability of voluntary and involuntary concentration;
- educating basic motor behaviours;
- educating general coordination;
- basic motor skills;
- static and dynamic balance;
- educating segmental coordination;
- intersegmental coordination;
- fine motility;
- breathing control;
- movement rhythm.

The main role is played by establishing the main components of psycho motility specific to the age of 4-6/7, to be placed at the basis of acquiring judo elements and technical procedures.

At any moment, judoka should relate to the opponent, and the combat space. The ability of spatial-temporal orientation reflected in the structure of a given limited space, means using the space in accordance with the opponent’s actions and organising his own individual action according to the common variables.

In addition to the important aspect of approaching a behaviour which aims at organising space and time, the opponent’s presence initiating attacks and counterattacks within the combat area raises orientation problems. During the formation of judoka, against the background of educating the components of psycho motility, each stage corresponds to a certain working level, i.e. specific tasks to perform. As a result, the coach sets objectives able to respond to all the training requirements, using means and methods of training specific to the age in question.

The main learning methods are: the game method (games with or without a ball, complementary and supporting games); the practise method; the
imitation method; problematisation; the method of individual work. In acquiring the main technical elements in teaching the fall techniques, the main psychomotor components from a biomechanical point of view are: specific dynamic coordination, dynamic balance, bilaterality, spatial-temporal orientation.

CONCLUSIONS

Within the training concept, most Romanian coaches confine themselves to the sole development of basic motor skills (speed, accuracy, strength, endurance) at the ages of initiation in judo, ignoring the importance of involving psychomotor skills in acquiring and using judo-specific elements and technical procedures.

Within the selection tests for judo, no consideration is given to the importance of the psychomotor components in acquiring the motor acts and actions or to the fact that their expression is conditioned by the processes of maturation of the nervous system, or the number of motor skills that the individual possesses.

As a result, the trainability degree of the psychomotor components is reduced at young ages, and consequently the technical-tactical acquisitions of the future judoka are limited.

people involved in the training process do not correlate the age peculiarities from a psychomotor point of view with the motor strains specific to judo initiation. No global and operational objectives are set, able to reflect the development stage of the psychomotor components.

SELECTED BIBLIOGRAPHY


THE IMPACT OF IMPLEMENTING TIMELY TRAINING IN PROFESSIONAL SPORTS

Adriana NEOFIT, PhDc

University of Pitești, ROMANIA

Abstract: Sports have transcended history, being regarded as an important element of the youth’s preparation for the demands of adulthood. Nowadays, professional sports is studied by various scientific domains: philosophy, sociology, economics, psychology, pedagogy, biology, biochemistry, medicine, etc., given its increased relevance and major influences on the human spirit and personality.

Keywords: Professional sports, instruction, opportunities, risks.
INTRODUCTION

The specialised literature in our country is unfortunately not very diverse when it comes to approaching the influences exerted by timely training on professional sports. In order to be able to better support the main idea of the paper, I have considered it useful to present timely instruction and education notions, as well as those coming to support the aforementioned ones.

Professional sports can be regarded as “a pedagogic process by methodology, an educational act by its structuring principles and consequences on the behavior and general attitude of the sportsman towards life and work”.

The sports competition can be regarded as “a manner of organizing contests between sportmen of different categories, whose main goal is to compare performances (results), based on specific rules and previously determined norms”.

Given the actual context of the contemporary society, professional sports are rightfully considered to be a social, psychological, pedagogical and cultural problem, which concerns both society as a whole and its individuals. Through sport, the individual is able to harmonize his physical, psychological, affective and moral development, thus contributing to the formation of personality.

Throughout time, sports have evolved and are today considered a true economy having spread all around the world, becoming an industry for sports performance.

Therefore, the value of sports performances has constantly increased, which imposes the continues development of all the aspects of sports training, as well as bearing in mind the importance of how the training is approached by the coach.

All these require a theoretical approach of the training methodology and optimization possibilities regarding the training process, “one of the possibilities being given by the wealth of ideas gathered by the pedagogic sciences with regard to the instruction and the educational process as a whole, a potential applied in the process of forming and obtaining sports performance, as well as specific potential of professional sports”.

With regard to the introducing of children to the practice of professional sports, the specialised literature provides us with an array of information consisting of a guideline on the impact of timely training on professional sports.

J. Coakley considers that professional sports principles taught to children is “almost exclusively found in the industrialized societies, whose socializing processes reveal strong organized cores” under the influence of the importance of “determining objectives, developing potential and reaching success as required by families and communities”.

In the United States, children regard sports as a recreation means and usually take up sports under the guidance of professionals, but excluding “an intensive training or tough competitions”. This was about to end in 1930, when the two previous aspects have started to be regarded more seriously.

Not taking into consideration the risks and benefits of this practice, the intensive trainings and national competitions have been introduced to more and more children of younger ages.

Nowadays, the curricula are considered to be “more prone to support the interests and development needs of the children”.

Regarding “the education through sports and transposing sports elements in the daily activities”, Dumitrescu-Rusu (2010) cites a program aimed at “educating the individual through sports”, a practice implemented in Alabama, SUA, which has led to the adoption of laws recommending the including in the core school curriculum of “the education in a sportive manner”, and ten minutes for developing the personality.

It appears that, by means of the way in which the project was designed, the teachers have passed on their disciples the knowledge of how to embrace sports and make use of this knowledge in real life, the results being described as a “change of attitude and behavior, the sportsmen being more eager to work in a team and more disciplined, both inside the sports field and outside it... and a positive impact on the in class behavior...”.

In a similar way, in Great Britain, a program themed “education through sports” has made students more aware of the fact that “their performance directly impacts the team, stating that a weak performance would negatively impact the moral of the other members of the team” and that by assuming role behaviors, their responsibility awareness improved.

Starting from the aspects presented by the concerned literature and also the scope, factions, objectives, goals and sports training in general, sports training at early ages and timely training, I have carried out an analysis of the positive and negative aspects, as well as of the expectations and dangers, which should serve as a clear image on the impact of timely training on professional sports.
### POSITIVE ASPECTS (AS)
- increased physical ability awareness
- increased ability to cope with authority
- increased ability to start friendships
- dominant personality type
- seriousness, moral and responsible
- practical, formal and tenacious
- independent and self-reliable

### POSITIVE ASPECTS (IT)
- early independence
- intelligence, learning ability
- adapting to rules and regulations
- pre-determined psycho-motor abilities
- psycho-emotional and physical balance awareness
- increased concentration ability
- respect
- self-teaching

### NEGATIVE ASPECTS (AS)
- threat to social development when the social context reduces the experience
- uneven relation with peers or equal individuals
- limited opportunities outside sports
- risks related to the increased levels of pre-puberal skills (physical exhaustion, severe trauma as a result of increased effort)

### NEGATIVE ASPECTS (IT)
- increased effort, burnt out body

### EXPECTATIONS (AS)
- organized sports curricula provide experience, self-satisfaction, action, friendship
- positive influence exerted by the coach by personal example and governance

### EXPECTATIONS (IT)
- transitioning from extrinsic motivations to intrinsic motivations
- improving self-confidence
- access to extra-curricular activities
- avoiding social misconduct
- access to inter-cultural, contextual and relational diversity
- change of attitude and behavior, children more prone to work in a team
- learning about the outside and surrounding world and sports by playing games

*Image 1. Analysis of positive and negative aspects of timely training and sports training in children*
DANGERS (AS)
• training routine and structure of curricula
• ways of transposing the sports experiences in the relationships with peers, parents and coaches
• means of defining sport participation with regard to the global context
• young sportsmen may become dependant on coaches
• abnormal control from the part of the adults in order to make sure children have good sports results
• intensive trainings at a young age, which lead to no good result and may even endanger the future sports potential

DANGERS (IT)
• over-crowding the curriculum

Given the findings of the comparative analysis, it can be considered that the impact of training can only be positive overall and effective for the future of youth, but also for professional sports. Moreover, it is questionable whether the answer to this problem can be drawn from J.J. Rousseau “if you want your child to be intelligent, you have to develop the strength that will be further improved by intelligence, in order for him to grow healthy and to become wiser...let him work, get him accustomed to an active life. Make sure he is active so that he may become strong physically and, later in life, strong intellectually”.

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METHODS OF ASSESSMENT OF SECONDARY AND HIGH SCHOOL STUDENTS IN PHYSICAL EDUCATION AND SPORTS CLASSES

Ioan ONEȚ, Gabriel GHEORGHIU
Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
Apart from the attitude towards the subject of study and towards students, assessment is one of the teacher’s tasks where s/he can make mistakes and commit errors that may affect the student’s personality and behaviour. It is a complex process that should be done as accurately as possible, paying great attention to it. Assuming that there is a theoretical investigation at secondary school level, we find that there are different kinds of evaluation, and that many of them are to be freely chosen by the students themselves. Thus, the most effective ways of assessment that
can assist students in secondary schools were found, in order to encourage participation in physical exercise.

Keywords: Skills, evaluation, efficiency

INTRODUCTION

From all social processes that the human being is involved in throughout his life, physical education and sports are in direct contact with the biological side of human individuality. Physical education and sports is part of the social body, a phenomenon without which society cannot be conceived. The biological layer is historic (due primarily to the labour process) and therefore, determined by the real conditions of social existence.

Physical exercise is to be found in various forms: it can be practiced in various ways, but it can also be structured as a means for personal development or to regain health, and it can be practiced in order to gain performance, or even just for pleasure, etc.

Physical education undoubtedly ensures the development and normal functioning of the body; it interferes actively and rationally within the growth process, so as to ensure a harmonious development of the human physique. The importance of physical education is obvious from the fact that it is the only school subject in our educational system that concerns the physical aspect of the human being, and its purpose as a school subject is to ensure a good and healthy physical, mental and even moral development to the human being.

During the teaching process of physical education, students acquire knowledge about the processes of making rational driving acts. General concepts about proper use in life and work of the skills and motor skills are also taught in school; they learn about the importance of physical education as a major need to develop one’s human personality.

During the development of society, physical education has experienced periods of prosperity, but also moments of decline. From the ancient world, where this field enjoyed the attention and appreciation, we have preserved and now use concepts like: “KALOS KAI AGATA” (beautiful and good) and “MENS SANA IN CORPORE SANO” (a healthy mind in healthy body), the contents of which summarise valuable ideas about the ideal of education, revealing the close unity between the physical and psychic, their complex and multiple interdependence.

In the age of scientific and technical revolution, which limits the exercise and movement in professional activity and everyday life of humans, the society’s concern to achieve a balance regarding the physical effort of the body, to provide accurate and comprehensive development of personality, to preserve health and the ability to work, to combat degenerative phenomena caused by the limitation of effort and movement, increase considerably.

Along with the process of training students about the knowledge system, and the motor skills, the teacher will also address and develop motor qualities and knowledge processes, and also the training and development of habits of behaviour, the qualities and character traits; that is why physical education lessons provide countless opportunities to provide a complex and useful process of creating a student’s personality.

Knowledge, skills and driving skills must be developed in close connection with training activities positively influencing knowledge processes (initiative, decision, thinking, spirit of observation) developing and educating beliefs and feelings, will and positive character features. The main objectives regarding the teaching process of physical education and sports in secondary school are:

✓ to increase the exercise capacity of the body;
✓ to develop and prepare the comprehensive motor;
✓ to ensure the practicality of knowledge and practical skills.

THE PURPOSE AND OBJECTIVE OF THIS PAPER

As in other areas of activity, in physical education and sports it is also necessary to conduct an assessment as a need to have information about that activity at any time and also to know at what stage we are. It is an impending trial, a process that guides and directs the one who makes the activity.

In our country we can see that there is a reform period in the education system regarding the assessment methods in school, and these currently imposed reforms cannot be achieved without a dynamic equilibrium between the changes and improvements made in other components of the whole teaching process, such as: curriculum, teacher training, education management.

Conducting a survey on a sample of 240 students we found that only 20% of respondents are satisfied with how they are evaluated in the educational process. Besides the attitude towards the school subject and towards students, assessment is one of the processes where the teacher can make mistakes and commit errors that may affect the student’s personality and behaviour.

Consequently, assessment is a complex process that should be done as accurately as possible, paying great attention to it. This convinced me to perform a detailed study on the evaluation process, trying to systematize and to find those methods that lead to efficiency in this area.

Assuming that if there is a theoretical investigation at secondary school level, one can see
that there are many methods of evaluation, of which many are the students’ option.

The aim of this paper is to give a clear preview of the evaluation process regarding the physical education and sports classes’ management at secondary school level, to trace the evidence and rules of control and to determine the most effective management actions in this direction.

In the application of the evaluation system during classes there are two categories of options: the teacher’s options and the student’s options.

The teacher can choose, depending on working conditions:

✓ either speed and strength running or craft;
✓ 1 or 2 of the athletic samples;
✓ 1 gym jump;
✓ 1 or 2 sports games;
✓ alternative sports branches related to the compulsory ones.

The student can choose, depending on supply, interest and availability:

✓ 1 or 2 samples for the strength;
✓ 1 or 2 athletic samples and their evaluation options;
✓ a game and to its evaluation form;
✓ gymnastics and acrobatics and their evaluation versions or a branch of alternative sports in its place;
✓ a gymnastics jump.

The national education system provides a 10-point scale with 5 being the minimum grade for passing. In order to provide grades higher or lower than 5, the departments of physical education and sports in a school will create their own grading standards. The value of their performance and the equivalence of grades/marks will be set according to the number of weekly work hours and specific conditions.

As for acrobatic gymnastics and national games, these include different types of scoring that challenge the assessment and where the highest grade will be 8, 9 or 10.

For the assessment of alternative sports, the physical education and sports departments in schools will provide special scoring standards.

CONCLUSIONS

1. The current national evaluation system provides 5 as the minimum grade for passing and the scale of evaluation is left to each teacher who can make not only general assessment scales for each year of study but also assessment scales for each class of students. This is according to the preparation level of each group of students.

2. In the current national assessment system there are clear dispositions on driving skills and specific skills, but only predictive assessment can be considered basic.

3. Any teacher in a position to make an assessment, if not prepared enough to perform this action, will fail in optimal conditions and the evaluation process will completely distorted.

4. At secondary education level, physical education evaluation must be done with discretion because at this age big question marks may appear among students regarding the grading standards. The best system would be to organise the final evaluation taking into account the differential treatment of students on bio-motric value level groups.

5. When setting up groups on the bio-motric value level, some initial results from control samples can be taken into consideration, which were previously held in autumn or winter (driving qualities: speed, skill, strength, or abilities and skills of the motor games, acrobatic gymnastics - jumping), and at the end of these courses or learning units have to be valued by the progress made by the high level of performance in accordance with current features of SNE.

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METHODES D'ÉVALUATION DE LYCEENS ET
STUDENTS DANS L'ÉDUCATION PHYSIQUE
ET SPORTIVE

Résumé:
En dehors de l'attitude envers l'objet d'étude et vers les étudiants, l'évaluation est l'un des côtés où l'enseignant peut faire de grosses erreurs, les erreurs qui peuvent affecter la personnalité de l'élève et le comportement. Il s'agit d'un processus complexe qui doit être fait aussi précisément que possible, en accordant une grande attention à elle.

En supposant qu'il y ait une investigation théorique au niveau de l'école secondaire, nous trouvons qu'il ya différents types d'évaluation, et que beaucoup d'entre eux doivent être librement choisis par les étudiants eux-mêmes. Ainsi, les moyens les plus efficaces d'évaluation qui peuvent aider les élèves dans les écoles secondaires ont été trouvés, afin d'encourager la participation à l'exercice physique.

Mots-clés: compétences, l'évaluation, l'efficacité
THE INFLUENCE OF MASS SPORT COMPETITIONS IN FORMING A POSITIVE ATTITUDE TOWARD THE INDEPENDENT PRACTICE OF PHYSICAL TRAINING BY NON-PROFILE FACULTY STUDENTS

Ioan ONEȚ, Gabriel GHEORGHIIU

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
Reliable theoretical knowledge is required of future specialists by the contemporary society in spite of the physical activity. Preventing the negative effects due to the lack of physical motion we tried to form habits of physical training practice in students and to stimulate the interest and attractiveness in the independent practice of physical training by participating in mass sporting events.

Keywords: physical training, independently practice, positive attitude

The development of science and technique, a new system of work organization, production processes such as extended mechanization and automation, substantial development of knowledge that had to be assimilated by youth, all result, especially for intellectuals in a lifestyle, living conditions and a nature of activity characterized by sedentary activities, the lack of movement and dynamism, because of the gradual elimination of physical efforts.

In our modern society, with complicated and varied problems and with a continuous nervous tension, the nervous system needs relaxation. For these reasons the physical activity necessity is felt more and more acute, according to the sedentary character of the work of mainly intellectual professions.

So, it is necessary to fight in every way possible against a sedentary behaviour that favors the apparition of continuously expending diseases, especially through movement, physical training and an active lifestyle, means that are as efficient as they can be within reach for anyone.

In the conditions of modern society and the contemporary human life, the following question is rising: what are the lack of movement consequences for the organism?

An interesting answer to this question was given by an academician from Cluj, honored teacher Eugen Popa: “Muscularity represents more than half of the body mass. At rest only a small part of the muscular tissue is functional and the capillary blood is flowing through it. But the rest of the muscle, representing its biggest part, is almost entirely devoid of circulation. As a result a batch of basic catabolism products is gathering in it. On vein and artery walls grease drops of cholesterol are deposing. Because of this situation the blood vessels tighten and their walls are harmed, becoming friable. The lack of movement leads first of all to serious circulatory problems which are to be felt especially when you have to make effort. The sedentary feeling of tiredness is very strong. Because of this vessel ruptures, cerebral hemorrhage, hypertension are producing.”

What is the meaning of movement for the human organism? Movement means muscular contraction, and this needs a very abundant and intensive blood irrigation, both in the muscles, and indirectly in the liver, digestive tube, kidneys, heart and of course in the nervous system. In this way the blood extracts the toxic products of catabolism. The circulation speed is accelerating, the cholesterol is not deposing any more on vessel walls. In this way the blood is drawn toward all the human body organs, the brain included.

“Every day life shows us that humans who move daily are healthier, livelier, more optimistic and less exposed to work accidents than sedentary ones. That movement, physical education and sport have beneficial effects on the health state of the organism is a proved and unanimous accepted truth.” (Badiu, 1998). Numerous studies attest that, in the modern life conditions, exposed to sedentary behavior, movement represents a special preventive element, and when applied scientifically and on a curative level, it brings benefits to sick people.

On the basis of statistical studies Finnish scholars reached the conclusion that those who practice physical training live longer, with an average of 7 years, and they extend their active period by 10 years compared with those that live a sedentary life.

One of the central goals of physical training and sport in almost all study periods and of course in university is forming the capacity of independent physical training practice. In forming this capacity the positive attitude towards the practice of physical training plays a decisive role. Student’s volitive dimension remains the main obstacle to this goal. The stimulation of the sensitive-emotional side will determine the intensification and galvanisation of positive attitude with direct effects in adjusting and self-adjusting of the student’s behaviour in the
educational-instructive process of physical education and sport.

The sport competition is one of the most important activities through which the student could achieve this objective. Combativity is atractive activity. As a direct participant in the game, the young man fights for his prestige or the group’s, and achieves a good co-operation with his partners.

Using the sport events as a means of acquiring knowledge from the perspective of positive attitude formation towards physical training practice represents a challenge even to the authors.

In his The Theory and Method of Physical Training and Sport, Cărstea (2000) points out the importance of forming independent physical training practice capability, individually or in group.

ARGUMENT

The necessity of capability forming in independent practice of physical training in students as a modern intellectual form of adaptation to the social life needs. It is known that social modernization and intellectual work draw subjects to a sedentary life with deforming effects biologically speaking. In this conditions, independent practice capacity of physical training is a useful and efficient way in counter-balancing sedentary life.

HYPOTHESIS

The utilization of mass sporting events represents a means to forming a positive attitude towards independent physical training practice.

PURPOSE

Finding adequately means and methods to the age peculiarities in order to form a positive attitude towards physical training practice in students of Galati University Center.

RESEARCH METHODS

Bibliographical study, observation, experiment, inquiry, the statistically analysis of the acquired data.

RESEARCH SYSTEMATISATION

In the first stage of the research we unfolded, with the help of a test, an inquiry regarding the Galati University Center students’ interest in mass sport events (8-18 October 2009).

As a result of the inquiry, we established that an average of 62.5% considered the sport event as very interesting, while 68.4% wanted to participate directly in it.

Furthermore 94.9% of the 68.4% considered it necessary to train before the event, of which 61.1% wanted to train in their spare time.

We found out, therefore, a great interest in the physical training practice as part of the precursory period and during sport events. Consequently, we decided to use volleyball competitions (having the necessary circumstances) as a means in forming the positive attitude given by the physical training practice.

The research covered two semesters, 8 lessons in the 1st semester 2009, concluded with a tournament at the end of December, and 10 lessons in the 2nd semester, concluded with another tournament at the end of May 2010.

Before ending the so-called experiment (after establishing the experimental groups), we realized a simulated experiment (October 2009) consisting in simulating tests, easy training lessons with free speech about activity demands, direct participation in the activity demands and direct participation in a volleyball match. Two groups consisting of 24 students and their options was the basis of the experiment. The 48 students, between 19-22 years old, attended courses at non-profile faculties (I.A.A.P., Nave and I.S.E.). Every student responded in writing to 3 sets of questions: the fist consisted in their specialized general knowledge; the second tried to reveal the emotional experiences and reasons for practicing physical training and participating in sport events; the third aimed at the students attitude towards isolated physical training practice or sport events.

After the first inquiry a group of 24 students were engaged in the activities mentioned above while the others participated in the physical education class in the curriculum. The submissive group of the experiment was divided into 4 teams of 6 players and they attended the sport training classes and the planned competitional system. The training classes consisted in single-sport lasting about 90 min. What intended was the initiation in volleyball practice and the training for sport events.

At the end of the month, the tournament “The Games of the Danube” was organized, and 8 teams (of which the 4 experimental ones) participated. The participation of the 4 teams in the tournament was 100%. After concluding the preparing and competitional motive activities, the 48 students took again the three sets of questions (May 2010).

As a result of the initial and final testings we came to the following conclusions:

a) Specialised general knowledge

The experimental group assimilated a great volume of knowledge regarding the authority of physical training practice, systematical practice forms of physical training, the management of certain physical activities and some sport events, volleyball game regulation notions.

b) Volume and diversity of emotions and feelings experienced during practicing isolated physical training and sport events.

In the initial testing we found that in both groups the scarcity of emotional experience (emotions, feelings, passions) in connection with isolated physical training practice or in sport events.
At the final testing, the experimental group significantly enriched their “emotional experience”; in most cases affection and positive emotion lead to forming positive feelings and passions regarding the systematical practice of physical training.

c) The attitude towards isolated physical training practice and sport events.

In the initial test both groups showed great interest in sport events participation (100% of the experimental group and 92.7% of the control group). In the final test the interest of the experimental group remained the same (100%), while that of the control group decreased to 79.2%. As far as the interest in extra-curricular physical activities, we found a significant increase by 60% at the experimental group, whereas for the control group the percentage decreased by 4%. For the experimental group, the final test pointed out a great desire in participating in physical activities as part of curricular and extra-curricular activities regarding the training for mass sport events. This wish increased the percentage by 35% for the experimental group, reaching in the end 92.7% of the students who participated in the experiment and who were interested in training for sport competitions, while the control group recorded a decrease from 66.8% to 62%. At the end of the experiment we noticed a 70% increase (from 30% to 100%) at the experimental group regarding students’ belief that direct participation in mass sporting events helps them to recreate and relax. For the control group the final test showed that only 33.2% (of the initial 20.8%) considered that their participation in sport events helps them to relax and recreate.

CONCLUSION

As a result of data interpretation we consider that university mass sporting events suit some of the students’ interests and wishes as:

- unforeseeable and spontaneity (100%)
- spending leisure time with same-age peers (95.9%);
- relaxation and recreation (100%);
- honest and direct fight with adversary within regulations and fair-play limits (100%);
- victory achievement and excelling in the youth group (80%).

For the experimental group students all this caused a clear superior both physic and psychic stimulation, both in the training lessons and during bilateral games of the sport games system, which did not happen in the control group.

If we add the superior leap of the experiment group in specific knowledge and general techniques compared with the control group, we can talk about the premises of forming the systematical and independent physical training practice capacity, which we could not find in the control group where the interest in physical activities decreased by 10%.

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L'UTILISATION DE COMPÉTITIONS SPORTIVES DE MASSE DANS LA FORMATION D'UNE ATTITUDE POSITIVE VERS LE FAÇON INDEPENDANTE DE LA PRATIQUE D'ENTRAÎNEMENT PHYSIQUE PAR LES ÉTUDIANTS DE FACULTÉ DE NON-PROFIL

Résumé:

Une multitude de connaissances théoriques est exigée par la société contemporaine des futurs spécialistes malgré l’activité physique. En prévenant les effets négatifs liés à la manque de mouvement physique nous avons essayer de former des habitudes de pratique l’entraînement physique aux étudiants et stimuler l’intérêt et l’attraction dans de façon indépendante de la pratique d’entraînement physique en participant aux événements sportifs de masse.

Mots clé: l’entraînement physique, le façon indépendante de la pratique, l’attitude positive
THE NECESSITY TO REVISE THE CURRICULUM FOR PHYSICAL EDUCATION AND SPORTS AT THE FACULTY OF NAVAL ENGINEERING AND DRIVING

Ioan ONEȚ, Gabriel GHEORGHIU

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
This paper represents the beginning of extensive research to show whether or not the curriculum of the physical education study object at the Faculty of Naval Engineering complies efficiently with the requirements of physical training of specialists for their successful integration in production after graduation.

The educational process of physical education lessons at the Faculty of Naval Engineering also contributes substantially to the preparation of students for their further adaptability to the conditions and features of any professional activity. However, as demonstrated by the data of our research and of others (Filipescu, 1999; Draganescu, 2000; John, 2003), most graduates do not possess the knowledge, the psychomotor and methodological skills for practising physical education at the level that is often needed at work; the students do not possess also any physical skills within their personality traits, and this further reflects negatively on labour productivity, physical and mental health of any skilled worker.

Keywords: naval engineer, physical education, educational content, curriculum, efficiency.

INTRODUCTION
The study contains theoretical and experimental research in order to optimize the educational process of teaching physical education and sports in order to prepare students, by applying a new curriculum in each and every faculty.

The scientific novelty of the present paper is that first issue addressed was to make the educational process of physical education classes at the Faculty of Naval Engineering an efficient one, using some customised educational content of sports like basketball, athletics, gymnastics, practical and sports-oriented swimming so as to lead to a psycho-social integration of the future skilled workers.

HYPOTHESES
1. Will a curriculum oriented towards physical training in order to be useful from a professional point of view is to be developed and applied regarding the educational process of teaching physical education and sports at the Faculty of Naval Engineering, adapted to the socio-professional-curriculum help or not to increase the quality of professional-applied physical training?

2. Will the orientation of the educational process of physical training based on professional and ergonomic aspects of the professional worker during the physical education and sports lessons at the Naval Engineering Faculty help to increase the overall professional training?

GOAL
This paper aims at improving the process of professional-applied physical training during the Physical Education classes at the Faculty of Naval Engineering, based on the appropriate educational content of the physical exercising culture.

RESEARCH TASKS
1. A thorough study and analysis of the theoretical and practical aspects of the educational process of teaching Physical Education classes at the Faculty of Naval Engineering;

2. An appropriate and accurate assessment of the actual level of development of psycho-physical, psycho-motor and intellectual qualities of all the students enrolled at the Faculty of Naval Engineering;

3. An accurate setting of the appropriate content of the Physical Education and Sports Curriculum at the Faculty of Naval Engineering, in order to provide an academic physical-oriented training of the future naval engineer.

RESEARCH METHODS
Of all the research methods used, we only mention the appropriate study of specialised literature, the socio-pedagogical survey method (questionnaire, interview and conversation) and the statistical-mathematical interpretation of results method.

The use of socio-pedagogical survey method involved the researcher to possess a good methodological foundation, establishing the samples that were used in this research, in order to establish the conditions for the accurate use of the above-
mentioned method, the application of the questionnaire technique, of the interview technique, and also the processing and interpretation of data. Regarding the way the sociological survey questionnaires, interviews, and conversations were elaborated, the methodological indications of Epuran, 1992, Popa, 1999, and others were used as a guide.

The survey type of investigation was applied to a sample of 25 teachers from the Physical Education and Sports Departments at the Faculties of Naval Engineering of Galati and Constanta, on a number of 160 students and 40 active naval engineers that had previously graduated from those faculties.

**MAIN GOALS OF THE SURVEY**

* For 3rd and 4th year students: The place and role of Physical Education classes within the educational activities for students; the self-assessment educational process of Physical Education classes at university level; the contribution of Physical Education classes to provide increased work capacity; health; the contribution of the means of practising Physical Education; the elaboration of an efficient content of the sports curriculum and of the Physical Education classes.

* For the teachers from the Physical Education and Sports Department of the faculty: The determination of the place and role of physical education in professional physical training, setting objectives, how the current curriculum addresses these objectives, if it is current, working to establish a strategy of preparing specific physical faculties of ships, the place of discipline than others at the faculty.

* For active professionals (naval engineer): The determination of the place and role of physical education in professional-applied physical training, the establishment of learning content according to production needs, the importance of maintaining physical activity independent of exercise capacity.

**RESEARCH ORGANISATION**

The research was held during the academic year 2010-2011 and has engaged three subjects:

* a number of 160 3rd and 4th – year - students from the Naval Engineering Faculty, aged between 21 and 25;

* a number of 25 teachers from the Physical Education and Sports Department from the Naval Engineering Faculty;

* a number of 40 active naval engineers (25 from Galati, 15 from Braila) in charge of production at the Galati and Braila Shipyards, aged between 28-45 years.

The investigation resulted in questionnaires filled in by students, teachers and engineers. The questionnaires were completed by the students in the teachers’ room at the faculty. Naval engineers responded to the questionnaire at work in the shipyard, after work.hours. The teachers completed the surveys in their spare time. The loyalty factor of the answers provided by the people involved in the research is of approximately 9.8.

**Table** of survey results on the attitudes of students, teachers, and naval engineers towards physical education lessons and the priorities in professional-applied physical training

<table>
<thead>
<tr>
<th>Results of the questionnaire Students of the Faculty of Naval Engineering (160)</th>
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<th>Results of the questionnaire Teachers of the Faculty of Naval Engineering (25)</th>
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In the second stage, the results of measurements and questionnaires were centralized, analyzed and interpreted. Somatic–sensorial and functional test results, and also psycho-motor driving qualities and the mental and intellectual development were compared with potential bio-motor at a national level. After analysing the comparison, the research team concluded that bio-motor potential students from the Faculty of Naval Engineering, 3rd and 4th years of study, are inferior to most potential results of the national bio–motor indicators for the 18–19 year olds.

After analysing the above conclusions and the current physical education curriculum with direct effect on the students enrolled at the Faculty of Naval Engineering, it was considered necessary to elaborate a new curriculum; the current one being inadequate in terms of achieving the objectives of professional physical training of students from this college.

After analyzing and interpreting all the responses to the questionnaires, we reached the following

CONCLUSIONS

1. Related to the subject of the independent practice of physical exercise during leisure time, naval engineers (100%) answered positively on the activities of independent driving.

2. On physical education curriculum development that is expected to create suitable conditions required by the profession of naval engineer, 84% of teachers surveyed, 56% and 95% of students considered as appropriate the idea that naval engineers need to develop curricula looking application.

3. Regarding the inclusion of sport swimming lessons and practical activity which is required in order to influence beneficial professional-applied physical training, of all the three categories of respondents, the following answered affirmatively: naval engineers - 93%, physical education teachers - 68.75% and students - 62.5%, or swimming classes to be included as a compulsory subject.

4. Regarding the increase in the number of hours of physical education, as an addition to the current 2 hours per week, 88% of teachers, 75% of naval engineers and 56% of students still choose to include some additional 2 extra-hours per week, as an optional course in the next two years.

The results of the analysis and of the generalization of specialised literature data, the professional and ergonomic work activity of any naval engineer, the context of a transfer concept in other activities and the socio-educational survey, these all allowed us to materialise and to develop appropriate content of a newly and improved curriculum guide for the Physical Education and Sports classes at the Faculty of Naval Engineering. This new and improved version of the curriculum will take into account points of views from all those involved in the educational process of teaching Physical Education to students, such as: the opinions of naval engineers working in the field and the points
of view of students enrolled at the Faculty of Naval Engineering.

**BIBLIOGRAPHY**


**LA NECESSITE DE REVISIER LE PROGRAMME DANS L’EDUCATION PHYSIQUE ET DES SPORTS SERVICE A LA FACULTÉ DE GÉNIE NAVAL ET CONDUITE**

Résumé: Cet article représente le début d'une recherche approfondie pour montrer si oui ou non le programme de l'objet d'étude de l'éducation physique au sein de la Faculté de génie naval est conforme efficacement aux exigences de l'entraînement physique des spécialistes pour leur intégration réussie dans la production après l'obtention du diplôme. Le processus éducatif des cours d'éducation physique à la Faculté de génie naval contribue également substantiellement à la préparation des étudiants pour leur adaptabilité à la suite des conditions et caractéristiques de toute activité professionnelle. Toutefois, tel que démontré par les données de notre recherche et des autres (Filipescu, 1999, E. Draganescu, 2000, John L., 2003), la plupart des diplômés ne possèdent pas la connaissance, la psychomotricité et les compétences méthodologiques pour pratiquer l'éducation physique à l' niveaux qui est souvent nécessaire au travail; les étudiants ne possèdent pas également toutes les aptitudes physiques au sein de leurs traits de personnalité, et ce en outre reflète négativement sur la productivité du travail, la santé physique et mentale de tout travailleur qualifié.

**Mots-clés**: ingénieur naval, l'éducation physique, le contenu éducatif, des programmes, l'efficacité

**FORECASTING CALCULATION – A TOOL TO ANTICIPATE TRENDS OF EVOLUTION IN SPORT ORGANIZATION**

Mihaela-Cristina ONICA¹, LaurenŃu-Gabriel TALAGHIR²

¹Faculty of Economics and Business Administration, “Dunarea de Jos” University of Galati, ROMANIA
²Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galaţi, ROMANIA

**Abstract**

The financial forecast is the most important planning activity. Unlike the balance sheet and the income statement (not intended for external but for domestic users), the tools to achieve financial forecasting for sport organization budgets need guidance in order to achieve the objective proposed for the next financial year: increased financial performance of the enterprise, reflected in increasing its value. Management forecasts, the budget is the main fields of business and to monitor compliance with budgetary provisions. Through budgeting are established affecting resources and responsibilities for each activity center. Thus, the budget is a forecast of ciphered resource damage and liability insurance for business objectives cost-effectively.

**Keywords**: accounting balance forecast, the hypothesis predicted, American model of balance, financial position, projected working capital.

**JEL Classification**: M41, L91, F47

**INTRODUCTION**

Enterprise management, including management of financial business, takes decisions based on information collected and processed by staff, which, in turn, prepares this information based on past data on the development of business activity.

Under these circumstances, the simulation of the financial activity, especially the electronic computer assisted one, is meant to draw the possible paths to follow, based both on information about the past, as well as the funnel on volume preset objectives and efficient productive activity.
Financial planning process simulation experimentation is directed to various options of budgets, with the possibility of introducing, in the simulation mode, the various changes that may occur on the technical-economic indicators to determine the sport organization’s financial situation.

**STEPS LEADING TO THE FORECAST BALANCE SHEET**

The predicted balance sheet shows figures and projected financial balance currency of the sport organization by forecasting the financial position, the ratio of assets, liabilities and equity. Minimum or maximum data necessary of information on the financial position is a matter of professional reasoning.

The projected balance sheet is presented as a traditional forecast balance sheet starting from:

- the initial balance sheet;
- channels amended according to different events due to budgetary effects;
- everything that leads to a prospective financial position;
- the sport organization necessary capital, both own and from external sources;
- liquidity, which is crucial, and the project has to demonstrate ways of structuring and balancing of assets and liabilities of the sport organization, and ways of coping and cover initial losses;
- must be drawn up so as to be in accordance with the projected income statement and cash-flow projection. The availability presented in the balance sheet must coincide with the cash-flow from that period, the profit should be the same in the income statement and balance sheet annually, the change of working capital needs, as components of cash flow, should be based on changes in balance sheet items from the previous year.

The chief financial and general manager will determine the future financial position as:
- too risky in terms of potential lenders;
- on the contrary, offering growth opportunities, internal or external, additional.

Developing balance projected financial position and to permit assessment of working capital, which is the main source of sport organization needs to develop business. It consists of liquid materials and resources stocks. It is used in accounting and financial analysis to assess long-term equilibrium and its contribution to short-term financing. If the working capital is positive, the permanent capital allows full funding of current assets and part of the assets. If the working capital is negative, the permanent capital is insufficient to finance current assets resulting in short-term financial needs. The projected balance shall be drawn up on the basis of the financing plan.

The projected balance contributes therefore to identifying the sources and use of funds for the next period. The degree of detail required depends on the information needed by the examiner.

The projected income statement shall be drawn up on the basis of the general activity budget through its highlighting destinations for profit under the legislation and in accordance with the approval of the partners and shareholders in the general assembly.

**DEVELOPING THE SPORT ORGANIZATION FORECAST BALANCE SHEET REVIEWED**

| Balance Sheets (thousand lei), Balance Sheet, American model, historical data reviewed unit 2005 - 2010 - 2M2011 |
|---|---|---|---|---|---|---|---|
| Intangible Assets | 6 | 16.470 | 20.286 | 29.818 | 17.414 | 39.975 | 33.958 | 67.001 |
| Tangible Assets | 11 | 158.902 | 180.514 | 244.478 | 280.369 | 256.956 | 236.034 | |
| CAPEX | | | | | | | | 15350 15350 |
| Revaluation of PPE | | | | | | | | 0 0 0 0 0 0 0 0 |
| Avg. Depreciation Charge (%) | (8.9) | (8.1) | (9.6) | (8.8) | (9.9) | (25.985) | (15.319) | |
| Inventory Turnover (Days of COGS) | | | 4.527 | 5.252 | 5.891 | | | |
| Trade receivables | 26 | 17.999 | 27.143 | 36.146 | 43.447 | 46.005 | 55.143 | 66.458 |
| AR Turnover (Days of Net Sales) Duration of collection claims | 46 | 76 | 84 | 79 | 108 | 108 | 125 |
| Other claims | 27-30 | 12.604 | 12.734 | 1.624 | 4.027 | 1.936 | 3.752 | 8.897 |
### Deposits

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total current assets</td>
<td>46.905</td>
<td>68.437</td>
<td>70.717</td>
<td>69.102</td>
<td>76.779</td>
<td>85.038</td>
<td>98.569</td>
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<td><strong>TOTAL ASSETS</strong></td>
<td>229.073</td>
<td>276.582</td>
<td>352.859</td>
<td>364.331</td>
<td>365.700</td>
<td>365.419</td>
<td>372.156</td>
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<td>Short Term Debt (IFC and RBS-over)</td>
<td>38</td>
<td>955</td>
<td>4.335</td>
<td>8.713</td>
<td>6.262</td>
<td>8.768</td>
<td>8.591</td>
</tr>
<tr>
<td>AP Turnover (Days of Net Sales)</td>
<td>28</td>
<td>32</td>
<td>33</td>
<td>27</td>
<td>33</td>
<td>37</td>
<td>46</td>
</tr>
<tr>
<td>Other Current Liabilities</td>
<td>46</td>
<td>1.787</td>
<td>6.381</td>
<td>3.893</td>
<td>3.834</td>
<td>2.684</td>
<td>3.307</td>
</tr>
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<td>Bank Debt (IFC Amounts due Inst. Credit&gt;1 year)</td>
<td>51</td>
<td>17.022</td>
<td>54.791</td>
<td>48.117</td>
<td>44.367</td>
<td>38.305</td>
<td>30.462</td>
</tr>
<tr>
<td>Other Long-Term Liabilities</td>
<td>52-57</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>Long-Term Liabilities</td>
<td>58</td>
<td>17.056</td>
<td>54.791</td>
<td>48.117</td>
<td>44.367</td>
<td>38.338</td>
<td>30.462</td>
</tr>
<tr>
<td>Other provisions</td>
<td>59</td>
<td>0</td>
<td>0</td>
<td>3.671</td>
<td>2.387</td>
<td>2.387</td>
<td>2.602</td>
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<td>Deferred income</td>
<td>62</td>
<td>473</td>
<td>391</td>
<td>222</td>
<td>120</td>
<td>106</td>
<td>80</td>
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<tr>
<td>Share capital</td>
<td>67</td>
<td>17.229</td>
<td>17.229</td>
<td>29.909</td>
<td>29.956</td>
<td>29.956</td>
<td>29.956</td>
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<tr>
<td>Grants related to equity</td>
<td>71</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>Revaluation reserves</td>
<td>72</td>
<td>116.710</td>
<td>102.755</td>
<td>148.733</td>
<td>118.223</td>
<td>103.995</td>
<td>90.607</td>
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<tr>
<td>Other reserves</td>
<td>76</td>
<td>9.868</td>
<td>9.868</td>
<td>9.868</td>
<td>111.690</td>
<td>126.218</td>
<td>139.607</td>
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<tr>
<td>Retained Earnings</td>
<td>77</td>
<td>53.942</td>
<td>69.351</td>
<td>48.117</td>
<td>44.367</td>
<td>38.338</td>
<td>30.462</td>
</tr>
<tr>
<td><strong>Total shareholders equity</strong></td>
<td>86</td>
<td>197.748</td>
<td>199.228</td>
<td>274.206</td>
<td>292.820</td>
<td>299.095</td>
<td>301.345</td>
</tr>
</tbody>
</table>

### Forecast Balance Sheet

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Intangible Assets</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>41</td>
<td>42</td>
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<td>Tangible Assets</td>
<td>258.077</td>
<td>258.884</td>
<td>237.315</td>
<td>218.065</td>
<td>200.684</td>
<td>200.684</td>
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<tr>
<td>CAPEX</td>
<td>28.682</td>
<td>28.800</td>
<td>4.368</td>
<td>5.369</td>
<td>5.369</td>
<td>0</td>
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<tr>
<td>Revaluation of PPE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Depreciation</td>
<td>(27.561)</td>
<td>(27.994)</td>
<td>(25.937)</td>
<td>(24.618)</td>
<td>(22.750)</td>
<td>0</td>
</tr>
<tr>
<td>Avg. Depreciation Charge (%)</td>
<td>(10.7%)</td>
<td>(10.8%)</td>
<td>(10.5%)</td>
<td>(10.8%)</td>
<td>(10.9%)</td>
<td>0.0%</td>
</tr>
<tr>
<td>Stocks</td>
<td>7.337</td>
<td>7.635</td>
<td>7.841</td>
<td>8.052</td>
<td>8.253</td>
<td>0</td>
</tr>
<tr>
<td>Inventory Turnover (Days of COGS)</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>CA days stocks</td>
<td>61.543</td>
<td>71.113</td>
<td>73.952</td>
<td>79.725</td>
<td>85.811</td>
<td>0</td>
</tr>
<tr>
<td>AR Turnover (Days of Net Sales)</td>
<td>108</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Duration of collection claims</td>
<td>3.565</td>
<td>3.387</td>
<td>3.217</td>
<td>3.056</td>
<td>2.904</td>
<td>5.662</td>
</tr>
<tr>
<td>Other receivables</td>
<td>-5.0%</td>
<td>-5.0%</td>
<td>-5.0%</td>
<td>-5.0%</td>
<td>-5.0%</td>
<td>95.0%</td>
</tr>
</tbody>
</table>
Cash and Banks Deposits 522 (5,948) 10,329 30,417 50,756 107,529 114,855
Prepaid Expenses 2,897 8,578 8,543 7,023 5,745 5,745
Total Current Assets 75,863 84,766 103,883 128,273 153,468 118,936 137,302
TOTAL ASSETS 365,515 375,225 372,773 377,913 385,727 351,196 369,563
Short Term Debt (IFC and RBS>over)
Payables Inst. Credit <1 year 7,998 7,179 6,365 6,076 5,836 0 0
Suppliers 21,084 20,741 18,488 19,134 19,802 0 0
AP Turnover (Days of Net Sales)
Duration payment of the suppliers 37 35 30 30 30 31 32
Other Current Liabilities 2.976 2.679 2.411 2.170 1.953 3.710 10.760
-10.0% -10.0% -10.0% -10.0% -10.0% 90.0% 190.0%
Current Liabilities 32,059 30,599 27,264 27,380 27,591 3.710 10.760
Bank Debt (IFC)
Amounts owed to credit institutions> 1 year 25,907 29,247 22,759 18,040 13,482 0 0
Other Long-Term Liabilities 0 0 0 0 0 1 2
Long-Term Liabilities 25,907 29,247 22,759 18,040 13,482 1 2
Other provisions 2,628 2,654 2,681 2,708 2,735 5.497 16.546
1.0% 1.0% 1.0% 1.0% 1.0% 101.0% 201.0%
Deferred Revenues 78 75 73 71 69 136 403
-3.0% -3.0% -3.0% -3.0% -3.0% 97.0% 197.0%
Share capital 29,956 29,956 29,956 29,956 29,956 29,956 29,956
Grants related to equity 73 73 73 73 73 74 75
Revaluation Reserve 77,973 65,889 53,845 41,880 29,914 29,914 29,914
Other reserves 152,242 164,325 176,369 188,335 200,300 200,300 200,300
Retained Earnings 44,601 52,406 59,752 69,472 81,609 81,609 81,609
Total shareholders equity 304,843 312,649 319,995 329,715 341,851 341,852 341,853
TOTAL LIABILITIES & EQUITY 365,515 375,225 372,773 377,913 385,727 351,196 369,563

Elements taken into account in the forecast balance sheet to reflect the sport organization's financial position
• development of macroeconomic indicators provided by the National Forecast Commission for 2011;
• sport bases–rent, commissions, fees, sponsorship;
• annual depreciation of fixed assets situation for 2011-2015;
• plan loan repayment for 2011-2015;
• projected investment plan for 2011-2015;
• income - loss count forecast;
• situation of forecast turnover for 2011-2015.

Table 2. Macroeconomic indicators, National Commission for Economic Forecasting

<table>
<thead>
<tr>
<th>Macroeconomic indicators</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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</thead>
<tbody>
<tr>
<td>Increase in consumer prices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- annual average</td>
<td>5.30%</td>
<td>3.50%</td>
<td>3.20%</td>
<td>2.80%</td>
<td>2.80%</td>
</tr>
<tr>
<td>Rate of exchange</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- EURO</td>
<td>4.21</td>
<td>4.18</td>
<td>4.16</td>
<td>4.13</td>
<td>4.13</td>
</tr>
<tr>
<td>- USD</td>
<td>3.21</td>
<td>3.07</td>
<td>3.06</td>
<td>3.04</td>
<td>3.04</td>
</tr>
<tr>
<td>Increased earning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- annual average</td>
<td>5.90%</td>
<td>4.90%</td>
<td>5.00%</td>
<td>4.70%</td>
<td>4.70%</td>
</tr>
<tr>
<td>Rising prices for industrial products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- annual average</td>
<td>4.50%</td>
<td>4.30%</td>
<td>4.00%</td>
<td>3.80%</td>
<td>3.80%</td>
</tr>
</tbody>
</table>

Source: Spring 2011 Forecast
FORECAST ASSUMPTIONS

The expected business turnover was achieved starting from setting items related to the determination of the general objectives of sports unit about department’s evolution regarding performance in sport competitions, to initiate children to take up sport activities, and to give services for people in recreation and personal training fields.

In terms of performance activities, revenues from the sale of promotional materials are targeted, from the sale of the players towards the end of the contract or who are asked by other teams ranked better. Also considered are incomes from TV rights, advertising actions, rights obtained from specialized federations for the previous competitive year.

The Division for Initiation in sport takes into account revenues from monthly fees for training, fees performed by organizing training camps and sponsorship.

The forecast for this segment is favorable because the school population is increasing in recent years and the need to move the children is constant. A higher number of children will generate better revenue.

The division for wellness, fitness and movement is growing. Therefore, diversification of services offered to the peoples and increase the quality of existing ones will generate a greater number of applicants which will increase revenues from this direction.

Thus the calculation of the forecast turnover, growth is expected throughout the forecast horizon studied. Graphics, business evolution and forecast percentage increase or decrease from one period to another, it can be seen in figure below:

![Turnover forecast presentation for 2011-2015](image1.png)

Fig. 1. Turnover forecast presentation for 2011-2015

![Presentation types of income forecast period 2011-2015](image2.png)

Fig. 2. Presentation types of income forecast period 2011-2015
CONCLUSIONS SHOWS THAT

- the asset development throughout the forecast is positive and slightly decreasing;
- the current asset value is positive and increasing from 75,863 to 153,468 thousand lei, the current asset value almost doubled at the end of the projection period;
- the total asset value is found to be positive and increasing from year to year throughout the forecast period studied.

![Graph of total assets, current liabilities and long-term debt](image1)

**Fig. 3.** Presentation of total assets, current liabilities and long-term debt for the forecast period 2011 – 2015

- The evolution forecast FRF is positive, as seen from the chart below:

![Graph of permanent capital, asset and FRF](image2)

**Fig. 4.** Submission of permanent capital, asset and FRF for the forecast period 2011-2015

1. As in static analysis and the projected, positive value and remains are in slight increase in working capital finance, which reflects a stable financial position; financial stability is assured that the unit is reviewed able to pay debts by cyclic realization of current assets. An essential condition for financial stability is the finance part of the operating business needs the resources of the sport organization ‘s stable, condition fulfilled by the sport organization studied.

2. Stocks, in the projected period, given the specific activity of the sport organization are growing and are recorded at the lower of cost and net realizable value. Cost is determined based on the FIFO method. For stocks such as fuels (diesel) valuation method is the weighted average cost method. Cost of services and currently running includes materials, labor and indirect production costs involved. Where necessary, make provisions for slow moving stocks, physical or
moral treatment under accounting policy adopted. Net realizable value is estimated based on the selling price less the costs of completion and selling expenses. Duration of stock rotation is constant throughout the forecast period, namely 13.
3. Claims have increased values and rights will be mainly uncollected by the companies that provide shipping services. Allow recovery of specific activity from customers in the most cases in terms of between 108 and 130 days at the end of the forecast period. Allowance for impairment of trade receivables is established when there is objective evidence that the sport organization will not be able to collect all amounts to the initial terms. Allowance is calculated as the difference between the value recorded in accounting and recoverable value, a value which represents the present value of future cash flows using a discount rate related effect similar financial instrument.
4. In terms of speed rotation of suppliers it is found that during the forecast it should be maintained between 30 and 37 days, smaller, so down at the end of the forecast period.
5. There is a gap remained negative over the forecast horizon, as in days during the collection claims is greater than the duration in days for the payment of suppliers, resulting in lower liquidity and reduce short-term ability to pay, default problems in the short-term cash management.
6. The level of cash, with the exception of 2012, when their value is negative due to overdraft, which represents current liabilities payable to credit institutions, as shown in the calculation of cash flows shows availability does not present a risk of monetary disturbances during the forecasting.
7. Obtaining supplier credit policy. The failure to pay immediate debts to suppliers is a policy that will continue in the future, given that they are in close relationship with the sport organization.
8. Debts to the state budget. Sport organization contributions are presented and deductions from salaries for Health Insurance House, health fund, unemployment, payroll taxes and other contributions.
9. Income tax was calculated using a rate of 16% for the entire forecast period.
10. Dividends were not paid during the forecast, since it was decided that the profit to be distributed on the entire forecast period.
11. The value of the equity capital will remain constant over the following five years predicted, namely 29,956 thousand lei.

REFERENCES:

PRÉVISION DE CALCUL - OUTIL POUR ANTICIPER LES TENDANCES DE L’EVOLUTION DANS LE SPORT ORGANIZATION

Résumé
Prévisions financières est l’activité de planification le plus important. Outils financiers pour atteindre le budget des entreprises de prévision, à la différence du bilan et du compte de résultat, pas destiné aux utilisateurs externes, mais l’orientation des besoins domestiques en vue d’atteindre l’objectif proposé dans la prochaine année financière: améliorer la performance financière de l’entreprise, qui se reflète dans l’augmentation de sa valeur.
Prévisions de la direction, le budget est les principaux domaines d’activité et de surveiller la conformité avec les dispositions budgétaires. Grâce à la budgétisation sont établis affectant les ressources et les responsabilités pour chaque centre d’activité. Ainsi, le budget est une prévision chiffrée des dommages aux ressources et de l’assurance responsabilité pour les objectifs de l’entreprise rentable.

Mots-clés: prévisions équilibre comptable, l’hypothèse prédit, modèle américain de l’équilibre, la situation financière, projetée en fonds de roulement.

EXPERIMENT ON THE INFLUENCE OF COORDINATION CAPACITY FOOTBALL, AGE 14 TO 15 YEARS

Constantin PLOEȘTEANU

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA

Abstract:
In the game of football the psychological factor is always present. Its influence depends on age and morpho-functional changes that occur in processes of growth and development: physical development becomes more balanced, the growth rate becomes constant, the body tends to mature. Motor development is envisaged as the speed of response and performance to make the complex motor actions, the speed to carry distance and gradually different conditions/ variables; the resistance to envisaged development efforts cardio-respiratory variables; the development of explosive strength and force segmentation.
Psychological preparation is a complex process involving formal and non-formal education, skills and attitudes, but also the individual child to be known and evaluated continuously.
In this context it is required knowledge of general and special skills to play football (sports), knowledge of psycho-sensory capacity with respect to the perception of space and time (accurate assessment of distance and speed of the ball in motion, as well as the players; kinesthetic sensitivity, knowledge of psycho-intellectual capacity
with reference to the: attention (concentration, distributive, stability, volume); plasticity thought processes (speed, flexibility, independence and self-critical).
The reasons are the development of energy sources and the affirmation of performance; the need for security prevailing in puberty, the need for love and group membership, etc.

**Keywords:** football training, capacity coordination, kinesthetic sensitivity

**INTRODUCTION**
Optimizing training is the result of the activity of the two cerebral hemispheres. Sensorimotor functions (motility, sensitivity, hand movements, leg movements, eye movements) are controlled by each hemisphere (right, left), direct and reverse (cross). Each half-body is controlled by the opposite hemisphere with the same functions and the same roles, which is not the case with language, thinking, etc. The left hemisphere refers to language, words, figures, analysis and abstraction ability, time dependence (care to proceed methodically). The right hemisphere has the specific features spatial thinking and the ability to see abstract. They are non-verbal ways of expression.

Imagination and intuition are its dominant features, for which office is considered artistic and musical competence. The approach is intuitive opposite of rational. Operation is based on associations of ideas, interactive approach, the synthesis of relations between objects, to reconstruct the information into a coherent whole.

In this way the development is aimed at the development of psycho-motility (N.Wolansky, 1980), which is referred to the general psychomotor coordination, general practice (accuracy and speed of optical-motor reflexes and auditory motor).

For age 14 to 15 years is envisaged:
- Coordination of actions by different objects and positions;
- Coordination of specific motor acts and actions of football.

These actions are important in the development of personality with reference: temperamental balance, opportunities for rebalancing after emotional stress. Training and personal development is the ability to define the skills and knowledge of self interest and it's affirmation.

For children 10-12 years, general physical training aimed at building and strengthening the basic motor skills and motor skills development (D.D. Crăciun, S.Tache, T.Bocu, 2008).

Some authors clarify the components of motor performance related to training methodology (V.Cojocaru, 2002) and methods for assessing driving ability in training (L.Denisiuc, 1990).

Networking our research was based on the influence of coordination capacity (A. Dragan, 2009) to optimize the training lessons to players.

**RESEARCH**
Research tasks is to assess coordination tests to groups of football, 14 to 15 years, to identify existing relationships to optimize the training process. Theme is important both by enlarging the area of knowledge and coordination of specific features football player.

**RESEARCH HYPOTHESES**
To what extent the proposed experimental testing program influence psychomotor coordination among footballers of 14 to 15 years.
If tests of coordination introduced in the experiment identified or expected results to verify this hypothesis and to draw conclusions.

**MATERIALS AND METHODS**
The experiment took place from October 15 to December 15, 2010, in Galati high school sports.

**RESEARCH SUBJECTS**
- Experimental group are students from ninth grade from high school sports of Galati.
- The control group students / athletes from the center of the football club FC Danube of Galati.

An extensive experimental programs with a three-month deployment. Experimental group subjects had one day each week (Wednesday) one 60-minute workout, 40 minutes by means of representing work coordination skills.

**WAY OF WORKING**
1. Weeks 1 to 4, the period 10.09.2010 - 10.10.2010:
   - Types of jumps rope on both legs, one leg to another, place or / and travel, so one minute rest in 1 minute, 40 minutes total.
   - 3 x 3 foot tennis, the obligation to play the 3 balls in a coup to make clumsy foot, 30 minutes total.

2. Weeks 5 to 8, the period 11.10.2010 - 11.11.2010:
   - Moving the ball in a circle each other, 5 groups x 4 players, each player in turn moving alegare 5 meters off the ball in the circle and a circle drive around 3600, after leading the ball 5 meters to the side and place inside each other's circle, running from his group and gives relay starting next colleague. It works differently, with both feet. Year-end is realized as a contest, total 20 minutes;
Players are ready by 3. One is passive defender (C), another (B - located behind the first) to move left and right side and hit the ball given by the third (A) which is at a distance of 2.5 meters. After the first two lessons return ball by the player "B" will be avoiding a milestone, 0.40 meters high, located to the side. Hitting the ball is made with the flat and / or inner shoe, total 20 minutes.

3. Weeks 9 to 12, the period 12.11.2010 - 12.12.2010:
- The ball in a defined space 20 x 20 meters, players will lead the ball avoiding some obstacles in the cavity, constantly changing direction and avoiding teammates. It works in rounds of 2.5 minutes each, begin by leading exercise ball with deft foot and the next half foot neândemânatic, total 15 minutes;
- Playing field 4 x 3 25 x 20 feet, 8 x 3 minutes rounds. The team consists of 4 players will care clumsy foot and the teams will Dein 3 players skilled foot care. In the first 4 rounds will be a game of possession, and the last four rounds will be played in two small gate size of 1.5 / 1 meter.

**RESEARCH RESULTS**

Coordination capabilities are very important, both in selection and improvement in learning and sports. An objective assessment is to evaluate the Matorin and Romberg tests and tests senzio-motor coordination (G. Gheorghiu, 2006), as was done in our experiment.

They used three measurement techniques: Matorin test, Romberg test, coordination test specific elements and techniques.

Meters were roulette, timer and geometric rapporteur.

1. Matorin test

Psychomotor test in assessing the overall coordination, has two directions of rotation: right and left. Perform a vertical jump detachment of the place, followed instantly by a somewhat larger rotation around the longitudinal axis of the body.

Test values are Matorin to turn right (Table 1 and 2):
- Growth rate in the experimental group is 61.10, to increase control group is 33,610.

Test values Matorin from turning left are: (Table 1 and 2):
- Growth rate in the experimental group is 38,780, to increase the control group is 21,480.

<table>
<thead>
<tr>
<th>Table 1. The Matorin test - experimental group n = 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicators</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Amount</td>
</tr>
<tr>
<td>Media</td>
</tr>
<tr>
<td>Growth rate</td>
</tr>
<tr>
<td>Deviation</td>
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<tr>
<td>Cv %</td>
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</table>

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<tr>
<th>Table 2. The Matorin test - experimental group n = 20</th>
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<tr>
<td>Indicators</td>
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<td>-------------</td>
</tr>
<tr>
<td>Amount</td>
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<tr>
<td>Media</td>
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<tr>
<td>Growth rate</td>
</tr>
<tr>
<td>Deviation</td>
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<tr>
<td>Cv %</td>
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</table>

2. THE ROMBERG TEST

Psychomotor test to assess the balance. Athlete is in position standing on one leg, other leg with the heel on the knee on the floor, arms stretched forward, blindfolded. The number of seconds timed as the subject is in balance until the foot positioned on the knee touches the ground.

Romberg test values are (Table 3):
- Growth rate is 5.71 in the experimental group and control group to increase which is 2.02 s.

<table>
<thead>
<tr>
<th>Table 3. The Romberg test - experiment and control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicators</td>
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<tr>
<td>-------------</td>
</tr>
<tr>
<td>Amount</td>
</tr>
<tr>
<td>Media</td>
</tr>
<tr>
<td>Growth rate</td>
</tr>
<tr>
<td>Deviation</td>
</tr>
<tr>
<td>Cv %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Right rotation</th>
<th>Left rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>5575,9</td>
<td>6005,5</td>
</tr>
<tr>
<td>Media</td>
<td>278,79&quot;</td>
<td>300,27&quot;</td>
</tr>
<tr>
<td>Growth rate</td>
<td>33,61</td>
<td>21,48</td>
</tr>
<tr>
<td>Deviation</td>
<td>0,455</td>
<td>0,551</td>
</tr>
<tr>
<td>Cv %</td>
<td>0,163%</td>
<td>0,183%</td>
</tr>
</tbody>
</table>
3. Psychomotor coordination test specific football game.
Perform 2-fold path. The first attempt leads the football player in the direction of an equilateral triangle with sides of 3.5 meters. At each corner of the triangle player bypasses a milestone with 360° foot handy. After a pause of 10 seconds to start in the second attempt, the player will lead a ball awkwardly avoiding the 3600 without running the benchmark.

They timed the total time working, without taking into account break 10 seconds.
Psychomotor coordination test values are: (Table 4)
- Growth rate in the experimental group is 5.15 and 0.94 were obtained from the control group;
- Coefficient of variation is lower in final testing in the experimental group, indicating good homogeneity, to the control group showing a lack of homogeneity.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Experiment group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TI sec</td>
<td>TF sec</td>
</tr>
<tr>
<td>Suma</td>
<td>376.68 s</td>
<td>490.72 s</td>
</tr>
<tr>
<td>Media</td>
<td>18.83</td>
<td>24.48</td>
</tr>
<tr>
<td>Growth rate</td>
<td>5.71</td>
<td>2.02</td>
</tr>
<tr>
<td>Deviation</td>
<td>0.01</td>
<td>0.185</td>
</tr>
<tr>
<td>Cv%</td>
<td>0.067%</td>
<td>0.757%</td>
</tr>
</tbody>
</table>

DISCUSSION AND CONCLUSIONS
Knowledge of the evolution of these capacities allows for optimal age for intervention with the most appropriate means to gain "time" and correct programming and directing sports training.
Means of training to be targeted and the specific capacity to be developed.
Structure operating systems and application functional, motor, mental, and availability are adequate opportunities to athletes, our footballers for 14 to 15 years.

BIBLIOGRAPHY
METHODICAL PRIORITIES TO FORCE GENERAL AND SEGMENTATION IN 11-12 YEAR OLDERS

Constantin PLOEŞTEANU
Faculty of Physical Education and Sports, “Dunarea de Jos”
University of Galati, ROMANIA

Abstract
We designed an experimental program consisting of exercises in athletics, playing sports (football, boys), process-orientated routes. The research project design takes into account the objectives and major principles of curriculum development of the students’ driving ability, i.e. adaptation and improvement in exercise by developing motor qualities, forming a body building muscle in the upper and lower body, implementation of motor qualities (speed) in skill action in the sports game, coordination, agility, and ability to independently practice exercise.

In this context we designed an experimental curriculum using means that are attractive for students, allowing students to choose the enforcement action depending on their driving performance in different situations. The nature of the competition is both individual and collective, at certain times of the lesson, the differential treatment may have an individual character, characterized by performing the various exercises in a self-paced form of competition. These objectives are always able to ensure harmonious physical development under all aspects (physical, psychological, physiological and motor).

Athletic exercises aim at teaching skills and driving skills and also focus on the development of driving qualities, of the lower body muscle strength, and increased exercise capacity.

The sports game aims at exercising and increasing effort capacity by developing motor qualities, in general, and speed-driving quality, in particular, but also development of the upper body muscle strength.

Process-orientated routes or skills assessing tests (feature ability) were composed of simple means, chained in a convenient, logical order for students, being categorized more as a quality that can be educated, producing effects over the kinesthetic sensitivity, balance in all its forms, sense of rhythm and time measurement, limb coordination, precision, agility and control of muscular effort.

Throughout the course of practical exercises we tried to make them attractive, compatible with children’s abilities to undertake its effort.

Keywords: need to move, multilateral training, aerobic/anaerobic physical effort, muscle resistance, kinesthetic sensitivity, agility, attractiveness

INTRODUCTION
We tried to achieve both socialization of students while playing sports and socialising and biomotor performance. Most investigations show the positive influence of sports on the personality and health of those who practice it, especially on children and students. The advantage of sports is that they exert influence on both body and mind; moreover it is considered that cultural values, individual and social attitudes and behaviours learned in physical activity are to be transferred in other domains of life.

The use of means of athletics, playing sports, attending one (or more) process-orientated routes executed in light and progress conditions, in the
training process, which would effectively and lastingly contribute to students’ health and would also relax them, obvious concerns are required to lead to stimulation of the body, to form moving skills in order to increase the driving motion capacity.

**RESEARCH HYPOTHESIS**

To what extent the educational mass-process for health and relaxation conducted with middle school students (6th grade), based on the educational content of athletics, playing sports (football, handball), process-oriented routes, with multilateral training effect, will influence the formation of integrative psycho-mechanical qualities in students, will contribute to achieving the major objectives of school physical and leisure education.

**OBJECTIVES, PURPOSE, TASKS**

Making an analysis of the theoretical and methodological approach to the issue of motor capacity development in 11-12 year olders, through initial and final testing.

Experimenting (developing) specific programs of motor quality development conditional speed (all forms of expression), aerobic/anaerobic resistance, speed-skill specific exercises in soccer, handball, muscular strength and endurance, going through some process-oriented routes (simple but effective work conditions) to develop coordination and agility, all these proposed programs have the purpose to positively influence the dynamics of motor ability development, based on a semester curriculum design, for new content guidelines in middle school physical education.

Who solves these tasks in terms of instructional point of view and in what way are they distributed:

1. Athletics:
   - development of aerobic/anaerobic effort capacity;
   - development of lower body muscle strength;
   - development of capacity for independent practice of physical effort.
2. Games - football (boys) and handball (girls):
   - development of aerobic/anaerobic effort capacity;
   - development of upper body muscle strength;
   - development of the capacity to practice the football and/or handball game in a pleasant way, useful for their health.
3. Process-oriented route:
   - development of aerobic/anaerobic effort capacity;
   - development of agility and coordination skills;
   - development of capacity for independent practice of physical exercises.

**MATERIALS AND METHODS**

The designed research project provides students in secondary schools with the possibility to dose the effort in terms of their needs, by reducing the area or increasing the time, by self-grading the effort, by changing the weight, shape or volume of objects, by increasing or shortening the effort or rest period, in this case, for athletics, playing sports, football for boys and handball for girls, simple crossing of a process-oriented route, has a multilateral and beneficial influence on students’ body (interior comfort of the body).

The project was conducted at the Research Center for Human Performance at the Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati. The research practice activity took place at “Stefan cel Mare” School no. 13 of Galati, on a sample of 60 boys and 40 girls in the 6th grade.

**Control tests.** Physical control tests: 50 m speed, 800 m resistance, long jump without momentum, throwing the rounders ball, tractions. We measure (time) the achieved performance.

**Complex control sample.** Going through the following process-oriented route, running three meters, balance walking on the gym bench (inverted bench), jump inside two rounds of gymnastics herringbone-arranged at a distance of 1 m, arms traction on the gym bench with rolling ahead on the mat at the end of the bank, crawling on the mat through four fences having a height of 0.50 meters, running through four stakes at 1 m distance between them, the escalation of a gymnastic crate 1.20 m high, crossing the finish line. We measure the time course.

**Technical control tests:** technical structure (skill) under speed. Shuttle 5 x 8 m and shoot the football or handball ball (5 times), which is located at 7 m from the handball gate, in the empty gate or defended by a goalkeeper. Measure the transit time and how many balls have been sent (shot) inside the gate without the ball touching the ground. Ball shot into the crossbar or goal posts are considered successful.

**RESULTS**

We used research bibliographic study, caused observation, experiment (both the observing and the forming type) to highlight the effectiveness of the training program under testing based on a curriculum design for new guidelines on physical education content of secondary schools, which offers students the opportunity to dose the effort after their needs; in this context, the objectives of school physical education for the need to move are able to permanently provide a harmonious physical development, under all aspects of physical, psychological, physiological and motor, through physical education lesson, but with a greater attractiveness for the students.

Tests were performed before the start of the experiment (initial tests) and at the end of the experiment (final testing); the aim of the experimental program is to reveal whether the motor ability
performance increases as compared to the national evaluation system (minimum scale). We used the statistical-mathematical application of dependent t-test because the two groups of results (initial and final) are related to each other. In Tables 1 and 2, the increased size relative to the physical tests shows progress in all samples included in the research. The increases are obvious in the control tests of speed (50m), resistance (800m), long jump without momentum; however there is a significant increase in throwing the rounders ball and a large increase in dangling tractions, the results being determined by the phenomenon of positive transfer of motor qualities, especially of that of strength.

### Table 1. Physical test results – boys (n=60)

<table>
<thead>
<tr>
<th>Test</th>
<th>Control samples</th>
<th>Initial test</th>
<th>Final test</th>
<th>Difference</th>
<th>D²</th>
<th>The increasing</th>
<th>t-test dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed 50m (sec)</td>
<td>Σ 514.2</td>
<td>496.2</td>
<td>18</td>
<td>6.12</td>
<td>3.15%</td>
<td>t(59)=21.1</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 8.57</td>
<td>8.27</td>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance 800m (min)</td>
<td>Σ 110.72</td>
<td>199.02</td>
<td>11.7</td>
<td>2.3586</td>
<td>5.41%</td>
<td>t(59)=48.9</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 3.51</td>
<td>3.31</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long jump without momentum (m)</td>
<td>Σ 93.36</td>
<td>99.3</td>
<td>5.94</td>
<td>0.6198</td>
<td>6.38%</td>
<td>t(59)=34.9</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 1.55</td>
<td>1.65</td>
<td>0.099</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throwing the rounders ball (m)</td>
<td>Σ 1218</td>
<td>1608</td>
<td>390</td>
<td>2622</td>
<td>32.01%</td>
<td>t(59)=18.8</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 20.3</td>
<td>26.8</td>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traction (regulatory)</td>
<td>Σ 84</td>
<td>252</td>
<td>168</td>
<td>492</td>
<td>200%</td>
<td>t(59)=35.8</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 1.4</td>
<td>4.2</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2. Physical test results – girls (n=40)

<table>
<thead>
<tr>
<th>Test</th>
<th>Control samples</th>
<th>Initial test</th>
<th>Final test</th>
<th>Difference</th>
<th>D²</th>
<th>Increasing</th>
<th>t-test dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed 50m (sec)</td>
<td>Σ 379.2</td>
<td>370.4</td>
<td>8.8</td>
<td>2.08</td>
<td>2.32%</td>
<td>t(39)=23.1</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 9.48</td>
<td>9.26</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance 800m (min)</td>
<td>Σ 127.6</td>
<td>124.16</td>
<td>3.44</td>
<td>0.32816</td>
<td>2.69%</td>
<td>t(39)=19.1</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 3.19</td>
<td>3.104</td>
<td>0.086</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long jump without momentum (m)</td>
<td>Σ 59.48</td>
<td>62.36</td>
<td>2.88</td>
<td>1.5748</td>
<td>4.84%</td>
<td>t(39)=2.44</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 1.487</td>
<td>1.559</td>
<td>0.072</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throwing the rounders ball (m)</td>
<td>Σ 564</td>
<td>920</td>
<td>356</td>
<td>1452</td>
<td>63.1%</td>
<td>t(39)=10.4</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 14.1</td>
<td>13.6</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traction (regulatory)</td>
<td>Σ 16</td>
<td>36</td>
<td>20</td>
<td>20</td>
<td>125%</td>
<td>t(39)=6.24</td>
<td>p &lt;</td>
</tr>
<tr>
<td></td>
<td>M 0.4</td>
<td>0.9</td>
<td>0.5</td>
<td></td>
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</tbody>
</table>

In Table 3, the boys accomplish a rather large increase (34.3%) at the “complex control sample” test, showing in this case also the high level of adaptability, agility, coordination and skill that students have acquired in a relatively short training time. There are also highlighted the increases in girls (Table 4).
In Tables 5 and 6, the technical action results as related to skill demonstrate the progress at the final testing of the arithmetic mean and homogeneity of the groups, at the end of the experiment, during research, showing elastic structure and effective motor action.

**DISCUSSION AND CONCLUSION**

In an intense school activity that requires increased intellectual and physical effort, one school year after another, physical education can permanently provide a harmonious physical development in terms of continuous growth of motor capacity. Socialization in sport cannot be promoted unless it develops moral traits, so these issues should be given more attention to highlighting the importance of dialogue between participants and giving children more opportunities to exercise their own responsibility by holding sports activities and to improve their social and ethnic consciousness.

As part of society members’ life and affecting it, physical education and sports become a social problem of national interest. Our opinion is that psycho-mechanical acts, psycho-mechanical activities, as a component of the social phenomenon of physical education and sports have a profound practical character and these specific facets must be fully reflected in the theoretical focus of those interested to influence them. In a simpler and more practical way, physical exercise is a systematically and consciously performed motor action to positively influence under the following aspects: physical, mental, motor, physiological, moral, spiritual and material. The information of the entire social phenomenon of physical education and sports currently provided in literature must always be filled with practical, innovative information, taking the form of plans, experimental programs, models of training, lesson models.
Accepted items of the training system:
- students participation in physical education lessons has been improved by the attractiveness for and awareness of students on personal opportunities, by the more energetic mode of activity, by the interest and attention that students have shown under those circumstances;
- we recommend an increased teacher autonomy in the composition and conduct of lessons by: priority use of methods and operating systems to perform firstly a proper physical condition; compliance of learning steps and of permanent correction are accompanied by a conscious and active students participation; corresponding adaptability to students abilities;
- evaluating the motor qualities ensures achieving qualitative and quantitative accumulation, going through some lesson systems, provides the option of the two partners/ factors - teacher and student- of the teaching approach; due to the scoring system (sometimes wrongly understood and applied by physical education teachers) many students come to be “exempt” from physical education courses;
- assessing and then grading (marking) the students should attract them to the physical exercise practice, to ensure the engagement of children in its practice, not to be a solution to increase or decrease the annual average of the student;
- students health should not be measured (assessed-marked) by an annual average at a school subject or by the average mean at the end of a school cycle;
- highlighting significant data that may influence student grading (known and marked by the teacher), a hierarchy of grading, provides a discrimination (from the beginning) of students with fewer opportunities;
- the system totally involves all other factors to ensure physical education partnership (family, playing by the average mean at the end of a school cycle; the more energetic mode of activity, by the interest awareness of students on personal opportunities, by the nature of the concurrence is to the performance au volant dans différentes situations, the nature of the concurrence is to a fois individuellement et collectivement, à certains moments de la leçon, différence de traitement peut avoir un caractère individuel, caractérisé par l'exécution des différents exercices en auto-formation sous forme de concurrence, ces objectifs sont toujours en mesure d'assurer un développement harmonieux physique, sous tous ses aspects (physique, psychologique, physiologique et moteur).

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Priorités méthodiques général de l’armée et segmentation dans 11-12 élèves l’année vieux

Resume:
STUDY ON TECHNIQUE ERRORS IDENTIFICATION IN VOLLEYBALL’S TWO-HANDED PASS FROM BELOW BY VIDEO ANALYSIS

PREDA Carmen

Faculty of Physical Education and Sports, “Dunarea de Jos”
University of Galati, ROMANIA

Abstract

This article is part of a larger study aimed at identifying technical errors by video analysis.

In the initial stage of learning a new technical procedure, the formation of the psycho-motor representation is accompanied by important deviations from the model occurring in the biomechanics of actions. Many experts in the field have tried to prevent and correct even the most serious deviations that are harmful to the motor act by distorting its form and content.

Keywords: technique, volleyball, video analysis, errors, evaluation

INTRODUCTION

Execution errors are part of the learning process. In the absence of errors, learning cannot be said to take place, the same as teaching. This is due to the fact that teaching, in its complexity, takes errors as a conscious or unconscious underlayer. The process of knowledge acquisition cannot be complete without the error awareness occurring in learning, brought to light by the initial, intermediary and final assessments, increasing the effect of explanations and means, making these complementary and not unique, to the situations familiar, known and understood by the subject. Everyone knows the phrase “to learn from one’s mistakes”, even from other people’s mistakes; that is why pointing out the errors in groups has a strong revealing and mobilising role, helping the teacher disseminate information to the subjects and increasing the latter’s interest.

CONTENT

The subjects that were included in the experiment (level of training - beginners) were organised into an experimental group and a control group.

During the training sessions, two video cameras were used, filming the player from two different angles, to provide a clear image of all the bodily segments involved in the technical procedure. The videos were processed by means of a specialised program whose software is available online at http://www.physicstoolkit.com/, thus enabling the follow-up of all bodily segments during the game sequence.

The program calculates the angles of the bodily segments during the execution of the technical procedure; moreover, the possibility to run the film forwards and backwards provides a detailed view of the errors made by the player.

METHODS

When putting together the execution errors, the following steps were completed:

- in order to identify execution errors, the video images were put into AVI format by means of VirtualDub v1.9.9;
- the identification of the representative movement sequences and the framing of the specific sequence from the video file by means of VirtualDub v1.9.9;
- grouping the frames according to the moments of input into the execution of the two-handed pass from below;
- introducing the images into the Physics Toolkit 6.0 program led to processing the biomechanical indices found in the execution of the two-handed pass from below;
- the analysis of the data issued from the program on each articulation in part by means of Microsoft Excel 2003 and their global graphical representation by means of Adobe Fireworks CS4.
Fig. 1. Transforming images and identifying sequences in AVI format through VirtualDub v1.9.9

Fig. 2. Identifying bodily segments of interest in relation to the ball

The analysis of the mathematical data on each bodily segment of interest (shoulder, elbow, cuff, hip, knee, ankle) in relation to the ball was processed Adobe Fireworks CS4. It led to the following graphical representation of the analysis on each articulation.

<table>
<thead>
<tr>
<th>shoulder</th>
<th>elbow</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1(m)</td>
<td>Y1(m)</td>
</tr>
<tr>
<td>0.464</td>
<td>1.246</td>
</tr>
<tr>
<td>0.435</td>
<td>1.406</td>
</tr>
<tr>
<td>0.406</td>
<td>1.565</td>
</tr>
<tr>
<td>0.377</td>
<td>1.681</td>
</tr>
<tr>
<td>0.348</td>
<td>1.681</td>
</tr>
</tbody>
</table>

Fig. 3. Mathematical analysis on the shoulder and elbow action in relation to the ball

Fig. 4. Mathematical analysis on the hip action in relation to the ball

Right ankle

<table>
<thead>
<tr>
<th>Right ankle</th>
<th>Left ankle</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1(m)</td>
<td>Y1(m)</td>
</tr>
<tr>
<td>0.391</td>
<td>0.116</td>
</tr>
<tr>
<td>0.391</td>
<td>0.116</td>
</tr>
</tbody>
</table>
Fig. 5. Mathematical analysis of the ankles action in relation to the ball

<table>
<thead>
<tr>
<th>Right knee</th>
<th>Left knee</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1(m)</td>
<td>Y1(m)</td>
</tr>
<tr>
<td>0.507</td>
<td>0.522</td>
</tr>
<tr>
<td>0.493</td>
<td>0.522</td>
</tr>
<tr>
<td>0.435</td>
<td>0.58</td>
</tr>
<tr>
<td>0.377</td>
<td>0.652</td>
</tr>
</tbody>
</table>

Fig. 6. Mathematical analysis of the knees action in relation to the ball

<table>
<thead>
<tr>
<th>Cuff</th>
<th>Thumb</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1(m)</td>
<td>Y1(m)</td>
</tr>
<tr>
<td>0.522</td>
<td>0.768</td>
</tr>
<tr>
<td>0.565</td>
<td>0.928</td>
</tr>
<tr>
<td>0.667</td>
<td>1.304</td>
</tr>
<tr>
<td>0.696</td>
<td>1.58</td>
</tr>
<tr>
<td>0.652</td>
<td>1.754</td>
</tr>
</tbody>
</table>

Fig. 7. Mathematical analysis of the palms grasp and cuff contact in relation to the ball

The selection of the images showing erroneous executions aided in the examination of the deficient segment of the players during the execution of the two-handed pass from below.

Attempting to put together a classification of technical errors, they were differentiated according to the phases (sequences) of the technical procedure (particularisation), and then identified in the execution on the whole in game conditions (generalisation).

The input of images in the Physics Toolkit 6.0 program allowed the processing of the biomechanical indicators found in the execution of the two-handed pass from below.

RESULTS

As a result of the analysis performed on the beginner female players after completing the initiation stage, it was found that most execution errors occur in the “arm work” sequence, the main issues being elbow bending or the erroneous contact with the ball, thus requiring attention in order to improve the execution technique.

Consequently, the “ALTATHLON” device was devised to assess the execution objectively, by taking into account the process stages.
CONCLUSIONS

During the training process, it is of use to operate with a unitary system of objective indices able to assess the training level, represented by a motion analysis program. The use of supporting devices is an effective way to train and assess players, able to complete the present methodology in high performance volleyball.

Using the video recordings, the main technical errors were identified; more importantly, the causes leading to the error occurrence were extrapolated.

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ÉTUDE SUR L’IDENTIFICATION DES ERREURS DE TECHNIQUE EN VOLLEYBALL — LA PASSE A DEUX MAINS DE DESOUS, EN UTILISANT L’ANALYSE VIDEO

Résumé
L’article fait partie d’un projet plus ample ayant comme objectif l’identification des erreurs de technique par l’analyse vidéo.
Dans l’appréhension initiale d’un procédé technique, la formation de la représentation psycho-motrice est accompagnée de déviations importantes dans la biomécanique des actions. Cet aspect fait l’objet de la recherche présente tout comme des efforts de nombreux experts dans ce domaine, qui essaient à prévenir et éliminer les erreurs qui causent des préjudices, par la dénaturation de la forme et du contenu de l’acte motrice.

Mots clés: technique, volleyball, analyse vidéo, erreurs, évaluation

STUDY ON IDENTIFICATION OF FUNCTIONAL FEATURES UNDERLYING TRAINING IN MARTIAL ARTS

Gheorghe PRICOP1, Florin Valentin LEUCIUC2, Thiery LONG3

1,2“Stefan cel Mare” University of Suceava, ROMANIA
3“Sofia Antipolis” University of Nice, FRANCE

Abstract:
The purpose of the study is to identify functional features of martial arts artists and their influence on training. The goal is to adapt the body to prepare competitive effort resulting in morpho-functional improvement, increased body potential and capacity to resist external factors.
Basic guidelines for preparing children to be sports practice orientated by designing programs tailored for 6-8 year olders; programs whose practical effect to achieve the objectives set for this level of training, according to theoretical data and methodological literature provided.
This age group (6-8 years) is optimal for the development of certain components of driving ability: mobility, speed, strength, coordination capabilities (rythm, balance, spatial and temporal orientation).

Keywords: functional features, training, kids, martial arts

INTRODUCTION
The study was structured in the following sections: material-method (approach that sets the premises in the study), results (analysis) and discussions (presents the final conclusions of the study).
The sports training effort means physical and psychical screening, transmission and processing of information to determine a certain degree of solicitation of body involving the muscle and energy system, amending the homeostazic and starting at a higher level.

Modeling is the method by which phenomena are studied using models, reproducing the original system model. Through design, knowledge of reality is done with the object or process that shapes it.

By studying the model, we collect data, formulate hypotheses and assumptions about the
object, phenomenon or process modeling. Based on the model created to study the phenomenon or activity, trying to find optimal solutions to achieve it.

In the educational process have developed various models on modeling method is used. Through models students are helped to notice and discover some properties, and the relationship information about the phenomena and processes in sports training that these models reproduce. In this way teaching model condenses a series of information that athletes are going to discover.

Teaching models are considered similar models of reality, in teaching technology, the model representing the maximum requirements that may be made in the educational process.

In the field of sports training, the model projected maximum requirements to be met. Can develop models for internal training models for children and youth, and other categories of athletes. Developing models of particular importance in the objectification and optimization of preparation.

The cyclicity of the competitions requires establishing these core values for a certain period and determines the success of competitors. Change usually occurs slowly and not always even causing all typical values at a time. This change occurs because of competition rules, but often due to the evolution of the concept of selection and training, which is in close correlation and interdependence.

The effort in training in martial arts means the winning aware of the process requests from training or sports contest for improving preparedness (physical, technical, tactics, psychic) which produces changes in the capacity and performance systems functional adaptation involved. Adaptation requires stimuli able to produce a response from the body.

The purpose training consists in adapting the organism to effort where the effect improving morpho - economy, increasing potential body and the ability to withstand external stimulus.

The characteristic feature of sport and competition that is all that means, record, performance, title, today is found increasingly more in practice more and more martial arts. Moreover, we can say that in recent years, more and more martial arts were “sportivized” the desire to enter the market, to be known, to capture attention. At first they were a cult of the body and spirit, never being considered separately. A victory of the body must necessarily be one of the spirit and vice versa.

Lately, however, came what are called martial arts sporting events as a show. Highly publicized, these competitions have meaning only as a means of fight verifying. They distort the true picture of martial arts fight. To make a goal of these fights, contests and performances is not by far the goal of a true fighter.

Obtaining special techniques to impress your friends, or public, again may alter the real purpose of martial arts.

In Vovinam Viet Vo Dao, the first international contests were organized in recent times, i.e. of the third stage (International touring in 2000, World Championships in 2003 and European championships in 2004).

MATERIAL METHOD
The aim of the study is to identify the functional particularities of martial arts practitioners and their influence on the training process.

Effort in martial arts is a conative behavior of the athlete to mobilize resources in physical and mental training and competition. It involves physical effort of all body systems to achieve adaptation, namely the development of motor skills, mental, physiological and high biochemical levels.

Martial arts exercise occurs at a time when specific techniques are performed.

The variety of effort presents specific characteristics, which have to be known to know the limiting or stimulating effects on the martial arts practitioners’ body (Hantău, 1996; Chau-Phan, 1999; Frazzei, 1999; Jordache, 1999; Avalone, 2000; Cișmas, Ozarevici, 2001; Tran Van Ba., 2002a; Levet, 2006).

- Sports effort involves uniform and monotonous daily requests; to obtain performance in martial arts sports, and needs to be very intensive for the purpose of adapting the upper body to training requirements.

- Static, dynamic and combined efforts occur according to the nature of the muscle contractions: static (isometric) creating tensions in the muscle, without changing its length (battle positions, blocking, forcing the joints, bottleneck, immobilisation); dynamic (isotonic) - characterized by skeletal muscle length changes (lengthening, shortening) and their projection in the martial arts are given the dodge, travel specific design, falls, blows; combined efforts (isokinetic) - are those that meet the static and dynamic moments: punch attack, block, dodge and counter with kicks, blocking.

- Cyclic and acyclic efforts. Cyclical movements in martial arts are performed with fists hit series such as direct blows left, right, range of kicks executed with the same foot at the same level, phase sequence or repetition of the same techniques in unit time. Acyclic effort is what characterizes the most prominent martial arts fight in the sense of execution in the constant exchange of attack techniques, defense and counterattack according to actual combat situation.

- Continuous and discontinuous efforts - discontinuous efforts are discontinuous interruptions that may occur or breaks, which allow the body to
recover partially; this type of effort is most common in martial arts.

- **Single and repeated efforts** – in martial arts repeated efforts prevail, because winning the competitions requires lots of encounters, each one needing new trainings (activations) in the breaks between the rounds or matches.

- **Training efforts and competitive efforts**. The two types of exercise differ through the physical and mental education in the competition due to mobilization and motivation.

- **Nonspecific and specific efforts**. Nonspecific efforts are used, especially in motor skills development by means of other sports. If specific efforts, these include means for physical training, technical and tactical style practiced in the area.

- **Neuromuscular, cardiorespiratory and energetic efforts**. Knowing the typology for this classification is useful for determining the optimal proportions for orientation training practiced sports industry with a solid scientific basis, using the most effective ways and means. The martial arts are prevalent neuromuscular effort and energy, nervous system and are required by competitive fight analyzers and energy mechanisms are required at maximum power for quick.

- **Aerobic, anaerobic and mixed efforts** (alactacid and lactacid). The classification is based on divisions depending on how efforts to provide energy (ATP, CP, glycogen) to support the effort in the presence or absence of oxygen. Most styles present during the fight between 4 and 9 minutes, ie at the limit between anaerobic latacid and mixed phase. There are situations when the fight ends after a few seconds (alactacid anaerobic effort) because obtaining victory following a well-placed kicks or design.

The correlation between the heart rate and the duration of the application in relation to energy sources are the following (Dragnea, 1996), Table 1:

<table>
<thead>
<tr>
<th>Energetic source</th>
<th>Heart rate</th>
<th>Duration of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic</td>
<td>120-150 bpm</td>
<td>Over 5 minutes</td>
</tr>
<tr>
<td>Mixed</td>
<td>160-190 bpm</td>
<td>2-5 minutes</td>
</tr>
<tr>
<td>Anaerobic - lactacid</td>
<td>180-190 bpm</td>
<td>21-120 seconds</td>
</tr>
<tr>
<td>Anaerobic - alactacid</td>
<td>170-190 bpm</td>
<td>1-20 seconds</td>
</tr>
</tbody>
</table>

The heart rate can be considered an objective criterion for assessing the types of effort (Table 2).

<table>
<thead>
<tr>
<th>Heart rate</th>
<th>Aerobic-anaerobic exercise percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 120 bpm</td>
<td>100% aerobic</td>
</tr>
<tr>
<td>120-150 bpm</td>
<td>90-95% aerobic 5-10% anaerobic</td>
</tr>
<tr>
<td>150-165 bpm</td>
<td>65-85% aerobic 15-35% anaerobic</td>
</tr>
<tr>
<td>165-180 bpm</td>
<td>50-65% aerobic 35-50% anaerobic</td>
</tr>
<tr>
<td>over 180 bpm</td>
<td>Over 50% anaerobic</td>
</tr>
</tbody>
</table>

**Severe, heavy and light efforts.** Depending on the intensity of the exercise, there are severe efforts (the heart rate goes to 160 beats per minute, lasting up to 1 minute), hard efforts (heart rate 140-160 beats per minute and lasting up to one hour), and light efforts (heart rate below 120 beats per minute, lasting up to several hours).

In various martial styles meet all these types of intensities of effort because of the complex.

In the noncontact and semicontact styles, the intensity of the exercise is lower, i.e. the category of hard efforts (intense and optimal), but not exhaustive or maximal intensities are excluded at certain moments of the struggle.

The efforts in the sever type group meet in full contact rounds from full contact styles. Breaks between rounds are 1 minute, during which athletes recover partially.
Adaptation of biochemical and morpho-functional changes include cumulative occurring after a long workout.

Long-term adaptation is determined by volume and high intensity exercise that results in hyperactivity organs and systems involved (increased muscle mass, the volume of the heart, oxygen consumption).

Long-term adaptation is achieved in three stages: the systematic mobilization of resources through the process of the body functional training, increasing intensive efforts to determine the structural and functional changes in organs and tissues (hypertrophy), achieving stable adaptation, due to insufficient energy reserves necessary to carry motor activities (Demeter, 1981, 1982).

**DISCUSSION**

Every sport must establish models that are oriented according to the preparation and participation in competitive sports. In this regard, the essential are training patterns (training), contest, champion. Primary is the champion model, because its characteristics are established basic aspects of the competition model, that of training.

Establishing the champion model is complex because it includes somatic, functional motor skills, technical, mental data.

Each of these components must be given attention to determine the specific characteristics which will ultimately contribute to shaping the model champion.

In martial arts, as in the other sports, these models are developed for senior athletes, and then, depending on the features and characteristics by older models can be made at the junior and children.

Data from the literature does not reveal sufficient information for the senior model champion Vovinam Viet Vo Dao style. It is necessary to establish in detail all the components, based on the study of other styles in the literature and research are at an advanced level.

The Vovinam Viet Vo Dao style is representative of the Vietnamese martial arts school that uses the principles of the Vietnamese fight, of strength and suppleness with those of judo (Chau, Phan, 1999; Avalon, 2000; Tran Van Ba, 2002b; Levet, 2006).

**THE SOMATIC MODEL**

The Vovinam Viet Vo Dao competition has three classes as follows:

1. **CHILDREN**: young children (7-10 years) and older children (10-14 years) with the following weight categories:
   - young children (girls and boys): no fighting competitions are organized for this category, only technical;
   - older children - boys: 40kg, 45kg, 50kg, 55kg, 60kg;
   - older children - girls: 40kg, 45kg, 50kg;

2. **JUNIOR**: junior small (14-16 years) and older juniors (16-18 years) with the following weight categories:
   - junior small - boys: 45kg, 50kg, 55kg, 60kg, 65kg;
   - junior small - girls: 45kg, 50kg, 55kg;
   - junior high - boys: 50kg, 55kg, 60kg, 65kg, 70kg;
   - junior high - girls: 50kg, 55kg, 60kg.

3. **SENIOR**, with the following weight categories:
   - seniors - boys: 60kg, 65kg, 70kg, 75kg, 80kg, 85kg, 90kg;
   - seniors - girls: 50kg, 55kg, 60kg.

In terms of somatic, the Vovinam Viet Vo Dao practitioner must fit the following pattern:

- relationship between size and scale to be close to the value 1;
- waist report - 100 / weight is recommended to be below 1.

The definition of the somatic model is only based on these parameters because there are weight categories that make it difficult to establish a unified model valid for all athletes because the difference in weight at males can be over 30 kg.

**THE FUNCTIONAL MODEL**

The typology of motor activity in the martial arts requires that the dominant energy system is one that uses 90% of the energy supplied by ATP and CP in accumulation of lactate (anaerobic lactacid) and one based on 10% oxygen - aerobic (Chirazi, 1999; Phan Chau, 2002; Dragnea, Teodorescu, 2002; Constantin, Michael, 2003).

In martial arts are dominant neuromuscular effort and energy, nervous system and the analyzers are required by competitive fight and mechanisms are required at maximum power for quick energy.

**THE MOTRICAL MODEL**

- specific power under speed
- speed in resistance regime
- joint mobility for the implementation of specific techniques
- coordination capacity needed for a better positioning in combat with the enemy in the effective application of techniques
- specific resistance

Establishing the technical model is a difficult task due to the complexity of the technical component. For high-performance, the technical model has the following structure:

- knowledge and practical application of the 10 positions (TAN);
- blockages using (GAT) by combat situations;
- knowledge of techniques of punches (LOI DAM), elbow (CHO), feet (LOT DA);
application in combat techniques of self defense (Khao GO TU VE), defense against punches (PHA DON TAY), defense against kicks (Phan Don Chan), defense against knife (DAO GAM);
- knowledge of the offensive techniques by foot (DON CHAN TAN CONG) to counter enemy actions;
- the right times to use techniques from category key arm (KHOA TAI DAT);
- using the techniques of attack and defense weapons (knife, sword);
- knowledge of Vietnamese fighting technique (VAT), fight coded (SONG LUYEN) and imaginary forms of fighting (QUYEN).

Progression in terms of Vovinam Viet Vo Dao knowledge technique is well illustrated by the exam grade, where you know certain technical elements of style. From the initial stage till the achievement of the black belt, the student must master very well this martial arts technique.

CONCLUSIONS

Basic guidelines for preparing children to be sports practice orientated by designing programs tailored for 6-8 year olders; programs whose practical effect to achieve the objectives set for this level of training, according to theoretical data and methodological literature provided.

For references are non-existent practices, experts in the field making only recommendations on training young athletes methodically.

This age group (6-8 years) is optimal for the development of certain components of driving ability: mobility, speed, strength, coordination capabilities (rhythm, balance, spatial and temporal orientation).

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ETUDE SUR L’IDENTIFICATION DES CARACTÉRISTIQUES FONCTIONNELLES QUI SOUS-TENDENT LA FORMATION DANS LES ARTS MARTIAUX

Résumé:
Le but de cette étude est d’identifier les caractéristiques fonctionnelles d’artistes des arts martiaux et leur influence sur la préparation. L’objectif est d’adapter le corps à se préparer effort concurrentiel résultant de morpho-fonctionnelle d’amélioration, une augmentation du potentiel du corps et sa capacité à résister aux facteurs externes.

Lignes directrices de base de la préparation des enfants pour être pratique sportive orientée par la conception de programmes adaptés à l’âge 6-8 ans, les programmes dont les effets pratiques pour atteindre les objectifs fixés pour ce niveau de formation, selon les données théoriques et méthodologiques de la littérature.

Ce groupe d’âge (6-8 ans) est optimal pour le développement de certaines composantes de l’aptitude à conduire: la mobilité, la vitesse, force, les capacités de coordination (rythme, l’équilibre, l’orientation spatiale et temporelle).

Mots clés: caractéristiques fonctionnelles, la formation, les enfants, les arts martiaux
THE ROLE OF RISK MANAGEMENT IN DECREASING THE NUMBER OF LAWSUITS OVER SWIMMING POOLS

Mohammadi SARDAR, Izadi BEHIZAD

Department of Physical Education and Sport Science, University of Kurdistan, Sanandaj, IRAN

Abstract
The purpose of this research is to study the risk management practices in order to decrease the number of lawsuits over public and private swimming pools in Tehran. The statistical population of the research included 310 managers of public and private swimming pools, of which 119 were selected as statistical samples by means of random sampling. The research method was descriptive and survey, and in measurement form. 2 questionnaires were used: one relating to demographic data and general information, and the other to risk management practices, and their validity was determined by alpha kronbach method. The required information was collected by personal interviews during the time acting of managers in pools gathered and the data was analyzed by using person correlation coefficient. The result of this study indicated that: significant relationship existed between incidents of accidents/injuries and lawsuits over swimming pools in Tehran. Significant relationship existed between risk management practices and accidents/injuries and lawsuits. Significant relationship existed between risk management practice and lawsuits and lawsuits.

Keywords: Risk management, accidents/injuries, lawsuits, pools

INTRODUCTION
A new era for sports began in the 1960s when a New Jersey court awarded a gymnast more than $1 million in a negligence suit and a California court awarded a football player over $300000. Prior to 1960, injuries sustained during participation in intercollegiate sports were considered part of the game; assuming the risk of injury was part of the play. The 1982 verdict in the landmark Thompson v. Seattle public school District cases attracted much attention: $6.2 million was awarded to a high school football player who sustained a neck injury from lowering his head to ward off tacklers, yet was not warned of the inherent danger of his action. The need for ways to predict and manage exposure brought sports safety and risk management consultants into the field of recreation, as well as athletics (Girvan & Girvan, 1993).

Most aquatic center environments and hazards are highly dynamic, changing day to day, and even minute to minute. Consequently, risk management in aquatics must be regarded as an ongoing process, requiring a considerable time commitment by trained staff and a focus on a regimen involving continuous monitoring and evaluation. All aquatic activities, including instruction, competition, recreation and fitness require supervision by a teacher or coach and a certified lifeguard. Safe aquatic supervision includes eight basic components: (1) Knowledge of Standard of Care, (2) Supervisory Competency, (3) Planning, (4) Participant Abilities, (5) Safe Environment, (6) Warnings and Instructions, (7) Emergency Management, and (8) Lifeguard Support. These eight components of aquatics supervision represent the minimum standards for an aquatic facility and program supervision.

Fletemeyer (2003) stated that aquatic liability is approaching a paradigm shift and thus requires that aquatic professionals have a certain level of understanding to practice and implement the basic principles of aquatic risk management. He also said that the needs for aquatic risk management were threats of negligence litigation, a trend for courts to impose verdicts favoring the plaintiff, the need to better educate the public about aquatic safety, a high level of awareness by the public about the dangers associated with aquatic environments, and stronger emphasis on preventative practices rather than on reactionary measures.

Most litigation involving aquatics emanates from the injury of a participant, the injured plaintiff alleging negligence on the part of the institution. Negligence, in such cases, is conduct that falls below the standard established by the law for the protection of others against unreasonable risk or harm. In order for negligence to exist, four elements must be present: (1) the defendant must owe the plaintiff a legal duty of care, (2) the defendant must breach that duty, (3) the defendant’s breach of duty must be the proximate cause of the plaintiff’s injury, and (4) the plaintiff must incur actual loss or damages. If the defendant institution can demonstrate that even one of the
Risk management has been defined as a scientific approach to dealing with pure risks by anticipating possible accidental losses and designing and implementing procedures that minimize the occurrence of losses or the financial impact of the losses that do occur. The concept of risk management in recreation and sport began in the mid 1970s. The focus of risk management in recreation is on limiting exposure to danger, harm, or hazards to the facility. The most prevalent danger or harm that a facility will not be difficult to see major improvements and a reduction in the accident rate in the aquatic centers (Hsiao, 2005).

Risk management was born of necessity – human, legal, and political. As early as the late 1800’s, the American labor movement started to address the dangers of mining and factory work. Laws were passed and strikes were called as a result of existing mine and factory safety problems. While there are still dangers, the combination of federal and state safety inspections, labor demands, protective equipment, and safety laws have resulted in safer conditions in modern mining operations and factories. The owners and operators of mines and factories now are faced with expensive litigation if an accident occurs. The earliest organizations to practice risk management were insurance companies whose techniques have been modified and applied by a variety of organizations including hospitals, public schools, and universities.

Appenzeller (1998) stated that risk management has been associated with business and especially the insurance industry for many years. Loss control, exposure to loss, pre- and post- loss objectives, risk management strategies, and risk management techniques were common terms in both the business and insurance industries prior to the 1970s. In the mid-1970s and especially in the 1980s and the 1990s, risk management became a familiar expression of a program designed to meet the sport litigation crisis head-on. In the 21st century, risk management will become a close companion to the sport business industry in its attempt to reduce losses and exposures, while increasing the desire to make the sport business industry safer (Lhotsky, 2006).

Risk management in sporting environments is not a new idea. A number of authors identified the need for adopting risk management, safety practices and policies, but few have moved beyond traditional occupational health and safety approaches. Risk management strategies have been used in a wide range of sports (Otago & Brown, 2003).

Sharp (1990) listed three compelling reasons to institute risk management programs in the physical education/athletic setting. The first reason is the American public has assumed a litigious posture relative to athletics. The climate is extremely litigation oriented and lawyers seem to always be in search of a “deep pocket” to cover costs of injury, regardless of who is at fault. The second reason often cited concerns the judicial attitude toward liability and sports. Liability has been expanded to cover those who administer these sport and recreation programs. The usual defense of assumption of risk has been severely eroded over the past few years by judicial interpretation. The third factor is the trend toward abrogation of government immunity. By providing a safe, honest, and efficient environment, a business can reduce legal liability and enhance the positive reputation of the business. Effective risk management should identify as many liabilities and risk factors as possible, present alternative solutions, and make cost-effective recommendations (Lhotsky, 2006).

The importance of risk management as to the key liability and risk management trends into the 21 century. Some of the future trends forecasted were as follows:

1- Liability issues will continue to manifest themselves as problems that require sound risk management plans.
2- Education in risk management strategies will continue to be in demand by sport/recreation managers in order to provide safer programs.
3- Risk management will continue to be a key element in the design of new recreational sport facilities.
4- Professional preparation in liability and risk management will become more important for students pursuing careers in sport management.
5- Risk management planning will take on increased important to recreational sports programs.
6- More recreational sports programs/agencies will develop comprehensive risk management plans.
7- Increase in willingness of participants to engage in litigation to resolve issues related to participation in recreational sports.
8- There will be an increase demand for employee certification in specialized activity programs.
9- There will be continued growth in recreational facilities.
10- High-risk activities will become more popular in the years to come (Styles, 2002).
Although the management of liability risks for public agencies is of recent origin, the practice has been used in the private sector for many years. The earliest organizations to practice risk management were insurance companies whose techniques have been modified and applied by hospitals, public schools, and universities. These groups dealt primarily with financial risk management. However, the management of financial risks alone would not be sufficient for the unique needs of the sport, physical education and leisure industries. Therefore, the sport industry must focus on not only financial risk management but also programmatic risk management.

For example, a loss in the insurance industry is financial, but a loss in the sport industry must also encompass the possibility or risk that a participant would suffer harm. It is acknowledged that a participant or employee injury could result in a financial loss to the agency or organization, but the overriding reason for risk control should be moral responsibility as related to the injury of another, as well as the legal duty to provide a safe environment for participation (Aaron, 2004).

Because of the increase in the volume of use and the types of activities performed, these facilities have a wide variety of exposure to lawsuits in their daily operations (Mulrooney & Farmer, 1995). There was a time when litigation was not a major issue for recreational sport injuries because it was accepted that participants assumed the risks of participating in a physical activity. However, in today's society, lawsuits against recreation businesses are common, as there has been an increase in litigation regarding injuries sustained in recreational activity and competition (Burnstein, 1994; Cotton, 2001a).

The focus of risk management in recreation is on limiting exposure to danger, harm, or hazards to the facility. The most prevalent danger or harm that a facility manager would attempt to minimize is injuries to patrons at the facility that create the possibility of lawsuits. Hence the goals of risk management are to enable organizations to offer the activities and services that they deem desirable in a safe environment and to reduce the possibility of a lawsuit and monetary losses while operating a recreation facility. Based on the theory and practice of risk management from the insurance industry, sport and recreation professionals have identified the following elements as being essential for success of the risk management practices: risk identification; risk assessment; risk treatment; and risk implementation and standard operating procedures (Styles, 2002).

Those who manage physical education, athletic, and recreation programs have a number of legal duties that they are expected to carry out. Among these is an obligation to take reasonable precautions to ensure safe programs and facilities. According to Hronek and Spengler (2002, p. 273), "the law recognizes a duty owed by coaches, recreation managers, and their staff to provide safe facilities for both participants and spectators". Physical education and sports facilities that are poorly planned, designed, or constructed may lead to many problems for program leaders in those facilities. A poorly designed facility may limit the programs that can be offered; make the facility harder to operate, maintain, and supervise; and significantly increase the participant’s exposure to hazardous conditions. These factors can lead to a greater likelihood of injury and can increase the organizations exposure to claims of negligence (Seidler, 2006).

It has important risk management applications for physical educators and sport managers. Physical educators and sport managers must be protective in protecting their participants from unreasonable risk of harm they should schedule regular inspections of fields and other playing surfaces before participant use. In addition, equipment should be checked regularly to detect any damage or wear that would make the equipment unreasonably dangerous for participant use (Carroll & Connaughton, 2006).

**METHODOLOGY**

The statistical population of the research included 310 managers of public and private swimming pools, of which 119 were selected as statistical samples by means of random sampling. The research method was descriptive and survey, and in measurement form. 2 questionnaires were used, one relating to demographic data and general information and the other to risk management practices and their validity was determined by alpha kronbach method (/85). The required information was collected by personal interviews during the time acting of managers in pools gathered and the data was analyzed by using person correlation coefficient. The study was designed to investigate the risk management status, and associated legal concerns in aquatic centers in Tehran. Data were obtained through a 45-item questionnaire administered to 119 directors of aquatic facilities in Tehran.

**RESULTS**

Table 1 shows that the population was primarily male and only 27 or 22.7% of the 119 participants were women.

<table>
<thead>
<tr>
<th>Gender of respondents</th>
<th>(N = 119)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>92</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 2 presents activities most often found in the pools in Tehran were recreational (offered by 117 institutions) and basic swimming classes (offered by 79 institutions). Risk management plans existed in only 52 (43.7%) of the facilities. Nearly 42% of the
institutions reported three or more accidents/injuries per year.

The majority of the incidents occurred in the locker room or the pool deck. Only 5% or 7 incidents occurred in the water (Table 2). Despite the fact that nearly half of the institutions had accidents, only 22.6% had been sued (Tables 3 and 4).

**Table 2.** General information: activities and risk management plan

<table>
<thead>
<tr>
<th>Activities offered by the swimming pool</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational</td>
<td>117</td>
</tr>
<tr>
<td>Scuba diving class</td>
<td>5</td>
</tr>
<tr>
<td>Water aerobic class</td>
<td>38</td>
</tr>
<tr>
<td>Basic swimming class</td>
<td>79</td>
</tr>
<tr>
<td>Water polo</td>
<td>12</td>
</tr>
<tr>
<td>Lifeguard training course</td>
<td>35</td>
</tr>
<tr>
<td>CPR certificated course</td>
<td>17</td>
</tr>
<tr>
<td>Hydrotherapy</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk management plan</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>52</td>
</tr>
<tr>
<td>No</td>
<td>67</td>
</tr>
</tbody>
</table>

**Table 3.** General information: accidents/injuries frequency

<table>
<thead>
<tr>
<th>Number of accidents/injuries in the last 12 months</th>
<th>Percent (N = 119)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>45.4</td>
</tr>
<tr>
<td>1</td>
<td>15.1</td>
</tr>
<tr>
<td>2</td>
<td>8.4</td>
</tr>
<tr>
<td>3</td>
<td>8.4</td>
</tr>
<tr>
<td>4</td>
<td>6.7</td>
</tr>
<tr>
<td>5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Table 4.** General information: litigation status

<table>
<thead>
<tr>
<th>Past Lawsuits</th>
<th>Percent (N = 119)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>77.3</td>
</tr>
<tr>
<td>Yes</td>
<td>22.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of times the institution has been sued</th>
<th>Percent (N = 119)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>77.3</td>
</tr>
<tr>
<td>1</td>
<td>14.3</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3 or more</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Results of this study show that significant relationship existed between incidents of accidents/injuries and lawsuits in swimming pools in Tehran (Table 5). From other results of this study is significant relationship existed between risk management practice and accidents/injuries and lawsuits (Table 5). Also significant relationship existed between risk management practice and lawsuits and lawsuits (Table 5).

**Table 5.** Pearson correlation coefficient between the accidents/injuries and lawsuits and risk management

<table>
<thead>
<tr>
<th>Variable</th>
<th>Accidents/Injuries</th>
<th>Lawsuits</th>
<th>Risk management practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidents/Injuries</td>
<td>1</td>
<td>.437(**)</td>
<td>-.269(**)</td>
</tr>
<tr>
<td>Lawsuits</td>
<td>.437(**)</td>
<td>1</td>
<td>-.234(**)</td>
</tr>
<tr>
<td>Risk management practice</td>
<td>-.269(**)</td>
<td>-.234(**)</td>
<td>1</td>
</tr>
</tbody>
</table>

**DISCUSSION AND CONCLUSION**

Risk is a peril or the possibility of exposure or harm. Risk management has been defined as controlling the financial and personal injury losses from sudden, unforeseen, unusual accidents and intentional torts. Appenzeller (1998) stated that risks are inherent in sport and even the safest programs can never avoid accidents and injuries. The law expects that sport managers develop risk management and loss programs to ensure a safe environment for all who participate in sports.

The safety of facility event attendees, patrons, spectators and event participants is of primary concern to the facility manager (Madden, 1998). If a facility manager does not keep the facility safe, injuries to attendees, patrons, spectators, and event participants are bound to occur. Although there are many areas of law that are important to a facility manager, the greatest numbers of lawsuits brought against a provider (school, municipality, private enterprise, or non-profit association) are based in negligence liability (van der Smissen, 2001).
While lawsuits cannot be prevented they can be minimized when employees understand negligence principles and practice good management (Kaiser, 1986). Therefore, it is essential that a facility manager today understand the elements of negligence (van der Smissen, 2001). The following will briefly examine negligence liability and some law topics related to negligence.

Negligence can be defined as carelessly performing a duty or carelessly failing to perform a duty that results in injury to a participant or damage to property (Seidler, 1999). In order to be found guilty of participation in recreation; an increase in year round activities; new technology and more sophisticated equipment; and increased accessibility to legal services (Baley & Mathews, 1984).

The increase in litigation in the leisure and recreational area is due to several reasons: increased participation in recreation; an increase in year round activities; new technology and more sophisticated equipment; and increased accessibility to legal services (Baley & Mathews, 1984).

The increase in litigation in recreational settings creates a need for recreational professionals to reduce risk that may lead to injuries and financial losses. Risk management and its application is form of loss control and has been identified by professionals in the recreational industry as a need within the organizational structure of a recreational facility (Giles & Gonsoulin, 1991). The most prevalent danger that a recreational facility manager needs to minimize is the number of injuries to patrons, and the concomitant lawsuits. Therefore, the obvious goal of risk management is to reduce to possible monetary losses when running a facility (Mulrooney & Ammon, 1995).

Risk management has been identified as the ‘best buy’ in sports injury prevention and an integral part of best-practice sport and leisure management systems (Donaldson et al, 2009). Risk management is a procedure to reduce potential legal liability. It is a proactive system which attempts to address potential problem areas before they actually lead to reactively defending legal proceedings. The aim is a safer environment and “legally safer” operational procedures. Education of all people involved, their acceptance of the importance of risk management, and open communication of ideas is vital to a risk management plan’s success. While the law now affects the conduct of sports greater than ever before, don’t see this as a negative, but as a positive reason to take the initiative to implement safe practices and risk management programs. There can be a great sense of achievement in knowing that you are satisfying your legal, moral and ethical duties by providing good, safe and effective sporting services. It really is all about good business.

REFERENCES

LE RÔLE DE LA GESTION DES RISQUES DANS LA REDUCTION DE POURSUITES JUDICIAIRES DE PISCINES

Résumé
Le but de cette recherche est d'étudier des pratiques de gestion des risques en baisse de poursuites dans les piscines publiques et privées à Téhéran. La population statistique de la recherche comprenait 310 gestionnaires de piscines publiques et privées, dont 119 ont été sélectionnés comme échantillon par le biais d'un échantillonnage aléatoire. La méthode de recherche était descriptive et d'enquête, et sous forme de mesure. 2 questionnaires ont été utilisés, sur les données démographiques relatives à l'information générale et l'autre à des pratiques de gestion des risques et leur validité a été déterminée par alpha kronbach méthode. Les informations requises ont été recueillies par des entrevues personnelles pendant le temps des gestionnaires agissant dans les piscines se sont réunis et les données ont été analysées en utilisant le coefficient de corrélation personne. Le résultat de cette étude indiquent que: relation significative existait entre les incidents d'accidents et de blessures et de poursuites dans les piscines à Téhéran. Relation significative existait entre la pratique de gestion des risques et des accidents / blessures et des poursuites judiciaires. Relation significative existait entre la pratique de gestion des risques et des poursuites judiciaires et de poursuites.

Mots-clés: gestion des risques, accidents et blessures, les poursuites judiciaires, Piscines

THE PLACE OF GYMNASTICS IN PRIMARY EDUCATION.
GENERAL CONSIDERATIONS AND METHODOLOGICAL ASPECTS

Laurențiu-Gabriel TALAGHIR¹, Ihsan SARI²

Faculty of Physical Education and Sports, “Dunarea de Jos” University of Galati, ROMANIA
²University School of Physical Education and Sport, Sakarya, TURKEY

Abstract:
Education is a long process that addresses theoretical and practical aspects. These will contribute to form future adults for the real life. Physical education is an important discipline in the process of education and the basis is set in primary school. The aim of our article is to present the importance of gymnastics as a compulsory subject in the curriculum and its role in the organizing and disciplining of students at this age. In the same time, the authors want to present the effect of practical activities on the psychological evolution of students and the possibility to realise good behavior using means from basic gymnastics.

Keywords: physical education, school gymnastics, curriculum

INTRODUCTION
The development of the young generation was always a concern of society as a whole, aiming to improve the relationship between the social command and the educational product at a rational level.

From this perspective, the physical education discipline has evolved in recent years in the school environment, being currently the appanage of specialist teachers at all levels of education.

The approach to physical education in the primary stage with specialized staff was and still is a current concern for theorists and practitioners in the field.

Physical education as part of the educational process is thus seen as a catalyst in the development of students in this level of education, helping to balance the intellectual demands with the psychomotor and ludic ones, a very important aspect for organizing activities teaching with students aged between 6 and 10 years.

By observing the general objectives of physical education, the organization of the lesson, in terms of content elements, shall take into consideration the action methodology for learning, consolidating and improving the motor skills and abilities specific to certain sports branches too (Iconomescu, 2010).

CONTENT
Central planning documents for primary education show the concept behind the Romanian education reform, on the complex development of
child personality. Among the specific objectives established are:
- strengthening the health of children;
- their harmonious physical development;
- development of psycho-motor skills;
- education of behavioral features, favorable to activities performed in stable or spontaneous groups.

The syllabus for the physical education discipline, as a specialized document, addresses to the teaching staff (teachers, schoolmasters, specialized teachers), school principals, students, parents, specialists in assessing student performance and local authorities interested in the educational process. Its requirements are:
- framework objectives;
- reference objectives
- performance standards.

Learning contents presented provide the achievement of all objectives, requesting the teacher to select those that can be used under the specific circumstances in which s/he operates. These contents provide the opportunity to design individual learning paths, consistent with students opportunities and options.

The presentation of the framework objectives and performance standards, and their knowledge by teachers contribute to emphasizing the role of gymnastics in school training.

<table>
<thead>
<tr>
<th>Framework objectives</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining optimal health status of students and increasing their adaptability to environmental factors</td>
<td>S1. Two examples of activities carried out in order to maintain their health status</td>
</tr>
<tr>
<td>Harmonizing their physical development and prevention of possible deviations from it</td>
<td>S2. Execution of a complex of physical development consisting of four individual exercises</td>
</tr>
<tr>
<td>Expanding own fundamental basic motor skills, applicative-utilitarian and sportive and developing motor skills associated.</td>
<td>S3. Presentation of an exercise to prevent irregularities from the correct posture, for back, legs, abdomen</td>
</tr>
<tr>
<td>Independent practicing of physical exercises, games and various sports</td>
<td>S4. Application in a relay of two basic motor skills, between running, jumping, throwing-grip</td>
</tr>
<tr>
<td>Manifestation of team spirit and competition, according to a system of rules accepted</td>
<td>S5. Application in a relay of two applicative-utilitarian skills, between creeping, climbing, transportation, traction</td>
</tr>
<tr>
<td></td>
<td>S6. Demonstrating the level of development of motor skills, compared to values determined by predictive assessment at the beginning of cycle of education</td>
</tr>
<tr>
<td></td>
<td>S7. Application of basic sports skills, learned in a sport discipline with compliance of specific rules and adequacy to the system of relationships with partners and opponents</td>
</tr>
</tbody>
</table>

Gymnastics provides the teacher with a variety of means correlating the framework objectives with the curriculum standards.

That is why in the lesson structure, the different moments of team organizing, specific for the beginning of activity (preparing the body for effort and selectively influencing the locomotor system) are permanent, regardless of the type of lesson or the learning unit proposed to a specific lesson, we can say that gymnastics has a very important role in physical education at this age level.

Moreover, gymnastics contributes significantly to achieve the framework objectives set out in paragraphs 1, 2, 3 and 4, because the influences on these directions are made during the first moments of the lesson, throughout the year.

In terms of achieving the standards we should specify that through the teacher, gymnastics, by its own means, is working to achieve them.

Thus:
The concentric nature of the curriculum makes most of these specific skills to be repeated in the next stages of primary school, to be strengthened, and with them, new ones are presented to help enrich the students’ motric luggage in grades 3 and 4.

<table>
<thead>
<tr>
<th>Content specific for grades 1 and 2</th>
<th>Content specific for grades 3 and 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>- acrobatics</td>
<td>- acrobatics</td>
</tr>
<tr>
<td>(sweep on one knee, semi-twine, bridge, rolling, forward roll from squat to squat, forward roll through straddle to squat)</td>
<td>(sweep on one knee, semi-twine, bridge from up with support, shoulders stand, rolling, backward roll from squat to squat, forward roll through straddle to squat, backward roll from squat to straddle)</td>
</tr>
<tr>
<td>- rhythmic-sportive</td>
<td>- rhythmic-sportive</td>
</tr>
<tr>
<td>(balancing arms, variations of steps, turns on the spot, balance)</td>
<td>(balancing arms, variations of steps, turns on the spot, balance)</td>
</tr>
<tr>
<td>- aerobics</td>
<td>- aerobics</td>
</tr>
<tr>
<td>(basic aerobics steps)</td>
<td>(basic aerobics steps)</td>
</tr>
</tbody>
</table>

We note that the curriculum does not require jumps, as special skills for grades 3 and 4, as landings could affect the proper development of the articular and ligament system of students.

Jumps are addressed only as applicative-utilitarian motor skills, being recommended only natural jumps.

To go on, it is necessary to present some psychological aspects of young people’s evolution. Gymnastics creates the basis for relationship between children and consolidates affective relationships in the group.

Primary school ages are the period in which children meet the world outside their houses with many other peers. This period is important because the beginning of this period is the initiation of primary school education and the end of the period is adolescence. Physical education classes at this age appear to be an important factor for children’s development in many ways.

Children at this age like playing together. However, they also might like to show their superiority to other children. Therefore, physical education and sport teachers should be careful. They should encourage children for autonomous behaviours and let children show themselves but should not let some children beat others to tease them. Definitely, losing is the nature of sportive games and activities.

There are winners and losers in a game. However, physical education and sport teachers should always emphasise good play and good behaviours. This is also important for development of self-confidence for children. Some students might not be as skilful as others. If physical education teachers make comparisons between less skilful students and more skilful ones, this will decrease some students’ self-confidence.

At this age boys like activities which require power. Physical education teachers could let boys to use their power, in order to let them discover their capacities. When students discover their abilities, they should always be given positive feedback instead of negative feedback in order to not to harm their personalities.

A negative feedback could result in the student having a damaging idea of the self. As suggested by relevant literature (Sari, 2011), the communication style of the physical education teacher is very important.

Socialization is another key factor at this age. Primary school is the first place where children leave their parents, start education and meet many other peers. Physical education activities, games and sportive events in physical education classes let children meet other students.

This is a chance to socialize and play with others under the control of the physical education teacher. Activities at this age make children more sociable and less shy, which is very important for the children’s further life success.

Moreover, Self Determination Theory suggests that people have some basic psychological needs which are the need for relatedness, the need for competence and the need for autonomy. The need for relatedness is the feeling of closeness in people’s primary relationships. It refers to the feeling attached to a person or a group and the feeling of being part of a group (Çelikkaleli, 2005).

The need for competence is defined as the feeling of being skilful and effective. Lastly, the need for autonomy stands for having control over matters related to one’s own life and being able to make choices (Deci & Ryan, 2000).

Self Determination Theory suggests that satisfying these three needs is crucial for people’s psychological well-being. Physical education and sport classes give children the chance to meet their basic psychological needs. Children play freely and make their choices in the activities, which meets their need for autonomy.
Showing their skills and increasing their physical abilities offers the possibility to fulfill children’s need for competence. Playing with their classmates, making groups, feeling the sense of attachment to their schoolmates definitely meet children’s need for relatedness. Furthermore, meeting these psychological needs was suggested to be important for students (Sarı, 2012, Eskiler et al., 2011, Sari et al, 2011).

In addition, one of the aims of physical education and sport classes is teaching children fair play. Students learn there is losing as well as winning. Students are taught the notion that the most important thing in sport is good play rather than winning. This results in the fact that students do not show violent behaviour in their future life. Thus, their aggression level gets lower and they also learn to congratulate winners and accept losing.

CONCLUSION
In conclusion, we can say that in primary school the effective use of gymnastics will lead to the realisation of most of the framework objectives proposed in the curriculum.

Also, the means of gymnastics have a great contribution to the achievement of performance standards for this age level.

We can say therefore that gymnastics and the judicious use of its means contributes to the achievement of 70% of the school lesson and, with the means of athletics or early skills in sports, they bring a significant contribution to the proper development of children's body.

To sum up psychological aspects, the primary school age is an important period in a child’s life. Physical education classes and physical education teachers have the power to affect children’s self-confidence, shyness, socialization, satisfaction of basic psychological needs, personality, aggression, violence and understanding of fair play. Therefore, activities in physical education classes should be effectively used.

References:

GYNASTIQUE PLACER DANS L’ENSEIGNEMENT PRIMAIRE
CONSIDERATIONS GENERALES ET LES ASPECTS METHODOLOGIQUES

Résumé: L’éducation est un long processus qui aborde les aspects théoriques et pratiques. Celles-ci contribueront à l’âge adulte de la formation future de la vie réelle. L’éducation physique est une discipline importante dans le processus de l’éducation et la base son mis à l’école primaire. Dans notre article nous avons voulu présenter l’importance de la gymnastique en tant que matière obligatoire dans le cursus et de son rôle dans l’organisation et la discipline pour les élèves à cet âge. Dans le même temps, nous avons voulu présenter l’effet des activités pratiques sur l’évolution psychologique des élèves et les possibilités de réaliser un bon comportement en utilisant des moyens de la gymnastique de base.

Mots clés: éducation physique, la gymnastique scolaire, le curriculum
EFFECTIVENESS BASED BY PROGRAMING TECHNIQUES PROPERTIES OF ALGORITHM TYPE

Constantin CIORBĂ¹, Carmen Mihaela CHICOMBAN²,

¹State University of Physical Education and Sport, Chisinău, Republic of MOLDOVA
²“Transilvania” University of Brasov, ROMANIA

Abstract:
Effective consideration of research objectives through the most effective exercises, arranged in a well established, logical, precise and measured methodical application of algorithmic rules provide organizational learning as one of the final good and technical.

Keywords: efficiency, technology, programming methods, algorithms basketball beginners

INTRODUCTION
One of our research objectives is to achieve the final objectives, intermediate and operational properties of elements and techniques by applying the algorithmic method.

The effective uptake of research objectives through the most effective exercises, arranged in a well established, logical, precisely measured and methodical application of the rules, gives algorithmic organization to learning as a finality of good learning elements and techniques.

All these are likely to be applied in practical work in close relation with theoretical information and based primarily on the principle of teaching, and on the interaction and interconnection between theoretical and practical knowledge, represented by skills, motor skills and qualities [7, 2 , 4, 8, 1, 3].

This principle concludes appearance properties of elements and techniques that are taught, without their stays at a theory level, and the need to achieve concrete unbeatable practical application of their execution.

Learning elements and technique procedures at a high level of their performance requires a good knowledge of the structures, sequences and technical elements, components of precise and effective movements, proper method of solid properties and methods of application, which certainly contributes to the acquisition technique of the basketball game.

One method of tracking the progress properties of required playing techniques is the analysis, analysis that aims to enhance the quality of the learning process elements and techniques of basketball.

This analysis is materialized in scales for assessing the execution elements and techniques which, by experts in the field, is given marks from 1 to 10 for each technique separately. This evaluation will be applied to the following five steps of appreciation (each phase being assessed with 2 points), in concrete ways of assessment and evaluation.

Analysis technique of execution of each technique process tested was made from analytically and globally, as follows:
- correct sequence achievement = 2 points
- sequence achievement with some mistakes = 1 point
- lack of sequence = 0 points

OAC the maximum number of 10 points, each player, depending on the execution, can get 2 points for each sequence. For failure to correct sequencing techniques evaluated, as noted above, less the value points of each sequence as described above.

It will track the execution of each process in part by five times, taking into account the best evaluation. Therefore, each sequence of processes that will be performed, will be shown five times in analytically.

Further descriptions are presented of each process, its mode of execution.

Movements (Stop within a time), individual runs, by the established route, aiming to sequences shown in Table. A.

Catching the ball (catching with two hands at chest level), individual runs, the self released ball, and the route is determined in advance.

The passes (with two hands from chest), runs on two pairs of the ball in front, 3 meters away from each other.

Throws (with one hand in front by two steps) were performed individually, from a of 45 ° angle to the panel, with skilled arm, first point of start is accomplished in the line of three points, and the ball is recovered by performer.

Dribbling (lower), was performed individually on a zig-zag course across the basketball court where they were located nine landmarks. There have been changes of direction to each landmark located. The technical method was made in the first
two lengths with low speed and the last two with maximum execution speed. The ball has to be followed to be controlled by executing all route to dribble down, eyes permanently controlling field area.

Importance of assessing the results of its essential role in the accumulation and assimilation of elements and technical processes. It provides a constant level of qualitative and quantitative knowledge of assimilations made by little basketball players. Besides these aspects, evaluation brings a positive contribution to prevent and quickly correct mistakes found in their execution, avoiding the formation of bad habits that need long time to restore dynamic stereotype.

This assessment allows a brief analysis of the final models compared with the final movement execution, thus appreciating the correct stage of their learning. As we stated in this paper was performed and an experiment of finding small basketball players level technical training in the two experimental group and control.

For testing were 26 subjects participated, testing was practical and technical training embodying the following algorithm method recorded. Testing, at the experimental group, was made by following a period of learning the elements and technical processes in the algorithm method, while the control group should be tested to the same elements and processes, but whose ownership was not behind the same method.

Elements and processes techniques tested were both concerned for field movements and working with the ball (catching and holding the ball, passes, throwing to basket, dribbling). Assess the skills and motor skills was done through unitary noting system. As scoring systems was used number mode expressed by figures of 1-10. Each technique has emerged in five sequences (Table 1).

**Chart 1. Sequence components to assess the level of mastering technical processes based on programming the algorithm method**

<table>
<thead>
<tr>
<th>Name of technical procces</th>
<th>SEQUENCE COMPONENTS OF TECHNICAL PROCESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOVEMENTS (Stop within time)</td>
<td>Sequence I</td>
</tr>
<tr>
<td>Right posture, slightly bent, eyes forward</td>
<td>Working arms</td>
</tr>
<tr>
<td>GRIP ON Ball (catching with two hands at chest level)</td>
<td>Auto Launch the ball by pushing the ball symmetric</td>
</tr>
<tr>
<td>PASSES (with 2 hands from chest level)</td>
<td>Keeping the ball by controlling grip on her fingers</td>
</tr>
<tr>
<td>THROWINGS (with one hand in front by 2 steps)</td>
<td>dribbling</td>
</tr>
<tr>
<td>DRIBBLING (lower)</td>
<td>Correct basic position</td>
</tr>
</tbody>
</table>

Chart 2 shows the results of the elements tested and technical processes experimental and control group who went through training sessions.
Chart 2. The results of verification technical processes based on mastering the level of programming algorithm method

<table>
<thead>
<tr>
<th>Nr.</th>
<th>TECHNICAL processes</th>
<th>GROUP</th>
<th>T.I. X ± m</th>
<th>T.F. X ± m</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>MOVEMENTS (stop within time)</td>
<td>E</td>
<td>7.07±0.62</td>
<td>7.84±0.78</td>
<td>3.90</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>5.96±0.82</td>
<td>6.96±0.77</td>
<td>4.51</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-C</td>
<td>5.49&lt;0.001</td>
<td>4.09&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>GRIP ON Ball (catching with two hands at chest level)</td>
<td>E</td>
<td>7.34±0.68</td>
<td>7.73±0.45</td>
<td>2.73</td>
<td>&gt;0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>615±0.88</td>
<td>6.61±0.49</td>
<td>2.32</td>
<td>&gt;0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-C</td>
<td>5.43&lt;0.001</td>
<td>8.47&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>PASSES (with 2 hands from chest level)</td>
<td>E</td>
<td>7.26±0.60</td>
<td>7.34±0.48</td>
<td>0.50</td>
<td>&gt;0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>5.46±0.76</td>
<td>6.38±0.49</td>
<td>5.18</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-C</td>
<td>9.49&lt;0.001</td>
<td>7.06&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>THROWINGS (with one hand in front by 2 steps)</td>
<td>E</td>
<td>7.26±0.72</td>
<td>7.76±0.42</td>
<td>3.02</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>5.65±0.48</td>
<td>6.42±0.50</td>
<td>5.60</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-C</td>
<td>9.44&lt;0.001</td>
<td>9.70&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>DRIBBLING (lower)</td>
<td>E</td>
<td>8.00±6.32</td>
<td>8.65±0.48</td>
<td>4.18</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>6.57±0.50</td>
<td>7.07±0.27</td>
<td>4.45</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-C</td>
<td>8.97&lt;0.001</td>
<td>9.84&lt;0.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After calculating the arithmetic average statistical indicator, "t" test and statistical significance of external experts in the domain, we see developments in the evaluation of experimental group, compared with control group; developments that leads us to conclude that the appearance of the experimental method by algorithm method had a positive resonance in terms with progress in learning elements tested and technical processes.

As a general conclusion to this chapter, we argue the final appearance of the objectives proposed in our research targets relating to ownership of elements tested and technical processes by the algorithm method.

Learning these techniques, the most effective exercises, by their arrangement in a well established, logical, precisely measured and methodical application of organizational rules.

171
algorithm method gave as a final good learning elements and technical processes.

REFERENCES:
3. Content of physical culture of higher education (essentially, concepts, issues, principles, methods, concepts). Chisinau: Garuda Art, 2001, p 46-50

L’efficacité en fonction par leurs propriétés techniques de programmation type d’algorithme

Abstrait:
Prise en compte effective des objectifs de recherche à travers les exercices les plus efficaces, disposées dans un endroit bien établie, logique, précis et mesuré application méthodique des règles donnent algorithmique l’apprentissage organisationnel comme un des éléments définitifs de bonnes et de techniques.

Mots-clés: l’efficacité, techniques, méthodes de programmation, algorithmique initiation au basket ball

STUDY ON THE EFFECTIVENESS OF THE GAME AND CONTEST METHOD UPON THE SPEED DEVELOPMENT OF REPRESENTATIVE MINIFOOTBALL ELEMENTARY SCHOOL TEAMS

Gabriel SIMION

Faculty of Physical Education and Mountain Sports, “Transilvania” University of Brașov, ROMANIA

Abstract
In school competitions for both mini-football and 11-player football, the request for physical abilities is very intense. The physical factor is manifested through great effort which implies that physical capabilities must be well developed. In the present research study, we have assumed that the proper use of the method of games and contests in training leads to the development of representative speed mini-football teams of elementary schools. Our purpose is to demonstrate the effectiveness of games and contests as a method of training in order to develop speed in the representative mini-football team of elementary schools.

Keywords: speed, method of games and contests, representative team, elementary school, mini-football.

INTRODUCTION
In school competitions for both mini-football and 11-player football, the request for physical abilities is very intense.

The guideline for the game is based mainly on physical training and is characterized by actions conducted with great rapidity. It is obvious that in order to achieve this, it needs an improvement of the training methodology.

The physical factor is manifested through great effort which implies that physical capabilities must be well developed. A good general physical preparation is the special physical training which provides training and development of the movement skills specific for the mini game. Both sides created foundations sports activity. Therefore, the better the physical training is, the more it can provide a scope for the application of the guidance game.

On the basis of physical training representative teams for school field football must build towards comprehensive physical training. This means that all physical qualities will be developed at a higher level.

Comprehensive physical training is regarded as a basic principle of training that any athlete, regardless of the sporting discipline, should pay particular attention to, developing the four basic motor skills, in order to achieve high performance. Without comprehensive physical education, first acquired and maintained afterwards, one cannot achieve maximum performance [2, p. 45].
This paper is intended for all teachers of physical education and sports teams representing schools which prepare and operate in modest sport facilities. They can use contest training sessions and games as means of preparation, being less demanding in terms of materials.

Insufficient material resources can be compensated partially or temporarily by a vigorous and appropriate intervention of the other factors [3, p. 77-78].

Games (dynamic games, contests, and moving games) in which children actively manifest their skills, speed, strength and their endurance, can be successfully used in regular training [1, p. 45].

PURPOSE
In research, we have assumed that the proper use of the method of games and contests in training leads to the development of representative speed mini-football teams of elementary schools. Our purpose is to demonstrate the effectiveness of games and contests as a method of training in order to develop speed in the representative mini-football team of elementary schools.

From this purpose derive the following tasks:
- highlighting the importance of contests and games as means for training for speed development;
- highlighting the advantages of using these means of training;
- highlighting the features of the age composition of the team representing the school (10-14).

METHODS AND PROCEDURES
During the experiment we used the following research methods: the bibliographic method, the testing method, the interview method, experimental methods and statistical-mathematical methods of graphic representation of the results.

The research stages were:
- the study of the bibliographic material and the establishment of the working hypothesis;
- the selection of the control samples to measure objectively the level of speed development;
- the systematic means used in the most effective method for optimizing contest games and physical training;
- organizing and conducting the experiment;
- processing and interpretation of data derived from the research;
- establishing practical and methodological conclusions and recommendations.

DESCRIPTION OF THE EXPERIMENT
Subjects
The experiment was conducted on a middle school representative team (School no. 11 of Brasov), a team which includes 12 students aged between 11 and 14 years. The team chosen as subject of the study has modest conditions and modest training materials: training ground, cones and balls.

Duration: 6 months (November 2009 - April 2010).

Working Strategies:
- initial tests with control samples, obtaining initial experiment data;
- developing a set of means used by the game and contest method in the training program of elementary school representative teams, designed to develop speed;
- applying all the means developed in the course of preparation;
- making the final tests of control samples, obtaining the final experiment data;
- processing and interpreting the obtained data;
- enunciating the findings emerged from the experiment.

Control samples used for the testing: speed running (AV), speed running with the ball (AVM), 5x10m shuttle (N 5X10m).

For 6 months, a number of 25 contests and games as means of training have been used in preparing the students undergoing the research, which aimed to develop quality driving speed.

The research methodology took place as follows:
- we studied the bibliographic material and established the working assumption;
- we organized and conducted the experiment;
- we processed and interpreted the data derived from our research;
- we developed conclusions and practical and methodological recommendations.

The results obtained from samples of the control subjects, who performed the initial tests (November 2009) and the final tests (April 2010), were collected in the table below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Initial testing</th>
<th>Final testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A.V. 30m</td>
<td>Shuttle 5x10m</td>
</tr>
<tr>
<td>1.</td>
<td>P D</td>
<td>6.32</td>
<td>13.03</td>
</tr>
<tr>
<td>2.</td>
<td>N. G.</td>
<td>6.09</td>
<td>12.82</td>
</tr>
<tr>
<td>3.</td>
<td>S. A.</td>
<td>5.73</td>
<td>13.14</td>
</tr>
</tbody>
</table>
### Table 1: Comparative Initial vs Final Testing for 30m Speed Running

<table>
<thead>
<tr>
<th>Name</th>
<th>Initial Testing</th>
<th>Final Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. G.B.</td>
<td>5.45</td>
<td>13.08</td>
</tr>
<tr>
<td>5. T.G.</td>
<td>6.12</td>
<td>12.93</td>
</tr>
<tr>
<td>6. M.A.</td>
<td>6.55</td>
<td>13.31</td>
</tr>
<tr>
<td>7. I.A.</td>
<td>5.72</td>
<td>12.88</td>
</tr>
<tr>
<td>8. B.A.</td>
<td>6.45</td>
<td>13.47</td>
</tr>
<tr>
<td>9. M.D.</td>
<td>5.43</td>
<td>12.75</td>
</tr>
<tr>
<td>10. U.I.</td>
<td>5.33</td>
<td>12.88</td>
</tr>
<tr>
<td>11. N.E.</td>
<td>5.67</td>
<td>12.83</td>
</tr>
<tr>
<td>12. A.C.</td>
<td>5.72</td>
<td>12.91</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>5.88</td>
<td>13.00</td>
</tr>
</tbody>
</table>

For a better representation of the comparative development between the initial and the final testing, each sample was illustrated in the graphics that have resulted from that table.

### Graphic 1: Comparison between the Initial and Final Test at Speed Running for 30m

#### TIME (SEC)

<table>
<thead>
<tr>
<th>Name</th>
<th>Initial Testing</th>
<th>Final Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.D.N.G.</td>
<td>6.75</td>
<td>6.32</td>
</tr>
<tr>
<td>S.A.</td>
<td>5.34</td>
<td>5.65</td>
</tr>
<tr>
<td>G.B.</td>
<td>6.87</td>
<td>6.04</td>
</tr>
<tr>
<td>T.G.</td>
<td>7.25</td>
<td>7.37</td>
</tr>
<tr>
<td>M.A.</td>
<td>6.98</td>
<td>6.92</td>
</tr>
<tr>
<td>I.A.</td>
<td>7.34</td>
<td>7.45</td>
</tr>
<tr>
<td>B.A.</td>
<td>7.04</td>
<td>7.07</td>
</tr>
<tr>
<td>M.D.</td>
<td>6.87</td>
<td>6.82</td>
</tr>
<tr>
<td>U.I.</td>
<td>6.75</td>
<td>6.85</td>
</tr>
<tr>
<td>N.E.</td>
<td>6.98</td>
<td>6.84</td>
</tr>
<tr>
<td>A.C.</td>
<td>6.75</td>
<td>6.83</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>6.96</td>
<td>6.84</td>
</tr>
</tbody>
</table>

### Graphic 2: Comparison between the Initial and Final Test at Speed Running for 30m

#### TIME (SEC)

<table>
<thead>
<tr>
<th>Name</th>
<th>Initial Testing</th>
<th>Final Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.D.N.G.</td>
<td>6.54</td>
<td>6.36</td>
</tr>
<tr>
<td>S.A.</td>
<td>5.55</td>
<td>5.65</td>
</tr>
<tr>
<td>G.B.</td>
<td>6.65</td>
<td>6.77</td>
</tr>
<tr>
<td>T.G.</td>
<td>7.05</td>
<td>7.27</td>
</tr>
<tr>
<td>M.A.</td>
<td>6.78</td>
<td>6.82</td>
</tr>
<tr>
<td>I.A.</td>
<td>7.04</td>
<td>7.07</td>
</tr>
<tr>
<td>B.A.</td>
<td>7.04</td>
<td>7.07</td>
</tr>
<tr>
<td>M.D.</td>
<td>6.95</td>
<td>6.92</td>
</tr>
<tr>
<td>U.I.</td>
<td>6.85</td>
<td>6.85</td>
</tr>
<tr>
<td>N.E.</td>
<td>6.84</td>
<td>6.84</td>
</tr>
<tr>
<td>A.C.</td>
<td>6.75</td>
<td>6.83</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>6.86</td>
<td>6.84</td>
</tr>
</tbody>
</table>

### Graphic 3
CONCLUSIONS
1. Effective methods for developing speed at the mini-football game for elementary school representative teams are: the alternative method, the handicap method, the method on the go, the method of practicing, the integral method and the game and contest method;
2. Requirements that have to be met by the game and contest method at effective rates are as follows:
   - applications and games must be adequate;
   - similar conditions must be provided for all pupils within the used operating systems;
   - technical application tactics must be made by considering the skills;
   - an action speed must be optimal;
   - an adequate period of practice must be provided.
3. Speed development can be achieved by using contest and training games as means of preparation in the training process of a representative elementary school mini-football team. Results of the pedagogical experiment revealed that the representative elementary school mini-football team, which used the game and contest method to develop speed, has made substantial progress in both the 30m sample linear speed, and those related to the specific game sample: 5x10m shuttle speed running and speed driving the ball for 30m.

RECOMMENDATIONS
1. A wide range of contests and games in training a representative school team must be chosen, especially at an elementary school level, due to their attractiveness and emulation.
2. Contests and games used in the training of speed development must be dynamic, requiring the athletes to use their bodies from all angles: morpho-functional and psychological.
3. Students must be made aware of the need of appropriate physical training, both within and outside their training sessions.
4. The method using contests and games must take into consideration the age of the pupils.

REFERENCES
THE SELECTION OF THE PSYCHO-MOTOR TRAINING ACCORDING TO THE FUNCTIONAL ANALYSIS OF THE CEREBRAL HEMISPHERES

Dragoș TOHĂNEAN¹, Constantin CIORBĂ²

¹Faculty of Physical Education and Mountain Sports, “Transilvania” University of Brasov, ROMANIA
²State University of Physical Education and Sport, Chisinau, Republic of MOLDOVA

Abstract
The present work approaches the process of selection according to the psycho-motor component in the game of handball, according to the psychological criterion of analysis of the functional dominance of the cerebral hemispheres. The subjects of the research were children aged 11-12 years, on the level of stage 1 of the selection. The sampling of the sportsmen on the two groups was carried out using a battery of psychological tests and a specific model of the senior handball player, previously carried out. The psycho-motor aspects considered the dynamic, segment and general coordination, the static coordination – balancing, the perceptive-motor one respectively.

The general conclusion of the pedagogic experiment was that the selection of the sportsmen according to a hemisphericity profile determined to obtain superior results on the psycho-motor level in relation to other criteria.

Key words: selection, psycho-motor skills, model, dominance, hemisphericity, performance

INTRODUCTION
The human body must be analyzed as a whole in which psychic and somatic elements are interdependent. “Knowing your own body of knowledge underlying identity” (Albu, 2006: 16).

The psycho-motor skills are a branch of applied psychology and regards the integration of the motor functions with the psychic ones, as an effect of education and the development of the nervous system (DEX 1998, Albu, 2006).

The development of the psycho-motor skills is appreciated as a complex process with a series of particularities, namely: the manifestation of new types of behavior is determined by the influence of the quantity accumulations on the quality leaps; through consecutive and gradual reorganizations the new performances are a transformation effect of the old ones; the different characteristics have individual development rhythms, the evolution is in stages, each age stage having a certain characteristic.

In an effort of synthesis, the Romanian author C. Albu (2006) draws attention to the role that experience has in psycho-motility, evoking two theories. At first, it is believed that practice develops elements of motility to be included in overall coordination. It forms a global scheme and is considered an action programming will then repeat the same way. The second theory assumes that experience causes motor learning schemes from basic elements. Thus, the child’s behaviour will achieve its intended purpose and go on to become the basis of conduct that will result in cognitive development. In other words, the game will be objective in motric elements support learning.

The tests presented in Table 1 tried to detect the component elements of psycho-motor skills proposed by M. Epuran (1976): corporal scheme, dynamic, segment and general coordination; static coordination – balancing, perceptive-motor coordination and rapidity of movements.

The concepts functional asymmetry and hemisphericity result from the evolution of the understanding regarding the contribution of the cerebral hemispheres to the mental functions, respectively of indication of the specific functional character of the two cerebral structures: right and left (Botez, 1996; Roco, 2004). The essential discovery of a perturbation of the language functions which was exclusively determined by a lesion of the left hemisphere resulted in the concept of dominant hemisphere. Recently the American psycho-physiologists asserted that the functional asymmetry of the two hemispheres is quite accentuated, acquiring a specialization character: the left side ensuring the verbal symbolism, the right one the spatial perception. Although numerous studies were carried out by different specialists (surgeons, physiologists, psychologists) over more than 100 years, the conclusion was reached that there are several means by which the two hemispheres can unequally contribute to the behavior and this diversity of
functional asymmetry prevents the exact nature from being identified.

According to studies that took several years, Ned Herrman and his team considered that the horizontal approach (left hemisphere/right hemisphere) is too simple to make differentiated categorizations. Analyzing and combining the works and the experiments made by Paul MacLean (the three-dimensional dimension of the brain: reptilian, limbic, neo-cortex) with the ones initiated by Roger Spery, Joseph Bogen, Michael Gazzaniga (the separation of the brain in two halves), the Herrman group proposed and accomplished in an integrative vision *The Whole Brain Model* (Herrman, 1996; Rusu, 2007). This model is organized horizontally and vertically and metaphorically structured on four dials or specializations (Roco, 2001, 2004; Petre, 2009), as follows:

A. The left cortical sector (LCo). The activation of this sector determines the person to appreciate things and ideas analytically, on component parts. They prefer the mathematical operation of the technical and scientific concepts, the utilization of logical, algorithmic reasoning, the detailed and exact reflection on all facts (with all their characteristics) to the purpose of decision making.

B. The left limbic sector (LLi). When this sector is activated, the individual has increased capacity of control of their emotions. The accomplishment of this fact presupposes a series of actions and habits: to plan, to organize, to order, to classify, so that everything is sure, clear and orderly. The person is very detail oriented, lives by a horary, a strict program with compliance with certain rules and norms. They are an adept of the technical and scientific concepts, the utilization of logical, algorithmic reasoning, the detailed and exact reflection on all facts (with all their characteristics) to the purpose of decision making.

C. The right cortical sector (RCo). This activation means that the person in case resolves the problem situations with the “help” of imagination and intuition. They think in complex images, do not take into account details and rules, perceive the whole, has many ideas, associated different facts and happenings, finding unprecedented solutions, being predisposed to artistic activities.

D. The right limbic sector (RLi). The activation of this specialization presupposes a sociable person who feels good in groups, willing to communicate verbally, but also non-verbally, empathically, very well inferring the states of mind of the ones around. They have no emotions when they have to talk about their feelings, has lots of passions, is animated by ideals and values.

The overall objective of the research is the experimental efficiency argument applying the analysis of functional predominance of the cerebral hemispheres in stage I of sports training in playing handball.

**ORGANIZING THE RESEARCH**

The research was conducted at the sports clubs C.S.S. Dinamo Brasov and H.C. “Extrem” Baia Mare, performance sport units dealing with training children and juniors in the handball game.

The purpose of this scientific activity was to identify to what extent the psychological criterion (the analysis of the functional predominance of the cerebral hemispheres) can be considered as valid in the more objective and efficient selection process. So, previously a representative model of hemisphericity for the senior handball player was made up, according to specific psychological tests. In a succinct presentation the configuration of the four components for the handball players with left dominance is: LCo – 75.4%, RCo – 64.5%, LLi – 76.5%, RLi – 52.1%, and for the ones with right dominance: LCo – 67.7%, RCo – 80.3%, LLi – 61.5%, RLi – 75.7%.

For the optimal development of the pedagogic experiment, we made up 2 groups of 20 subjects each (aged 11), having the following considerations in view:

- the components of the experiment lot were selected according to the model of hemisphericity of the senior player;
- the subjects of the witness sample were haphazardly chosen, only according to the criteria consecrated in sport practice.

This fact was followed by the moment of the initial testing which comprised an ensemble of tests for the identification of the level of the psycho-motor training. In order to check the sportive evolution in time through relating to the hemispheric configuration of the two categories of subjects, after one year (2011) the final testing was reached, when the above mentioned tests were repeated. It is to be mentioned the fact that the training methods were similar for all the sportsmen; no individualized or preferential training was used for certain children.

The tests utilized were the following:

A. Tests of identification of dominance:
   - Questionnaires of action preferences

B. Tests for the identification of the technical level specific to the handball game
   - Matorin test
   - Test of psycho-motor coordination
   - Throwing and catching of the handball ball
   - Tapping test.

**Description of tests:**

The questionnaire of action preferences comprises 72 items grouped in 4 sections A, B, C, D; each of them having 18 items corresponding to the 4 cerebral sectors: left cortical, right cortical, left limbic, right limbic. The answer variants are included in a continuum between 1 and 5, where 1 represents a
much reduced accord for the affirmation of the item, and 5 total accord. The intermediary values 2, 3, 4 express different shares of accord. This questionnaire offers relevant data regarding the existing rapport on the coordinates Rationality – Emotionality – Left way of operation – Right way of operation.

**Matorin test** – aimed at the general coordination, consists in leaps with breaking out from the spot, followed by rotations along the longitudinal axe of the body. The test was applied by trading a line of 30-35 cm on the ground, the subject is positioned with their feet close to each other on each side of the line. For the measurement a compass and a ruler of 40–45 cm were used, set between the soles of the performer after the moment of touch down. 3 leaps with rotation towards the left and 3 leaps with rotation towards the right were executed and the arithmetical mean of the degrees was calculated. The interpretation was made by the following standard:

- Sufficient – for values between 180 – 270 degrees
- Good – for values between 271 – 360 degrees
- Very good – for values over 361 degrees

**Test of psycho-motor coordination** – aimed at the correct evaluation of the distance. The subject’s eyes are tied and is initially positioned at the end of a straight line (traced on the ground), with the length of 7 m. Under these circumstances the performer walks the distance of the length of the line and stops when they consider that they arrived at its end. The place where the subject stopped is marked, the evaluation of the test being done as follows: if the length of the line was overcome or if they did not reach its end, the difference in centimeters is recorded. The evaluation is based on the following standard:

- Unsatisfying – for values over 50 cm (U)
- Satisfying – for values between 31 – 50 cm (S)
- Good – for values between 11 – 30 cm (G)
- Very good – for values between 0 – 10 cm (VG)

**Throwing and catching of the handball ball** from one hand to the other. The exercise is made individually, the subject’s arms are raised laterally and while walking they throw the ball with one hand over the head and catch it with the other. The test is made for 10 seconds, once and the number of correct executions is recorded (when the ball was caught).

**Tapping test** – it is a pencil-paper test and it aims at the coordination eye-hand, the rapidity of the movements of the fingers and the spatial representations. The test consists in marking 3 points in each circle on the answer sheet with the pencil, within the shortest time, 10 seconds were previously granted to practice and the test results were timed for 30 seconds. The correctly completed circles are counted, the test is applied once.

**RESEARCH RESULTS**

The analysis of psycho-motility revealed noticed improvements in all subjects, except that the athletes included in the experimental group excelled, so that it highlights issues that have been objectified in terms of conclusions in the next lines.

### Table 1. Dynamics of the indices of psycho-motor skills of the handball players in the pedagogic experiment (n = 40)

<table>
<thead>
<tr>
<th>No.</th>
<th>Control test</th>
<th>Subject groups</th>
<th>Initial testing</th>
<th>Final testing</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>X±m S Cv</td>
<td>X±m S Cv</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Ball throwing-catchin, 10 sec, max. nr.</td>
<td>E</td>
<td>6±0.3 1.21 20.16%</td>
<td>8.80±0.1 0.52 5.91%</td>
<td>9.47 &lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>6.3±0.2 1.2 17.78%</td>
<td>7.20±0.2 1 13.89%</td>
<td>2.89 &lt;0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-M</td>
<td>0.67&gt;0.05</td>
<td>6.60&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Coordination test, cm</td>
<td>E</td>
<td>4.6±1.5 6.65 13.97%</td>
<td>41.13±0.7 3.20 7.78%</td>
<td>3.88 &lt;0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>46.8±1.7 7.41 15.83%</td>
<td>45.65±1.6 7.14 15.64%</td>
<td>0.48 &gt;0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-M</td>
<td>0.36&gt;0.05</td>
<td>2.58&lt;0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Matorin test</td>
<td>E</td>
<td>196.8±7 31.3 15.90%</td>
<td>269.7±2.09 9.33 3.46%</td>
<td>9.99 &lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>207.2±7.3 37.6 18.14%</td>
<td>213.5±5.8 37.6 17.61%</td>
<td>0.60 &gt;0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-M</td>
<td>1.04&gt;0.05</td>
<td>10.08&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Tapping, nr. X, max.</td>
<td>E</td>
<td>25±0.9 4.02 15.64%</td>
<td>30.9±0.5 1.97 6.38%</td>
<td>5.24 &lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>25±1 4.03 17.52%</td>
<td>27.2±0.7 3.20 11.76%</td>
<td>1.81 &gt;0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-M</td>
<td>0.57&gt;0.05</td>
<td>4.46&lt;0.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note

<table>
<thead>
<tr>
<th>P</th>
<th>0.05</th>
<th>0.01</th>
<th>0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>n=20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.086</td>
<td>2.845</td>
<td>3.850</td>
</tr>
<tr>
<td>n=40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.021</td>
<td>2.704</td>
<td>3.551</td>
</tr>
</tbody>
</table>
CONCLUSIONS

1) The results of the pedagogic experiment that aimed at the psycho-motor training of the beginner handball players mainly reveal the fact that the most eloquent sporting progresses were the ones intervened on the level of the group experiment. The assertion is objectified by the dynamic of the recorded scores both in their horizontal analysis (intra-group) and the vertical one (inter-groups). The evolution of the parameters found on these coordinates was quasi-generally appreciated to values of P<0.001 and secondary P<0.01 and <0.5.

2) In all the presented tests it was started from about the same aptitude stage for all the subjects implied in the research and towards the end of the study the tendency became obvious that on the psycho-motor component the experimental lot was positively distinguished, obtaining superior performances in all the evaluated specific procedures and structures.

3) The level of homogeneity signaled in the two samples during the two moments of testing was generally of medium level, being framed in the interval 11.76-20.16%. The exceptions from this tendency was noticed in the experiment group (final testing) where the values corresponded to a great homogeneity: 3.46-7.78%

4) The selection of the subjects according to a hemisphericity profile similar to the one of the senior sportmen proved as efficient and real premises for the accomplishment of a more conclusive and efficient selection process is outlined.

5) Observations made in the course of research, dynamics and distribution values psycho-motility component analysis reveals not only the validity criterion in the selection of optimal cerebral dominance handball players, but also a striking evidence for all sports games. Obtaining objective feedback is determined by its use of its components under review, the specific structures.
similar in team sports, and ease of application at any stage and period of training.

Based on results in the teaching experiment, we recommend the following:

a. Practical use of cerebral dominance criterion for the purposes of completeness and efficiency of the selection process in both sports and playing handball in other sports;

b. The method of assessing the functional analysis of the cerebral hemispheres must be made by a person competent in this field (preferably in collaboration between sports psychologist and coach) by administering a battery of specific tests;

c. In the game of handball, effective application of cerebral dominance criterion depends on the following steps of the method:

   → battery of psychological tests specific administration, identifying the level of hemispheric activation and brain dominance profile shape.

   → reporting profile obtained cerebral dominance model handball player (as a standard of performance on this component) and understanding of related meanings.

   → psychological findings corroborating the results obtained reported on plans: morpho-functional, motor, technical, tactical, etc.

d. It is preferable that age subjects from which to begin this process of selection corresponding to stage I of sports training, that 10-12 children involved in sports practice. At this age, a possible “inconsistency” in the model for the selection of sports, make the shift action is much easier. Given the fact that from one year to another competitive players have numerous transfers, the criterion in question can be used successfully and stages 2 and 3 of athletic training;

e. Knowledge of meanings related to cerebral dominance may have benefits in optimizing the selection process, but also in improving sports training lessons in their individual peculiarities as adaptations of athletes.

BIBLIOGRAPHY:


LE CHOIX DE LA FORMATION PSYCHOMOTRICE SELON L’ANALYSE FONCTIONNELLE DES HEMISPHERES CEREBRAUX

Résumé

Ce travail traite du processus de sélection à travers la composante psychomotrice dans le jeu de handball, à partir du critère psychologique d’analyse de la dominance fonctionnelle des hémisphères cérébraux. Les sujets examinés lors de cette recherche ont été des enfants âgés de 11-12 ans et l’échantillonnage des sportifs sur les deux groupes s’est réalisé par l’utilisation d’une batterie de tests psychologiques et à partir d’un modèle spécifique au joueur de handball (senior) – préalablement réalisé. Les aspects psychomoteurs ont visé la coordination ; dynamique, segmentaire et générale, statique- l’équilibrage, respectivement, perceptive et motrice. La conclusion générale, résultant de l’expérimentation pédagogique, c’est que la sélection des sportifs à base d’un profil d’hémisphéricité, a déterminé l’obtention de résultats supérieurs au niveau psychomoteur, par rapport à d’autres critères.

Mots clés: sélection, psycho-motricité, le modèle, la domination, hémisphéricité, la performance
STUDY OF THE INFLUENCE OF VARIOUS METHODS BASED ON STRENGTH AND STRENGTH-SPEED ON THE COMPETITION OUTCOME IN MIDDLE-DISTANCE RACES (CORRELATION ANALYSIS)

Paula IVAN
“Spiru Haret” University of Bucharest, ROMANIA

Abstract:
The present paper focuses on the study of the special training programme of middle-distance professional female runners and the measuring of the strength abilities that influence the performance of female runners in middle-distance races. The research was conducted between 2009 and 2010, based on the results of the most valuable middle-distance race female runners in Romania.

Keywords: strength, power, sport training, timing, middle-distance

HYPOTHESIS OF THE STUDY
The premise was that rationalizing the training programme for middle-distance races by identifying the strength abilities that influence high performance, will lead to maintaining motion speed on a given distance and, consequently, to increasing athletic performance.

RESEARCH METHODS:
The following methods have been used in the present research: observation, testing and measuring, experimentation and statistical–mathematical data analysis. The observational experiment focused on identifying the influence of various methods of training/developing the strength and extension of the inferior limbs on performance ability in middle-distance races, of the most valuable middle-distance female athletes in Romania. Based on the results in the 800 metre race, three value groups of middle-distance runners were identified, as follows: level I, performance between 2:00.0-2:10.0, eight athletes; level II, performance between 2:10.1-2:20.0, ten athletes; level III, performance between 2:20.1-2:35.0, ten athletes.

INTRODUCTION
The data emerging from the research have confirmed that there is no employment of the most efficient specific methods of training towards the purpose under study, and implicitly, of the most efficient methods of evaluation of the specific force in the training of middle-distance female runners; the arithmetic mean of these parameters does not accurately convey the characteristics of the athletes, their individual values being highly scattered compared to the mean.

In order to study the influence of the various methods based on strength and strength-speed upon the competition results in middle-distance races, we calculated the linear correlations between the average values of the evaluation tests (independent variables) and competition results in the 800 metre and the 1500 metre races.

Table 1 displays the values of the Pearson correlation coefficient for the three groups identified on the basis of the 800 metre race results. The results displayed below confirm that, on the first level of performance in the 800 and 1500 metre races, the weight of the strength in the equation of performance is higher.

<table>
<thead>
<tr>
<th>No.</th>
<th>Evaluation test</th>
<th>Pearson correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Group I (2.00,0-2.10,0sec.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>800 m</td>
</tr>
<tr>
<td>1</td>
<td>Vertical jump (cm)</td>
<td>-0.75</td>
</tr>
<tr>
<td>2</td>
<td>10 consecutive jumps on the strong leg (m)</td>
<td>-0.78</td>
</tr>
<tr>
<td>3</td>
<td>Jump step on a distance of 100m (no. steps)</td>
<td>0.79</td>
</tr>
<tr>
<td>4</td>
<td>Depth jump –vertical jump (cm)</td>
<td>-0.68</td>
</tr>
<tr>
<td>5</td>
<td>Depth jump, 3 sec. pause– vertical jump (cm)</td>
<td>-0.70</td>
</tr>
</tbody>
</table>
Observation. The value of the Pearson correlation coefficient “r” will be significant, at the threshold of 5 %, when it will be ≥ 0.556.

The analysis of the way in which positive correlations are established between the level of the independent variables measured by us and the dependent variable, the result in competition, has revealed the following: the value of the independent variables: vertical jump; depth jump - vertical jump; depth jump, 3 sec.pause - vertical jump; 10 consecutive jumps on the strong leg; the absolute static force of the leg flexors - thigh flexors; the relative force of the calf flexors on the thigh and of the thigh flexors, do not rise to an optimum level that would have a positive impact and would facilitate performance in the 800 metre race, in which it is necessary to develop all the components of the specific force mentioned in the present study.

However, as can be inferred from the inter-group analysis, on the first level of performance there are several independent variables, the values of which correlate very well with the average level of the athletes’ results: jump step on a distance of 100 metres (no. steps) and 20 genuflexions with dumbbell with 50% of the body mass. This explains the methodical approach of the trainers and gives us solid arguments in promoting these training instruments at the level of the experimental group.

The same tendency can be observed on the second and third level, with the additional note that on the third level, where a number of positive correlations with the level of the independent variables tested by us have been registered, the results of the athletes are much weaker than in the other groups.

The level of the correlations identified in the first level group has influenced, on the one hand, the maintaining, exclusion or replacement of some independent variables in the pedagogical experiment and, on the other hand, has offered the premises of the methodical approach with a view to achieving the aim of the present paper.

CONCLUSIONS

The analysis of the ways in which positive correlations are established between the level of the independent variables measured by us and the dependent variable, the result in competition, we have determined that the values identified by us of a number of independent variables correlate better with the competition results in the 1500 metre race, as far as the first level group is concerned: vertical jump; depth jump - vertical jump; depth jump, 3 sec.pause - vertical jump; 10 consecutive jumps on the strong leg; the absolute static force of the leg flexors and the thigh flexors; the relative force of the calf flexors on the thigh and of the thigh flexors. This confirms that the value of these variables do not rise to an optimum
point which would have a positive influence and favour performance in the 800 metre race, in which it is necessary to develop all the components of the specific force identified by us. At this level of performance there are a number of independent variables, the values of which correlate very well with the average level of the athletes’ results: jump step on a distance of 100 metres (no.steps); running 300 m high intensity, 30 sec.pause-deca-jump in place; 20 genuflexions with dumbbell with 50% of body mass; the relative force of the thigh protractors and thigh flexors.

REFERENCES

 USING THE KINECT SENSOR TO STUDY THE KINEMATICS OF THE HUMAN BODY

Daniel GANEA, Marian Sorin TUDORAN, Claudiu MEREUTA, Elena MEREUTA

“Dunarea de Jos” University of Galati, ROMANIA

Abstract:
The human body is a complex mechanism which is composed by multiple kinematic chains. The purpose of those multiple chains is to maintain the human body in continuous motion necessary for everyday life. In this paper we will present a state of the art technology defined by its huge potential and accessibility to study the kinematics of the human body.

Our work investigates how the Kinect sensor is capable to take part in the study of the human body kinematics.

Keywords: biomechanics, Kinect sensor, depthsensor, kinematics, sport, human body, markerless motion

INTRODUCTION
The kinematic analyses upon the human body are at the moment a significant source of information about how the kinematic chains which compose it behave in everyday activities or in sports.

It is very important to understand the behavior of the human kinematic chains because this way we can predict, control or solve problems which regard the musculoskeletal which leads in deficiencies of the human body equilibrium.

Asymmetries of the musculoskeletal appear when pathologies impact on one side of the human body. It is crucial to maintain the health of the musculoskeletal because this way we can avoid displacement of the body and joints or avoid strokes like is shown by Lisa D. Alexander in her study regarding the link between gait asymmetry and brain lesion [1].

To do so, over the years new technologies appeared such as Vicon cameras [2], ToF cameras [3], Kinect sensors [4], which help us to study more closely and more efficient the kinematic of the musculoskeletal.

PREVIOUS WORK
The Kinect Xbox 360 is a powerful depth sensor developed by Microsoft and released in November 2010. Its first purpose was to be used in videogame industry with the Xbox console but its high potential leaded the usage in multiple fields.

Previous authors explained the high usage of the depth sensors in different fields like: intuitive...
human robot interaction [5], hand tracking and rendering in wearable haptics [6], recognizing hand gestures [7], scanning 3D full human bodies [8] and human activity detection [9].

A previous work introduced by Adso Fernández-Baena [10] uses a depth camera mounted above a tripod placed in front of the actor to study the upper-body and lower-body joint movements in order to evaluate the performance of the Kinect as a motion capture system. Actually they conducted a comparative experiment involving a Kinect camera and an optical motion capture system. The result was actually sufficient to guaranties precision for most of clinical rehabilitation treatments.

Another important characteristic beside the reduced price and portability is that the Kinect camera is a capture motion system without markers, as shown in [11] and by Kai Berger in the article “Markerless motion capture using multiple color-depth sensors” [12].

**METHOD AND EXPERIMENT**

The basic point of this method is data transfer from the Kinect sensor to a computer which processes the data through the OpenNi and PrimeScene library or Microsoft.

The Kinect camera is a sophisticated hardware consisting of:

- **IR Emitter** and a **IR Receiver** that forms the depth camera with the following characteristics:
  - Field of view: horizontal: 58°, vertical: 45°, diagonal: 70°;
  - Spatial X/Y resolution: 3mm;
  - Depth Z resolution: 1cm;
  - Data stream: 30 frames/sec;
  - Operation range: 0.8m - 3.5m (Fig.2);
- **RGB camera** with the following resolutions:
  - 640X480, 320X240 in Linux and Mac and 1024X768, 640X480, 320X240 in Windows 7;
- **A tilt motor** with the range of: ±27 degrees, as shown in Fig.1.

How the Kinect sensor works: the Kinect IR light Emitter sends a pattern of light form by 640*480 pixels (depends of the resolution). After the light is dispersed back to depth sensor by an object in range, the Kinect IR Receiver can distinct this light to the original pixel which the beam belongs (Fig. 3.a). To calculate the depth of a point in view meaning the z-coordinate, we need to neglect the y-coordinate and work with the projection on the xz planes.
The angle $\gamma$ can be calculated by the sum of all angles in a triangle:

$$\gamma = 180^\circ - \alpha - \beta \quad (1)$$

where $\alpha$ is the angle of the dispersed and received beam and $\beta$ is the angle of the emitted.

Because the distance between the IR-Emitter and the IR-Receiver is permanently constant ($b = 75mm$) we calculate the length of the dispersed beam $s$ with the following equation:

$$s = b \cdot \frac{\sin \alpha}{\sin \gamma} \quad (2)$$

Further, if we use the height of the rectangle we can obtain the depth of the point in view. This size is labeled $z$ and can be expressed as follows:

$$z = s \cdot \sin \alpha \quad (3)$$

Using equations (1) and (2) to express equation (3) we get:

$$z = s \cdot \sin \alpha \cdot \frac{\sin \beta}{\sin(180^\circ - \alpha - \beta)} = b \cdot \frac{\sin \alpha \cdot \sin \beta}{\sin(\alpha + \beta)} \quad (4)$$

Then if the depth value (the $z$-coordinate) is known, for every pixel the $x$ and the $y$ coordinate can be calculated as linear functions of the $z$-coordinate.

$$x = 2 \cdot \frac{X_{\text{pix}}}{V_{x \text{Re} z}} \cdot \frac{1}{2} \cdot \tan \left( \frac{57^\circ}{2} \right) \cdot z \quad (5)$$

$$y = 2 \cdot \frac{1}{2} \cdot \frac{Y_{\text{pix}}}{H_{y \text{Re} z}} \cdot \tan \left( \frac{43^\circ}{2} \right) \cdot z \quad (6)$$

Where $V_{x \text{Re} z}$ and $H_{y \text{Re} z}$ represents the vertical and horizontal dimensions of the pattern of light.

For e.g. $V_{x \text{Re} z} \cdot H_{y \text{Re} z} = 640 \cdot 480$

$X_{\text{pix}}$ and $Y_{\text{pix}}$ represents the coordinates of the respective pixel in the Kinect sensors depth frame.

Fig. 3 a. The emitted and dispersed beams of the Kinect sensor; b. A model of Kinect sensor pinhole

Beside using the Kinect camera to be able to establish a kinematic analysis of the human body we need to use a development tool like Microsoft Visual C# 2010 Express and the library from OpenNi and PrimeScene or Microsoft. In our case we have used the C# library from Microsoft to generate the human joints as in Fig. 4 (more details can be found at [13]).

Once the skeleton tracker is established after a certain pattern (Fig. 4) by using the Microsoft library or OpenNi and PrimeScenes the kinematic analyze can start (Fig. 5).

To do so we need to develop a code in any of the following programming languages: C++, C# or Java. The next step is to determine the $x$, $y$, $z$ coordinates of the joints, the angles between the human body segments, angular velocities, accelerations and trajectories.

Fig. 4. The joints position generated by the Kinect sensor
DISCUSSION AND CONCLUSION
The need to maintain the health of the musculoskeletal is crucial because this way we can prevent or solve deficiencies and anomalies of the human body activities. To do so we need to use, find or develop new kinematic analysis systems like Vicon cameras, ToF cameras or in our case the Kinect cameras. Comparing the Kinect camera point of view of accuracy, availability and price with others specialized motion capturing system we can conclude that the sensor in question is a very capable tool to study the kinematics of the human body in everyday activities or in sports with the aim to prevent or solve deficiencies of the musculoskeletal.

REFERENCES


ESTABLISHING THE 3D ACTIVE SPACE OF THE HUMAN UPPER LIMB USING AUTOLISP

Marian Sorin TUDORAN, Daniel GANEA, Claudiu MEREUTA, Elena MEREUTA

“Dunarea de Jos” University of Galati, ROMANIA

Abstract:
The paper presents a graphical method for determining the 3D active space of the human upper limb. The method is based on AutoLISP features and provides an accurate description of the active space. The main disadvantage is related to time computing which can be very large due to the amount of points describing the active space. We can also reveal the limitation of active space for persons having upper limb disabilities.

Keywords: upper limb, 3D active space, AutoLISP

INTRODUCTION
The human skeleton is not a perfectly rigid mechanical structure, articulated with idealized spherical or axial joints. In order to simplify the calculation routines, we assume that kinematic links are rigid bodies. Thus, some errors might occur in the kinematic analysis (Zhang, 2002) and in inverse dynamics as well (Risher et al., 1997).

It is well known that in time, most people lose a certain percentage of mobility of their joints. As a consequence, the active area of the upper limb is shrinking. This method provides the expression of the percentage of mobility loss for older persons or for disabled ones with respect to a normal person.

DESCRIPTION OF THE METHOD
For a complex kinematic study of the active space of the human upper limb, the considered open kinematic chain has 8 degrees of freedom, corresponding to the possibilities of motion allowed by each joint of the upper structure (Fig. 1). Thus, the 8 degrees of freedom are:

- 3 degrees of freedom for the shoulder;
- 2 degrees of freedom for elbow;
- 2 degrees of freedom for the wrist;
- 1 degree of freedom for joint metacarpophalanges.

- \( h \) = length of humerus;
- \( r \) = length of radius;
- \( p \) = length of carpian and metacarpian;
- \( d \) = cumulative length of phalanges.

**Fig. 1.** Kinematic model of human upper limb

**Table 1. Nominal values of joints variables**

<table>
<thead>
<tr>
<th>( \theta_{1x} )</th>
<th>( \theta_{1y} )</th>
<th>( \theta_{3x} )</th>
<th>( \theta_{2x} )</th>
<th>( \theta_{2y} )</th>
<th>( \theta_{3y} )</th>
<th>( \theta_{3z} )</th>
<th>( \theta_{4x} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>-45°</td>
<td>0°</td>
<td>-110°</td>
<td>-45°</td>
<td>-140°</td>
<td>-90°</td>
<td>-55°</td>
</tr>
<tr>
<td>Max</td>
<td>45°</td>
<td>135°</td>
<td>30°</td>
<td>90°</td>
<td>0°</td>
<td>80°</td>
<td>30°</td>
</tr>
</tbody>
</table>

The general matrix \( G_{12} \) which represents the position and orientation of the reference system of phalanges with respect to the reference system considered fixed in the center of the shoulder joint, is determined as the product of transfer matrices:

\[
G_{12} = T_1^{-1} T_2^{-2} T_3^{-3} T_4^{-4} T_5^{-5} T_6^{-6} T_7^{-7} T_8
\]  

(1)

Thus, the general form of \( G_{12} \) matrix is:

\[
G_{12} = \begin{bmatrix}
           n_x & o_x & a_x & p_x \\
           n_y & o_y & a_y & p_y \\
           n_z & o_z & a_z & p_z \\
           0 & 0 & 0 & 1
        \end{bmatrix}
\]  

(2)

**PRACTICAL APPLICATION**

Based on the kinematic model and on the anatomic considerations above, we have established the active area of the human upper limb using a graphical representation of successive positions.

The limits and the configuration of the active space limits of the human upper limbs are important for designing the ergonomic issues surrounding people with disabilities (workspace, living space). Compared with analytical methods, this graphical method provides both visual and indicative expressions of the accurate active area of the human upper limb.

**Generating points**

We have created a computer routine dedicated to this purpose, using the AutoLISP programming language based on:

- 8 “while” loops, one for each joint of the considered kinematic chain;
- 4 travel units, one for each joint of the upper limb;
- a drawing unit for the mobile point;
- an extraction unit.

The 8 “while” loops are subordinated one to the other, as shown in the logical scheme (Fig. 2). The “while” loop corresponding to the joint variable \( \theta_{4y} \), the program draws the points one by one and their coordinates are extracted for each increasing increment of the variable, as long as the condition \( \theta_{4y} < \theta_{4y,max} \) is met.

For the loop \( \theta_{3y} \), the variable angle will increase incrementally from minimum to maximum. So, for each increment of its own the subordinate loop, loop \( \theta_{3y} \), will perform a complete cycle of drawing points as described in the previous paragraph. When the maximum condition is met, i.e. \( \theta_{3y} = \theta_{3y,max} \) for the master loop, the variable in the loop \( \theta_{3x} \), increases one by one step, then the drawing cycle resumes from the loop \( \theta_{3y} \).

The loops of the variables joint \( \theta_{3x}, \theta_{2x}, \theta_{2y}, \theta_{1z} \) and \( \theta_{1y} \) have the same behavior as \( \theta_{3y} \) loop. For the most part, the \( \theta_{1x} \) loop has a similar behavior to the other loops, the difference being, as shown in the logical scheme (Fig. 2), that when the condition of maximum is met, the program ends.

The movement unit is a group of commands that perform the displacement of the active coordinate.
system from one joint to another. The displacement
distances are the lengths of bone segments that form
the skeleton of the upper limb (humerus, radius, carps
+ metacarps, phalanges). At one point only one of the
eight coordinate systems is active, i.e. the coordinate
system corresponding to the loop in progress.

The drawing unit is a collection of
commands that perform mobile point drawing. The
mobile point is a point on the distal extremity of
phalanx of the forefinger (index).

The extraction unit, so called “extraction
subroutine”, enrolls in a TXT file the cartesian
coordinates of the mobile point with respect to the
fixed coordinate system (WCS). The world coordinate
system (WCS) site can be located anywhere in space,
but in this case is situated in the center of the
scapular-humeral joint.

The total number of points (n) achieved after
running the program is the product of the number of
points corresponding to each joint variable (iuv).

\[ n = i_{1x} \cdot i_{1y} \cdot i_{2x} \cdot i_{2y} \cdot i_{3x} \cdot i_{3y} \cdot i_{4y} \quad (3) \]

where: \[ \varphi = \frac{\varphi}{p} \] and \( i \in \mathbb{N}, \quad u=(1,2,3,4), \)
\( v=(x,y,z) \) - the definition domain of variable angle \( uv \)

\[ \varphi_{uv} = |\theta_{uv\min}| + \theta_{uv\max} \quad (5) \]
\( p_{uv} \) – the incremental step of angular variable \( uv \).

The graphical representation of the active
space of the human upper limb was performed
considering that all kinematic joints perform
simultaneous movements, within the limits of joint
configurations.

Due to the complexity of the model, each of
the eight areas that define the angular variables is
divided into four intervals. By running the AutoLISP
program, we get a total of 390625 points (Fig. 3), in
the current AutoCAD file.

CONCLUSIONS

This method provides both quantitative
information by viewing the point cloud that describes
the 3D space of the human upper limb, as well as
qualitative information, because we can read the
accurate Cartesian coordinates of the points that form
this space.

The method becomes more difficult to
compute as the incremental values of joint variables
increase, as the computing time is longer. This
shortcoming can be removed by using a computing
machine with a high frequency processor.

Compared with the analytical method, the
method of drawing the successive positions is easier
to use due to the graphic facilities provided by
AutoLISP programming environment.
Fig. 3. Active space of human upper limb

REFERENCES
10. Tudoran M., Ganea D., Ionete L.G., Establishing the active space of huma’s upper limb using AutoLISP, Bulletinul Institutului Politehnic din Iasi, Tomul LVII (LXIII), Fasc. 5, ISSN 1011-2855, 2011.

Résumé:
Cet article présente une méthode graphique pour déterminer l'espace 3D actif du membre supérieur humain. La méthode est basée sur les fonctionnalités par AutoLISP et fournit la description précise de l'espace actif. Le principal inconvénient est lié au temps de calcul, qui peut être très grand en raison de la quantité de points qui décrivent l'espace actif. Nous pouvons aussi révéler la limitation de l'espace 3D actif pour les personnes ayant une déficience des membres supérieurs.

Mots-clés: membre supérieur, actif espace 3D, AutoLISP.