A Web Technology Based for Establishing e-Learning Platform in Various Training of Specialty Physical Ability for Tennis Contestant in Elementary School

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Abstract—This work focuses on the efficiency investigation for various training in Specialty Physical Ability for Tennis contestant in elementary school. This work also proposes a web technology based iterative E-learning platform system for upgrading the performance for the target trainer. The proposed iterative E-learning platform not only can provide an E-learning course in Specialty Physical Ability for those contestants but also offer an investigation of the efficiency for those executing this project. This work employs the proposed design for testing the selected eight elementary contestants of Tennis, age around 11.5 years old, high about 152.1 cm, weight around 39.2 kg in this e-learning platform to explore the efficiency of this program. Numerous simulations have been made and some successful results are obtained.

Index Terms—web technology, specialty physical ability, e-learning course, platform, tennis contestant

I. INTRODUCTION

A. Background and Motives

Web technology based applications are important research subjects recently. There are existed some paper and reviews exploring this technology [1]-[11]. Especially, Tennis sport is one of those including aerobic exercises and/or aerobic less exercises (Bergeron, Maresh, Kraemer, Abraham, & Conroy, 1991). Persons are busy working today. They need casual activities in the spare time. Tennis is one of casual activities. Furthermore, for the purpose to match the different type of tennis player, contestants should robust their ability corresponding to emergency stop, jump, instant start and maintain their stability while hitting the ball (Groppel, 1986). Furthermore, for the various type items, there are existed some special characteristics condition. Chandler (1995) in his research proposed that Tennis sport is with several physical abilities, such as speed, endurance, strength, balance belonging to Specialty Physical Ability. The contestants in the Tennis courses can not only learn from the teachers in the class but also gain a new learning channel and resource. This is the first motive of this research. Based on the interactive learning increase learning efficiency, modify learning effect and forbid incorrect information. The proposed e-learning platform provides an interactive learning function that makes the learning become a two-way learning communication mode instead of one-way information receiving mode. This is also the motive of this research.

B. Research Object

Based on the above motive, there are some objects in this paper.

- Research creates noble teaching mode for contestants in elementary school in Tennis.
- Research employs e-learning platform and construct interactive Tennis teaching mode for contestants in elementary school.

C. Research Range

This work employs the proposed design for testing the selected eight elementary contestants of Tennis, age around 11.5 years old, high about 152.1 cm, weight around 39.2 kg in this e-learning platform to explore the efficiency of this program.

D. Nomenclature

- Normal training: general training for contestants in Tennis course
- Recycle training: based on the traditional training including, Push-up, Sit-up, Split jump, Medicine Ball squat, Rope jumping and Running on the Spot. Details can be found in the following Fig. 1.
- Specialty Physical Ability: contestants with the ability of skill-related physical fitness that includes Agility, Coordination, Speed, Balance, Reaction time and Explosive force.
II. RESEARCH METHOD AND STEPS

A. Building e-Learning Teaching Platform

This work focuses on the efficiency investigation for various training in Specialty Physical Ability for Tennis contestant in elementary school. This work proposed a web technology based iterative e-learning platform system for upgrading the performance for the target trainer. The Web technology based e-learning platform of graph can be found in www.ytp.iic.edu.tw/sue/. There are some special features in this design.

- Easy to fit the requirement of contestants courses.
- Iterative learning for contestants to upgrade their performance in Tennis.
- Easy to learn for the proposed design.

- Including the Normal training, Recycle training and Specialty Physical Ability for contestants to practice.

The platform can be easily reading and the users can check details knowledge corresponding to Tennis and Training method. Moreover, there are three levels of Training for Trainers.

B. Research Procedure

Training schedule is shown in Table I. There are eight contestants in Tennis in elementary school in which divided by two teams, four candidates each. The first team is of Normal Training course. The second team is of Normal Training associated with Recycle training course.

Normal Training course-three time period in a week, Monday, Wednesday and Friday, 08:00-10:00 in these days.

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However, the Trainings are of some quit different.

TABLE I. TRAINING SCHEDULES

<table>
<thead>
<tr>
<th>Week</th>
<th>Time</th>
<th>Normal Training Team</th>
<th>Normal associated with Recycle Training Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>08:00-10:00</td>
<td>Normal Training Practice</td>
<td>Normal associated with Recycle Training Practice</td>
</tr>
<tr>
<td>Wednesday</td>
<td>08:00-10:00</td>
<td>Normal Training Practice</td>
<td>Normal associated with Recycle Training Practice</td>
</tr>
<tr>
<td>Friday</td>
<td>08:00-10:00</td>
<td>Normal Training Practice</td>
<td>Normal associated with Recycle Training Practice</td>
</tr>
</tbody>
</table>

It should be noticed that the Normal Training course is of the traditional training including warming up, stretching and technique practice. Details of Normal Training associated with Recycle training Practice are stated in Table II.

TABLE II. THE NORMAL TRAINING ASSOCIATED WITH RECYCLE TRAINING COURSES

<table>
<thead>
<tr>
<th>Items</th>
<th>Descriptions</th>
</tr>
</thead>
</table>
| Method                 | (i) Complete every training operation as soon as possible.  
(ii) Three times a week was executed in the track and field recycled four sets of contestants in each time. |
| Training contents      | (i) Push-up, fifteen times. 
(ii) Sit-up, twenty times. 
(iii) Medicine Ball squat fifteen times. 
(iv) Running on the Spot 20m. 
(v) Shuttle run 20m. |

Figure 1. Details of Recycle Training
C. Test Items

Experiments of this test terms in research is stated in Table III.

<table>
<thead>
<tr>
<th>Items</th>
<th>Test terms</th>
<th>Test terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>50 m run</td>
<td>Speed</td>
</tr>
<tr>
<td>(ii)</td>
<td>Vertical Jump</td>
<td>myodynamia</td>
</tr>
<tr>
<td>(iii)</td>
<td>Cross court shuttle run</td>
<td>Agile</td>
</tr>
<tr>
<td>(iv)</td>
<td>800 m run</td>
<td>endurance</td>
</tr>
<tr>
<td>(v)</td>
<td>Left and right side and step</td>
<td>sprightly</td>
</tr>
</tbody>
</table>

D. Data Processing

This work employed the Tool of SPSS17.0 for windows to evaluate the efficiency of the tested contestants in Tennis in elementary school. This test included the criteria corresponding to average evaluation, deviation, t test, variation and significant p. Test results of criteria in each case is almost of p<0.05. Numerous tests have been made and some interesting results are obtained shown in the following section.

III. RESULTS AND DISCUSSIONS

A. Influence of Normal Training for Specialty Physical Ability

Eight weeks of traditional training test have been made, this work found the difference of t test of pairs in the Specialty Physical Ability training courses as to 50 m run and Cross court shuttle run (p<.05). Details can be found in Table IV.

<table>
<thead>
<tr>
<th>Items/methods</th>
<th>before</th>
<th>after</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 m Running (sec.)</td>
<td>8.34</td>
<td>8.31</td>
<td>0.51</td>
</tr>
<tr>
<td>Vertical Jump (cm)</td>
<td>34.9</td>
<td>36.5</td>
<td>0.02</td>
</tr>
<tr>
<td>Cross court shuttle run (sec.)</td>
<td>41.1</td>
<td>41.0</td>
<td>0.01</td>
</tr>
<tr>
<td>800 m Running (sec.)</td>
<td>211.9</td>
<td>210.1</td>
<td>0.64</td>
</tr>
<tr>
<td>Left and right side and step (sec.)</td>
<td>15.0</td>
<td>15.3</td>
<td>0.48</td>
</tr>
</tbody>
</table>

B. Influence of Normal Training Associated with Recycling Training

Eight weeks of normal training associated with recycling training have been made, this work find some interesting results shown in the following. Details can be found in Table V.

<table>
<thead>
<tr>
<th>Items/methods</th>
<th>before</th>
<th>after</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 m Running (sec.)</td>
<td>8.27</td>
<td>8.11</td>
<td>0.04</td>
</tr>
<tr>
<td>Vertical Jump (cm)</td>
<td>34.6</td>
<td>36.3</td>
<td>0.03</td>
</tr>
<tr>
<td>Cross court shuttle run (sec.)</td>
<td>40.8</td>
<td>38.6</td>
<td>0.02</td>
</tr>
<tr>
<td>800 m running (sec.)</td>
<td>2019.6</td>
<td>204.6</td>
<td>0.01</td>
</tr>
<tr>
<td>Left and right side and step (sec.)</td>
<td>15.0</td>
<td>16.5</td>
<td>0.01</td>
</tr>
</tbody>
</table>

IV. Conclusions

This work focused on the efficiency investigation for various training in Specialty Physical Ability for Tennis contestant in elementary school. This work also proposed a web technology based iterative E-learning platform system for upgrading the performance for the target trainer. The proposed iterative E-learning platform not only can provide an E-learning course in Specialty Physical Ability for those contestants but also offer an investigation of the efficiency for those executing this project. This work employs the proposed design for testing the selected eight elementary contestants of Tennis, age around 11.5 years old, high about 152.1 cm, weight around 39.2 kg in this e-learning platform to explore the efficiency of this program. Test results revealed the following interesting outcomes. The t test team of Normal Training for Specialty Physical Ability show that the cases of Vertical Jump and Cross court shuttle run is significant improvement for criteria (p<.05) while the cases of 50 m running, 800 m running and Left-right walk step is not so much improvement of the criteria of (p>.05). Furthermore, the t test team of Normal Training associated with recycling training for Specialty Physical Ability show that all the cases in this simulation are significant improvement for criteria (p<.05).

Acknowledgement

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References


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