The Effect of Teaching with Mobile Learning Technology on Learning the Artistic Performance and Improving the Most Important Bio-Kinematic Variables for Rear Rolling for Standing on Hands on the Ground Mat

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Abstract

The research aims to identify the impact of the method of teaching using mobile learning technology to teach the performance of rear rolling hands to stand on the mat of ground movements for beginners using the performance evaluation index along with the biochemical variables to assist in the performance of this movement, the research used the experimental method to design a single experimental group with pre and posttests. The study was conducted over three weeks and the most important results showed the achievement of Mobile Learning technology positive results to teach the performance of rear rolling to stand hands on the carpet ground movements for beginners.

Keywords: Teaching Methods, Mobile Learning, Rear Hand Rolling and Ground Moving Mat.

Introduction:

Modern technology occupies a large space because of its importance in the life of the individual and has become easier for us many things, and must be used to the maximum extent in order to benefit from them, and images of mobile phones, which has become an indispensable individual use and hardly one of us can meet his needs only by the use of its wide applications.

One of the important areas that must be introduced to mobile technology and benefit from it is the field of education, especially in the field of mathematical skills education because of the applications that facilitate the process of learning, as mobile phones have the potential to improve teaching and learning processes because the tools are cheap compared to the physical cost of other. It can be used for teaching and learning adds that the use of mobile devices in education by involving learners in the process of education without restrictions and at any time, place and any type of those devices enable them to continue activities. The educational process started from inside the classroom to the outside with the provision of support of educational resources, which leads to the expansion of the classroom study outside the times and the official limits of educational classes. The mobile phone has become an indispensable necessity or mobility without it and is considered the most used technological devices and mobile phone in the modern era has many advantages that do not use the computer.1

Composite sports movements, especially the movements of the ground carpet in the artistic gymnastics are characterized by containing several stages overlapping with each other when performing and require teaching methods to facilitate learning and enable learners to see the overlapping parts that affect the success of artistic performance.2

One of the tasks of physical education teachers is to deliver knowledge and applied information in the best methods and may be the method of teaching using a mobile phone a successful and effective way as it has very important components and applications can be invested in this area mobile can imagine the ideal performance of the movements of the ground rug technical provided by the teacher in
Picture of a dynamic model of education and then provided to learners and with the possibility to play the video clip one of the drivers for mobile applications enables the learner to see the ideal performance of the movement and stop the section on a certain part of the performance and return it for more. From time to time in addition to the possibility of operating at different speeds (normal operation - fast - slow) for perception and sensory understanding and thus enable the learner to see the particles of movement and stand on the keys to the correct performance and learn cognitive and take the appropriate mental perception and training mentally, enabling him to create an integrated visualization program Mentally can be retrieved at times of learning and training in practice in the playground as well as corrective feedback by the teacher, as mental training allows the player to use multiple methods contribute to the control of ideas and modify the behavior of the motor to reach a better level, did not end here The teacher can exploit the property of learners owning the mobile and carry it at any time and place and convert this property to a successful means of extra-curricular duties for learners as they carry them with them wherever they go and watch them at any time and these duties as a form of extra-curricular activities for learners, where extra-curricular activities are sports activities outside The official working hours of the educational program are aimed at giving outstanding learners the opportunity to improve their levels, as well as those with a tendency and desire to practice more sports.

When reviewing the literature of teaching the movements of artistic gymnastics in the Faculty of Physical Education - University of Anbar found that there are missing rings in teaching using the method of command (explanation and presentation of the model), which is displayed the motor model directly in front of learners and sometimes it is displayed using educational video and the speed of the normal presentation which is equal to The amount of speed of the model provided by the teacher, the performance is fast and does not show the important small particles in the performance clearly for learners and negatively affects the formation of the first image of the learner to hide the fine details of the beginner get a mental image is incomplete and is not entitled The main purpose in education in both cases outpace the speed of motor performance perceptions of novice learners, which reflected negatively on the levels of learners when evaluating the researchers proposed to evaluate the levels of learners for the last three years and after obtaining formally from the Secretariat of the College Examination Committee appeared the result of the evaluation dispersed between the six official levels of assessment (Failure - acceptable - medium - good - very good - excellence) and the proportion of the largest dispersion is oriented to the levels (Failure - acceptable - medium) as shown in Table (1) and Figure (1), contrary to what we aspire as teachers to deliver the largest proportion of learners' estimates Towards high levels.

The importance of the study highlights the proposed method of teaching using Mobile Learning technology as a proposed new contribution to teaching and in solving the above mentioned teaching problems.

**Table (1).The amount of dispersion in the levels of students of the second stage in the technical gymnastics course**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
<td>N</td>
</tr>
<tr>
<td>Exceptional - good</td>
<td>11</td>
<td>33.332</td>
<td>12</td>
</tr>
<tr>
<td>Fail –pass high</td>
<td>22</td>
<td>66.668</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100%</td>
<td>34</td>
</tr>
</tbody>
</table>
Figure (1). The amount of dispersion of the levels of the second stage students in the technical gymnastics course

Research objective:
- Recognize the impact of the method of teaching using mobile learning technology to learn technical performance and improve the most important biochemical variables of the rear rolling to stand on the hands on the mat of ground movements.

Hypothesis:
- There were significant differences in favor of the telemetric tests of the experimental research group.

Research Methodology:
The researchers used the experimental method

The research sample:
A random sample of (9) beginners learners not practicing the rear rolling movement to stand on the hands of the second stage in the College of Physical Education - Anbar University for the academic year 2018-2019 and constitute a percentage (11.538%) of the total research community (78) learners, and has been confirmed homogeneity Research sample in variables of weight, height and age as shown in Table (2).

Table (2). Homogeneity of the sample in the basic variables

<table>
<thead>
<tr>
<th>S</th>
<th>Variables</th>
<th>Units</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Skewness*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age</td>
<td>Year</td>
<td>21</td>
<td>21</td>
<td>0.707</td>
<td>0.000</td>
</tr>
<tr>
<td>2.</td>
<td>Weight</td>
<td>Kg</td>
<td>67</td>
<td>64</td>
<td>6.204</td>
<td>1.179</td>
</tr>
<tr>
<td>3.</td>
<td>Length</td>
<td>Cm</td>
<td>173,555</td>
<td>174</td>
<td>4.304</td>
<td>0.624</td>
</tr>
</tbody>
</table>

* The distribution is moderate within the level of (±3) for the values of torsion coefficients and is an acceptable indicator of homogeneity.

Research tools and means of gathering information

Tools of research:
(Video camera to film the performance of the pre and post-DELL laptop type - Mobile phone iPhone owned by the teacher - Mobile devices of various types are owned by learners - Mat movements Gymnastic ground.

Means of information collection:
- Arabic and Foreign References.
- Test Data Registration Form.
IBM SPSS Statistics 20.

Main trial procedures:

Pre-test:

The pretest was conducted on 4/4/2019 and included a video of the performance of the rear rolling motion to stand on the hands by a video camera with a focal length of 2 meters for the horizontal dimension and (86,777 cm) for the vertical dimension. A laptop is then printed on CD-ROM and sent to:

1. A copy to the test and evaluation experts in the technical gymnasium with (3) experts to evaluate the performance of the movement with a maximum of (10 degrees).
2. Another copy to an expert in kinetic mathematical analysis to extract the tests of the biochemical parameters that were nominated by the experts of technical gymnastics.

1. The stage of hip prolapse to the ground: shown in Figure (2) and include:

   A. Angle of curvature of the head from the axis of the spine (angle number 1): the angle between the placebo line connecting (the cervical vertebra and the top of the head from the center) and the placebo line between (the corners of the hip and shoulder joint).
   B. Elbow joint angle (angle 3) the angle between the humerus and forearm.
   C. Shoulder joint angle (angle 2): The angle between the humerus and the trunk line.
   D. Hip angle (angle 4) the angle between the hip line and the torso line.
   E. Knee joint angle (angle 5) the angle between the thigh line and the leg line.

![Figure (2). The corners of the body joints when performing hip drop to the ground](image-url)

2. The second stage (the stage of rolling):

   A. Rolling speed (rolling time): measured from the first moment the hip connection to the ground to the first moment loss of shoulder contact with the ground.
   B. Angular velocity of the hip joint: measured from the first moment the hip contact with the ground to the first moment of the shoulder loss contact the ground.

![Figure (3). Rolling time and angular velocity when performing the rolled ball](image-url)
3. The third stage (handstand):

Elbow joint angle, shoulder joint angle, hip joint angle, knee joint angle: angles are measured at the moment the novice tries to balance the body on the hands (the moment of handstand).

![Figure (4). Corners of the joints of the shoulder hip and knee](image)

**Main trial procedures:**

The implementation of the main search experience over five educational units per time (90 minutes) by two units in a week on Tuesday and Thursday as teaching method is followed using Mobile Learning Technology, as shown in Table (3).

**Table (3). Main Experiment Procedures**

<table>
<thead>
<tr>
<th>Lesson Topic</th>
<th>Rear rolling motion to stand on the ground mat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Objective</td>
<td>The beginner learns performance using Mobile Learning technology</td>
</tr>
<tr>
<td>Measures to achieve the behavioral objective</td>
<td>• Teacher: Correcting learners' performance - giving corrective feedback.</td>
</tr>
<tr>
<td></td>
<td>Learner: Cognitive learning of the movement and direct its focus towards the ideal performance of the movement using mobile during the times of classroom activity and outside to take the appropriate mental perception and training it mentally and sensibly.</td>
</tr>
<tr>
<td></td>
<td>Practical application in the playroom during the classroom activity along with corrective feedback by the teacher</td>
</tr>
<tr>
<td>Evaluation</td>
<td>• Teacher: beginner assessment to learn how much learning.</td>
</tr>
<tr>
<td></td>
<td>Learner: Evaluate his performance with what has been trained mentally and practically.</td>
</tr>
</tbody>
</table>

**Posttest:**

It was conducted on 25/4/2019 and recorded its data in the same way as the pretest.

**Statistical means:**

Statistical pouch (SPSS) was used to extract the results.

**Results and discussions:**

**Table (4).** Shows the results of the evaluation of the pre and post-performance of the experimental group
### Performance Stages

<table>
<thead>
<tr>
<th>Variables</th>
<th>Units</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Mean diff.</th>
<th>SD.diff.</th>
<th>(t) calculated</th>
<th>Sig.*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The first stage: the stage of hip decline to the ground</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle of curvature of the head from the axis of the spine</td>
<td>Grade</td>
<td>13.222</td>
<td>13.777</td>
<td>0.555</td>
<td>3.539</td>
<td>0.471</td>
<td>0.650</td>
</tr>
<tr>
<td>Angle of elbow joint</td>
<td>Grade</td>
<td>84.777</td>
<td>97.777</td>
<td>13</td>
<td>20.438</td>
<td>1.908</td>
<td>0.093</td>
</tr>
<tr>
<td>Shoulder joint angle</td>
<td>Grade</td>
<td>16.555</td>
<td>24.555</td>
<td>8</td>
<td>18.255</td>
<td>1.315</td>
<td>0.225</td>
</tr>
<tr>
<td>Angle of the hip joint</td>
<td>Grade</td>
<td>48.666</td>
<td>45.888</td>
<td>2.777</td>
<td>5.190</td>
<td>1.605</td>
<td>0.147</td>
</tr>
<tr>
<td>Knee joint angle</td>
<td>Grade</td>
<td>44.333</td>
<td>52.333</td>
<td>8</td>
<td>10.793</td>
<td>2.224</td>
<td>0.057</td>
</tr>
<tr>
<td><strong>The second stage: the stage of rolling</strong></td>
<td>Rolling Speed (Rolling Time)</td>
<td>Sec.</td>
<td>0.573</td>
<td>0.573</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Angular velocity of the hip joint</strong></td>
<td>Sec.</td>
<td>0.844</td>
<td>1.050</td>
<td>0.206</td>
<td>0.562</td>
<td>1.101</td>
<td>0.303</td>
</tr>
<tr>
<td><strong>The third stage: the handstand stage</strong></td>
<td>Angle of elbow joint</td>
<td>Grade</td>
<td>104.111</td>
<td>119.222</td>
<td>15.111</td>
<td>35.799</td>
<td>1.266</td>
</tr>
<tr>
<td>Shoulder joint angle</td>
<td>Grade</td>
<td>110.111</td>
<td>107.777</td>
<td>2.333</td>
<td>13.200</td>
<td>0.530</td>
<td>0.610</td>
</tr>
<tr>
<td>Angle of the hip joint</td>
<td>Grade</td>
<td>122.333</td>
<td>141.777</td>
<td>19.444</td>
<td>38.701</td>
<td>1.507</td>
<td>0.170</td>
</tr>
<tr>
<td>Knee joint angle</td>
<td>Grade</td>
<td>116.000</td>
<td>151.666</td>
<td>35.666</td>
<td>46.465</td>
<td>2.303</td>
<td>0.050</td>
</tr>
<tr>
<td><strong>Full motion performance</strong></td>
<td>Performance evaluation</td>
<td>10 Min</td>
<td>3.833</td>
<td>5.833</td>
<td>2</td>
<td>0.500</td>
<td>12</td>
</tr>
</tbody>
</table>

* Morality below error level (0.05) in front of the degree of freedom (9-1= 8).

It is clear from table (4) the emergence of positive improvement of most of the study variables in the telemetric tests compared to the pretests, although a number of results did not rise to the significance of statistical significance, as the results of the first stage (the stage of hip fall to the ground) showed an increase in the angles of most variables, due to the reason for the increase of the angle of curvature of the head from the axis of the spine to beginners need to round the head to the chest area to be one mass during landing and increased control of the limbs of the body because the head of the head and directed to the body as a whole in all movements, and showed an increase in the degree of angles of the elbow joint and shoulder joint due to the need for pain. Prepare the arms as a preliminary movement for the optimal reception of the ground during the rolling stage, protect the head and direct it to the body during a straight line rolling. The center of gravity of the body during the stage of the hip drop to the ground to a suitable place in terms of distance from the previous position during the feet, but the reason for the decrease in the degree of angle of the hip joint in telemetry compared to pre-test is due to the need for beginners to the optimal angle in order to approximate The upper and lower limbs of the body
to form the appropriate pelletizing of the body and control its parts in preparation for the second stage (stage rolling).\(^7\)

Also the results of the second stage (stage rolling stage), where the time of the rolling speed is equal in the pre and posttests. In the telemetry, that the spherical rolling speed was slower compared to the pretest and this perpetuates the results of the rolling time need for beginners for this time in order to control the body and direct it. Also, the results of the third stage (handstand) showed a positive improvement for most of its variables, although it did not rise to statistical significance. There was a clear increase in the angles of the joints (elbow, hip, and knee) in the telemetry compared to the pretest. Angles approach the optimal angle (180°) in which the body is semi-straight during stability when standing on the arms.\(^8\)

The most positive results of the most important biochemical indicators of rear rolling hands are supported by the positive result to evaluate the overall performance of the movement in the telemetry with a mean of (5.833) compared to the mean of the pretest by (3.833), and all the positive results are attributed to the effectiveness of the method of teaching using mobile technology Learning to teach the technical performance of the rear rolling to stand on the hands and provide a video material educationally learners carry with him wherever they go and watch them at any time using mobile applications and their ability to run at different speeds to stand states that learning using Mobile Learning allows the ability to learn anywhere, anytime without the need to connect to a wired network with the integration of all wired and wireless networking technologies.\(^9\) This method also ensures the integration of the elements of the teaching material and provide unconventional to learners ensures their interaction, motivation and impulse towards learning, that mobile or mobile learning creates an educational environment that helps integrate learning resources and integrate them together to help learners to think and To apply learning in a non-linear movement and learn how to move between hyperlinks in a way smooth and its ramifications selectively using various applications, programs and activities.\(^10\)

Thus, the alternative research hypothesis of significant differences in favor of the telemetric tests of the experimental research group\(^9\) was achieved and the null hypothesis was rejected.\(^11\)

**Conclusions:**

The effectiveness of the teaching method using Mobile Learning technology to teach the technical performance of the rear rolling to stand on the hands based on the results of the tests of the research.

**References:**

