



Evaluation pattern of the long jump performance in terms of physical and motor abilities for primary pupils aged (11.12 years)

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Abstract:

In order to achieve the objectives of the study, to know the level of physical and motor abilities which directly contribute to the performance of the long jump for pupils aged (11 and 12 years) as well as to identify the amount of the relationship (strength and direction) between these capacities and technical performance of the skill (long jump), the researchers tested a set of tests concerned with the physical and motor abilities in the main experiment for the amount of sample (50) pupils and the abilities are (transitional speed, explosive power of legs muscles, fitness, compatibility, and kinetic flexibility). In addition, we were imaged the performance of the long jump skill. All the data of measurement and test were taken and treated statistically to see the reality level of the study sample in capacities and technical performance of the skill and nature of the relationship between each of them.

The results indicate a good distribution of the sample at each test and that there is a significant correlation between technical performance results for pupils in the long jump skill and enjoyed physical and kinetic capabilities, and such a result allowed the researchers to devise a predictive equation by which quantification for the technical performance of the long jump skill in terms of what pupils got it in the physical and motor abilities.

Key words: Evaluation pattern, long jump, physical and motor abilities, primary pupils.

1. Introduction:

The lesson of physical education in primary schools, the basic unit of the curriculum, as it is one of the vital lessons which have an active role in improve physical and motor capacities among pupils, especially for the late childhood level and which extends from age (9-12 years). In this age group, "individual differences appear with the development of motor performance and increased compatibility and clarity of muscular nervous, pupils begin tendencies towards competition and to highlight the individual ability to compete with peers (2:67), and we can see

them tend to the movements including basic skills, such as bounce, jumping, running and ups and downs and movements of conversation and maneuver, there is nothing wrong to be so small games and orderly depends exercises that help in agility, strength, speed and balance development as well as practicing skills activities motor, which is the basis for the conduct of special large gaming activities, including athletics and in particular the effectiveness of the long jump, it is ok to use small games orderly and depends on exercises which help in development of agility, strength, speed and balance as well as practicing motor skills activities which are the basis for the conduct of special activities for large gams, including athletics and in particular the long jump skill.

Long jump is a motor active and one of simple activities in its performance, especially in the early stages of learning, it is one of the fun competitions in all athletic championships at the junior level and schoolchildren as is the case of applicants, because they contain the event of ran and jumped and bounced movements, the long jump requires a special performance from students, and this will not be occurs just if they have the ability and capacity in completing the motor duty. However, pupils performance in any sport activity either motor or physical depends on their physical and motor abilities and this abilities have a strong relationship with level of performance or an achievement. It is known that long jump skill needs to involve multiple characteristics and capabilities whether physical or mobility, the speed and strength are important for jumping as agility and kinetic flexibility and other kinetic abilities.

From this, we conclude that there is a systemic relationship between the technical performance of the long jumping and physical and kinetic abilities of primary school students aged (11 to 12) years, measure physical and kinetic abilities are not easy process as some peoples have imagined but the technical performance of the effectiveness is very difficult if what the teacher relied on the his abilities and personal experience without relying on a standard tool such as tests or inhalers evaluation forms in the evaluation process, especially if we know that the evaluation is a component of the curriculum, and that "measure to reduce reached by taking advantage of the student in the learning process." (7: 80).

It is important to look for the relationship between technical performance of long jumping athletes and their physical and kinetic process of interest to researchers. However, our aims of study are to identify the level of physical and motor abilities to contribute in the performance of the long jump for elementary school pupils aged (11 to 12 years) and to identify the amount and direction of the relationship between physical and motor abilities of primary school students aged (11 to 12 years) and technical performance of the effectiveness of the long jump. Moreover, devise predictive equation to see how much students' performance aged (11 to 12 years) for the effectiveness of the long jump in terms of their physical and motor abilities.

2. Methodology:

To achieve the aims of our study we have to do following things.

1. Based on the descriptive research "it is not stop at borders of phenomenon description of the research topic but it goes further than that such as analyze, explain, compare, and evaluation so as to reach to meaningful generalizations to increase our knowledge about this phenomenon." (1: 51). However, our research requires a description and analysis, interpretation and evaluation as well as a statement from the interrelationship between the studied abilities; so the descriptive approach will be in a survey manner and connectivity relations which is the way for researchers in the solution of the research problem which present a weak of knowledge of the contribution of

any of the physical and motor capacities enjoyed by primary school students aged (11 to 12 years) in the performance of the effectiveness of the long jump.

2. Study community was primary school pupils aged (11 to 12) years in the city of Hillah and their number was (135) pupils, we selected 50 pupils by a method of random stratified for main experiment and (45) pupils for pilot study.

3. We selected some of physical and motor abilities through relay on experts questionnaire and the number of experts was (15) expert and specialist. However, we used some of statistical treatments to collect the data and the end of working they nominated two physical abilities and three motor abilities which have a relation with long jump activity as well as we selected for each ability a suitable test to measure it as following: physical abilities (ran 30 meters from the high start-up, represents a transitional speed, and long jump from stability, represents the explosive power of the legs muscles), motor abilities (zigzag running between the pillars represents agility, numbered circles represents compatibility, bend the torso from stand up by movement represents kinetic flexibility).

To use these tests in the study we have to make sure their validate for sample and suitability for their ages through using pilot study, identified the scientific basis of validity and reliability and objectivity with the proper distribution of respondents at these tests, added to this statement and clarity of instructions for each test and the circumstances of its application.

4. In order to measure technical performance of long jumping activity, researchers designed a performance evaluating form which includes sections and stages of performance of this event, mindful to fragment of each movement and then test them for the purpose of rationing and using, taking into consideration given the relative weight of each part or section of the movement for this effectiveness. Whereas to know about how measure the performance, we achieved that through technical performance portrayal of the effectiveness by the pupils, after that presented to the arbitrators to give the appropriate scoring for each part of their parts and thus evaluate the motor sections, including the final value of the performance. This comes from multiplying the obtained values by the relative weights and the result is the final scoring, which represents the performance value in line with the details of the evaluation form.

5. To conduct the (physical and motor) tests and implementation of the technical performance of the effectiveness of the long jumping on the pupils, they have been prepared and directed them by the researchers during a period of time determined by four days and as of 26-29 / 4/2015. It was done from the system enabled them to achieve the goals they seek, without damage or obstacles, mindful in that the conditions and regulations they have set when conducting exploratory work.

6. Precautionary measures have been taken and the necessary measures to carry out the tests in terms of (prepare forms of the results record with the unification of recording mode, according to the order of tests on muscle work when the application, taking into account the means of prevention and safety through the application process).

7. After completing pilot study on 1/4/2015 on (45) pupils, we have done main experiment on 26/4/2015 which applied on (50) pupils (30) pupils aged (11) years and (20) pupils aged (12)

years for the purpose of the application of physical and motor tests and technical performance of the effectiveness according to the best method. Then the test results and performance data collected and treated statistically.

8. We used following statistical instruments in analyze of data: Mean, Standard deviation, Person correlation coefficient, Regression coefficient, Ka2 test, Standard error, Torsion coefficient, and Kurtosis coefficient (4: 140).

3. Results and discussion:

1. Statistical estimates of the study results for physical and motor abilities and technical performance of the long jump.

Table (1)
shows statistical estimates of the study results for physical and motor abilities and technical performance of the long jump

N	Variables	Simple Size	Mean	SD	Error	Skewness coefficient	Kurtosis
1	Transition Speed	50	5.2926	0.245	0.035	0.354 -	0.960-
2	Explosive bower	50	1.4896	0.107	0.015	0.080	1.294-
3	Agility	50	9.8814	0.584	0.083	0.596 -	0.041
4	Compatibility	50	7.1248	0.569	0.080	0.201-	1.115-
5	Flexibility	50	17.300	1.233	0.174	0.959	0.847
6	Technical performance of long jumping	50	58.087	14.439	2.042	0.062	1.682-

Table (1) shows that the results were acceptable, especially for statistical indicators related to the distribution of sample at each physical or dynamic test such as (Standard error, Skewness coefficient, kurtosis), they indicators depend on the sample accept into representation of the research community as well as good distribution and appropriate testing for capabilities of the vocabularies. Although estimates are values vary from indicator to another but they came in a form statistically acceptable, for example indicator of standard error we find all did not exceed (5), as well as the case of the skewness coefficient which all capacities were less than (± 1), and one shows extremism in the results, and so the case for the kurtosis coefficient as the results came closer to zero and less than (± 3).

2. Correlations matrix between the results of the sample at researched abilities.

To achieve our aim we have to seek to devise predictive equation to know how much the performance of students aged (11 to 12) years for the effectiveness of long jump in terms of physical and motor abilities that they have, so can't be such a work or achieved his goal without knowing the simple correlation between the technical performance of pupils and their physical and motor surveyed abilities and it can't be done only through the use of simple pearson correlation coefficient in the account of interfaces links matrix. Table (2) shows that (5: 185).

Table (2)
shows interfaces links matrix between results of study sample at performance and researched abilities

N	Variables	Performance	Transition Speed	Explosive bower	Agility	Compatibility	Flexibility
1	Performance						
2	Transition Speed	0.807 -*					
3	Explosive bower	0.867 *	0.845-*				
4	Agility	0.742-*	0.815*	0.816 -*			
5	Compatibility	0.765-*	0.638*	0.689 -*	0.608*		
6	Flexibility	0.599*	0.605-*	0.553*	0.603-*	0.502-*	

(*) shows significant correlation because significant levels less than (0.05).

Table (2) shows the amount of relationships between studied variables, and the results were significance, for example, relationship of technical performance of the long jump with all the surveyed capacities was real and statistically significant which amounted to a row with the transitional speed by (- 0.807) and with the explosive power of the legs muscles by (0.867) and with agility by (- 0.742) and compatibility (- 0.765) and with the motor flexibility by (0.599), these estimated values for connectivity relations, they are calculated values and greater than the great random values when levels reached respectively by (0.00).

The connectivity relation between physical and motor abilities showed to be very high and significant such as relationship of transition speed results with explosive bower of legs muscles, agility, compatibility, and motor flexibility were amounted (- 0.845, 0.815, 0.638, - 0.605), in the same way the relationship between explosive bower of legs muscles with agility, compatibility, and motor flexibility which amounted (- 0.816, - 0.689, 0.553), whereas the amount of relationship between agility and compatibility (0.608) and with motor flexibility (- 0.603), the relationship between compatibility and motor flexibility was (- 0.502).

Not surprisingly, we get such a relationship, especially variables interest with the age stage characterized by the increase in motor development, as at this stage up to its peak, and it is often considered the optimal period for motor learning, as well as it is characterized by agility when playing games and speed in running and force through movement performance of barriers and gymnastics and this mean that movements of pupils aged (11 to 12) years characterized by good timing, cruise, and transfer motion between parts of the body (motor transport) as well as the honest expectation of self- movements and for others. (6: 136).

We conclude that all physical and motor abilities for members of this age (11 to 12) years have an influential and positive role which contribute to the technical performance process of long jump activity. However, because of different measurement units of the results of these capacities tests the correlation coefficients were in different directions, in the table (2) are a positive correlation coefficients which are their number in the matrix (6) coefficients , and other (negative) with a number (9) coefficients .

It is important, where the main goal of our study is focused on the relationship between the technical performance of pupils and their physical and motor abilities; so the attention of

researchers will only be to the relationship, specifically the overlapped, so as to devise predictive equation, based on the amount of relationship which is (0.907) as well as statistics relations between the technical performance of pupils with their surveyed physical and motor abilities and table (3) shows the details of these relations.

Table (3)
shows the relationship between results of technical performance for pupils and studied physical and motor capacities

N	Capacities connected to performance	Correlation coefficient	Type of relation	Appointment coefficient	Alienation coefficient	Confidence in correlation coefficient	The level of significance	Statistical significant
1	Transition Speed	0.807 -	Simple	0.651	0.591	0.41	0.00	S
2	Explosive bower	0.867	Simple	0.752	0.498	0.50	0.00	S
3	Agility	0.742 -	Simple	0.551	0.670	0.33	0.00	S
4	Compatibility	0.765 -	Simple	0.585	0.644	0.36	0.00	S
5	Flexibility	0.599	Simple	0.359	0.801	0.20	0.00	S
6	All abilities	0.907	Overlapped	0.823	0.421	0.58	0.00	S

The most important things which concerns us from the table (3) is the contents of important indicators in process of forecasting and devising coefficients , particularly the overlapped equation which depends on the alienation and appointment coefficients which gave good and high amounts and we can reliable on it to predictive equations, as well as forecasting guide who responsible for confidence in the correlation coefficient.

Regard to the technical performance of pupils in all their surveyed physical and motor abilities, appointment coefficient value was (0.823) and the coefficient of alienation by (0.421) and with ability of predictive (confidence guide) by (0.58) which are reliable acceptable proportions, allow to the researchers to build an equation in which estimated the quantified what it is expected to be obtained from the performance of long jump effectiveness in terms of find out what students actually got it from estimates in physical and motor abilities involved in this equation.

3. Predictive value for the performance of pupils in the long jump effectiveness in terms surveyed abilities.

In order to achieve scientific deduction for predictive equation for several interrelated variables, it has to be a way to use statistical task namely: Curve (3: 209). Curve means give us the details of what form the relationship between the studied variables. Table (4) shows the details of these coefficients on the statistical method.

Table (4)
shows coefficients of the relationship form between technical performance of pupils and physical and motor abilities.

Abilities connected to technical performance	Curve coefficients		Correlation	Nature of Correlation	F value	Significant
	Nature of coefficient	Value of coefficient				
Transition Speed + Explosive power+ Agility + Compatibility + Flexibility	Stable (A)	30.577	0.907	Multiple	40.722	0.000
	(B1)	10.489-				
	(B2)	68.684				
	(B3)	1.163				
	(B4)	7.118 -				
(B5)	1.152					

Using the estimates contained in the table (4) in the construction of the estimated equation for the performance of pupils in the effectiveness of the long jump shown in which the contribution of each of the physical abilities (transition speed and the ability of the explosive of the legs muscles), and motor skills (agility, compatibility, flexibility), mindful of the adoption of the following formula (5: 216).

$$M (\text{Adopted variable}) = A + B1 C1 + B2 C2 + \dots$$

We got following:

Technical performance of the effectiveness = $30.577 + (- 10.489 \times \text{value of the transitional speed}) + 68.68 \times \text{explosive power value} + 1.163 \times \text{value of agility} + (- 7.118 \times \text{compatibility value}) + 1.152 \times \text{value of motor flexibility}$.

For the purposes of the application and validation of this equation, which offset arithmetic values, shall be:

$$\text{Performance central (58.08)} = 30.577 + (- 10.489 \times 5.2926) + 68.684 \times 1.4896 + 1.163 \times 9.8814 + (- 7.118 \times 7.1248) + 1.152 \times 17.300.$$

This result is identical to the arithmetic of technical performance of the long jump effectiveness valued of (58.0877). In conclusion, it is possible to know the performance of students in terms of results of studied physical and motor abilities, without measuring technical performance of effectiveness by using the derived equation which mentioned above. However, to confirm the validity of the results of this equation we have to recognize the amount of coefficients which expressive about the relationship between performance and studied capacities and value of the correlation coefficient amount (0.907) by using the (F) test, the results indicate that the calculated value of alpha ratio (40.722) at the level of significance (0.000), and such an outcome reflects the significance which is at the same time guide on the validity of the contribution of all physical and motor abilities of pupils aged (11 to 12 years) in the technical performance of the long jump effectiveness.

4. Conclusion:

Results of our study confirm that pupils aged (11 to 12) years are enjoyed with high level of physical and motor abilities and their scores distribution was moderate and crooked. Moreover, we found a true relation between technical performance of long jump activity and physical and motor abilities for primary pupils aged (11 to 12) years. As well as strength of relationship between technical performance of long jump activity and physical and motor abilities for primary pupils aged (11 to 12) years and a linear of this relationship has been developed predictive equation, which is estimated of technical performance in terms of researched capacities.

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