MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
Vol. 36 Issue 2, 2026, Pages 2521-2528

The impact of educational games based on certain indicators of physical and motor abilities on learning running skills in athletics for students

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Abstract
Educational games are one of these innovative methods that may help improve students' physical and motor skills, which positively impacts their learning of athletics. Educational games aim to integrate entertainment with education, which enhances students' motivation and helps them acquire motor skills in a more interactive and enjoyable way. The importance of educational games and the necessity of using and employing them in the learning process are highlighted by their important and effective impact in delivering educational material to learners. They also contribute to making the motor learning process more effective and positive, as the learner becomes largely responsible and a positive participant. It does not negate the teacher's role in the educational process, nor does it replace him; rather, it always works to create a state of integration between what is new in the educational process and the teacher's abilities, needs, desires, and inclinations. The importance of this research lies in identifying the impact of educational games. According to an indicator of some physical and motor abilities in learning the effectiveness of running in athletics for students, the researcher observed that traditional teaching methods, which rely primarily on direct instruction and routine exercises, may not be effective enough to motivate students to develop the necessary motor skills quickly and engagingly. Therefore, the researcher decided to study how educational games can be used as an effective tool to develop the physical and motor abilities necessary for learning running skills more quickly and effectively. The research problem lies in identifying the extent to which educational games, according to certain physical and motor ability indicators, affect students' learning of running skills in athletics. Hence, the research problem is how educational games can contribute to developing certain physical and motor abilities, and how this affects students' learning of running skills in athletics. The researcher used a dual methodology that included descriptive and analytical approaches, where factor analysis was used to identify the most important abilities suitable for running. The experimental method in the application phaseThe original population consisted of 200 students aged 10-12 years. Tests were conducted on all physical abilities (speed-strength, sprinting speed, movement speed, and reaction speed) and motor abilities (agility, flexibility, coordination, and balance). A sample of 45 students aged 10-12 years was then selected purposively by randomly assigning 15 students to the experimental group and 15 students to the control group. Ten students were excluded for pilot study purposes. The research sample represents 66.66% of the original population. Additionally, five students were excluded for not attending the tests. The researcher used [the following data. Statistical methods Values for percentage, arithmetic mean, standard deviation, median, and coefficient Difference Relative importance, and simple correlation coefficient (Person), and the (T-test) concluded Researcher Using educational games to teach the effectiveness of running in athletics has a positive and effective impact on developing students' skills. The experimental group that used educational games excelled in technical performance and running achievement.

ntroduction

Educational games are one of these innovative methods that may help improve students' physical and motor skills, which positively impacts their learning of athletics. Educational games aim to integrate entertainment with education, which enhances students' motivation and helps them acquire motor skills in a more interactive and enjoyable way. The importance of educational games and the necessity of using and employing them in the learning process are highlighted by their important and effective impact in delivering educational material to learners, as well as their contribution to making the motor learning process more effective and positive. The learner becomes largely responsible and actively involved. This approach does not negate the teacher's role in the educational process, nor does it replace them. Rather, it fosters a blend of new developments in the educational process with the teacher's abilities, needs, desires, and inclinations.

The importance of this research lies in identifying the impact of educational games, based on indicators of certain physical and motor abilities, on students' learning of running skills in athletics. The researcher observed that traditional teaching methods, which rely primarily on direct instruction and routine exercises, may not be sufficiently effective in motivating students to develop the necessary motor skills quickly and engagingly. Therefore, the researcher decided to study how educational games can be used as an effective tool for developing the physical and motor abilities needed to learn running skills more quickly and effectively. The research problem lies in identifying the extent to which educational games, based on indicators of certain physical and motor abilities, impact students' learning of running skills in athletics.

The research problem, therefore, lies in how educational games can contribute to the development of certain physical and motor skills, and how this affects students' learning of running skills in athletics. The researcher employed a dual methodology, combining descriptive and analytical approaches. Factor analysis was used to identify the most important skills relevant to running. The experimental method was used in the application phase. The original population consisted of 200 students aged 10-12 years. Tests were conducted on all physical abilities (speed-strength, sprinting speed, movement speed, and reaction speed) and motor skills (agility, flexibility, coordination, and balance). A control group of 45 students, aged 10-12 years, was selected purposively by randomly assigning 15 students to the experimental group and 15 to the control group. Ten students were excluded for pilot study purposes. The research sample represents 66.66% of the original population. Additionally, five students were excluded for not attending the tests. The researcher used various methods... The statistics included the percentage values, arithmetic mean, standard deviation, median, coefficient of variation, relative importance, simple correlation coefficient (Person), and (T-test). The researcher concluded that employing educational games in learning the running effectiveness in athletics has a positive and effective impact on developing the level of students and the superiority of the experimental group in technical performance and achievement in running that used educational games. Physical education is considered one of the essential elements in developing the personality of students, as it contributes to developing their physical and motor abilities. In this context, athletics is one of the important sports that depend greatly on physical skills such as running and jumping, which require high coordination between the body and mind. It has become necessary to search for new and innovative methods to teach these activities effectively.

Educational games are one of these innovative methods that may help improve students' physical and motor skills, which positively impacts their learning of athletics. Educational games aim to integrate entertainment with education, which enhances students' motivation and helps them acquire motor skills in a more interactive and enjoyable way. The importance of educational games and the necessity of using and employing them in the learning process are highlighted by their important and effective impact in delivering educational material to learners. They also contribute to making the motor learning process more effective and positive, as the learner becomes responsible and a positive participant to a great extent, after being a recipient and imitator. It does not negate the teacher’s role in the educational process, nor does it replace him. Rather, it always works to create a state of integration between what is new in the educational process and the teacher’s abilities, needs, desires, and inclinations. It is a tool used by the teacher, supported by available resources, to clarify and transfer theoretical information and practical skills to the learner in order to reach the desired goal with the least effort and in the shortest time, as it is one of the means of direct communication that help learners acquire knowledge, skills, and attitudes.The performance of different sports activities is linked to the requirements and capabilities specific to those activities, as the contribution of these capabilities varies according to the type of sports activity practiced and the required motor task to be performed.Physical abilities are inherited and depend on an individual's muscular system and the functioning of their internal organs, while motor skills are acquired and depend on an individual's motor orientation. Motor skills are subject to an individual's ability to control and master motor performance. Improving student performanceIn the running activity, by focusing on by focusing on how educational games influence development Physical and motor skills: The importance of this research lies in identifying the impact of educational games. According to an indicator of some physical and motor abilities in effective learning؛Running in athletics for students.

Research problem

Many notice from teachers and the coaches in Education Physical that Ways teaching traditional may be not Enough To stimulate pupils on to improve Their skills Kinetic Basic in Sports like Running , He is what leads to slow in acquisition Skills and increase Feeling Bored I have The students, as the researcher observed that Ways teaching traditional that It depends In a way essential on Guidance Live And exercises routine may no be Effective In what In it Sufficiency To stimulate pupils on development Skills Kinetic Necessary In a way fast Interesting, therefore the researcher decided in study How to Use Games Educational As a tool Effective in development Abilities Physical and motor skills Necessary To learn The effectiveness of running faster and more Effectiveness; the research problem lies in identifying the extent to which educational games, according to an indicator of certain physical and motor abilities, affect students' learning of running skills in athletics. here It is a problem Search in how maybe for games Educational that Contributes in development some Abilities Physical And kinetics, And how Affects that on to learn pupils for effectiveness Running in games Forces.

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Research objectives.

1. Determining the physical and motor abilities for effective running in athletics for students.
2. Determining the physical and motor abilities tests for the effectiveness of running in athletics for students.
3. An indicator was set for some physical and motor abilities for the effectiveness of running in athletics for students.
4. Identifying the impact of educational games, according to an indicator of some physical and motor abilities, on learning the effectiveness of running in athletics for students.

Assumptions Search:

1- There are differencesStatistical significance in the artistic performance of the event؛Running Between the experimental group and the control groupandIn favor of the experimental group.

2- THe found FarandQ DhatStatistically significant improvement in physical performance between the experimental and control groups after using educational games andIn favor of the experimental group.

Research areas:

human field: students of the first stageFifth Grade Elementary SchoolAt the age of (10-12 years) In the schools of Dhi Qar Governorate.

Field Time: From 1/11/2024 to 1/5/2026.

Field Spatial: Primary schoolyards in Dhi Qar Governorate.

Methodology Research and its field procedures: The researcher used a dual methodology, including descriptive-analytical (where factor analysis was used to identify the most important abilities suitable for running) and experimental methodology in the application phase. He knew him (facet) thath"system Test and comparison between Two sets or more Enter On it variable Independent So that Used researcher in this order Two sets or more Equivalent With their properties from Aspects all Used researcher Curriculum experimental (experimental) + Officer.

Community Research and sample: The original population consisted of (200) pupils aged (10-12 years) who underwent testing. For students per Physical abilities (Strength characterized by speed (transitional speed, movement speed, reaction speed) and motor abilities (agility, flexibility, coordination, balance) were taken into account. The original community (45 students) At the age of (10-12 years), this sample was chosen intentionally by taking (15 students) for the experimental group and (15 students) for the control group by random method (drawing lots). (10) students were excluded for the purposes of the pilot study, as the research sample represents a percentage of (66.66%) of the original population, and (5 students) were also excluded for not attending the tests.,In order to ensure the accuracy and validity of the results, the researcher performed homogenization. Among the members of the research population, according to the variables (height - weight - chronological age), the coefficient of variation was calculated after the arithmetic means and standard deviations were extracted, and then the coefficient of variation was calculated for each variable, as shown in the table (1)

Table (1) The homogeneity of the research sample in terms of age, height, and weight is shown using the coefficientDifferenceWhich appearsValues less than 30%

Coefficient of variation	standard deviation	arithmetic mean	unit of measurement	Measurements and variables	No
7.07%	0.802	11.33	year	the age	1
11.99%	3.61	30.10	kg	The block	2
3.49%	5.046	144.33	poison	height	3

After confirming the homogeneity of each group, the equivalence of the two groups (control and experimental) was verified using (tAs shown in Table (2):

Table (2) It shows the values of the arithmetic means, standard deviations, and the value of (TResults of the values (achievement and technical performance in running) for the pre-tests of the control and experimental groups

Significance Statistics	value (sig)Level of significance	value (t)Calculated	Experimental group		Control group		unit of measurement	Statistical processing / Variables	T
			±ع	S	±ع	S			
notmoral	0.359	0.932	2.216	25,730	2.044	26.456	time	Running (achievement)	1
immaterial	0.235	1.213	0.798	2.066	0.703	1.733	degree	Running (Technical Performance)	2

The table above shows that the difference between the means of the two groups in the pre-tests is not statistically significant at the significance level.<(0.05) which indicates that the two groups were equal in the pre-tests.

Methods, tools, and equipment used in the research:

Methods of gathering information:

The researcher used the following methods to collect information in the research:

- ✓ Arabic and foreign sources and references.
- ✓ Personal interviews.
- ✓ The international electronic information network (the Internet).
- ✓ Physical and motor skills form.
- ✓ Physical and motor skills test form.
- ✓ A form for evaluating technical and running performance.

Equipment and tools used in the research:

- ✓ Whistle number (2).
- ✓ Metric measuring tape (5m).
- ✓ Three (3) electronic timers.
- ✓ Personal mobile device (laptop calculator type) DELL (1) Chinese origin.
- ✓ One (1) Chinese-made medical scale.
- ✓ Two (2) hoops.
- ✓ Two large signs.
- ✓ (8) small-sized signs.
- ✓ A stick with a length of (2m) number (3).
- ✓ Ground floor ladder, number (1).
- ✓ Medium-sized barriers, number (4).
- ✓ Two medium-sized balls.
- ✓ Small balls, number (6).
- ✓ Number of signs (10).
- ✓ (8) plastic plates.
- ✓ Camera Canon Japanese number (1).

Determining physical and motor abilities:

To identify the most important physical and motor skills, the researcher consulted scientific sources to identify some of the physical and motor skills needed by students. A questionnaire was also designed, and tests were administered to students for each of the following physical skills (speed-strength, sprinting speed, movement speed, and reaction speed) and motor skills (agility, flexibility, coordination, and balance). A set of these skills was then presented to a panel of eleven experts to select the physical and motor skills, confirm their suitability, and recommend those deemed appropriate for the research. Each selected physical and motor skill was scored on a scale of 1 to 5, resulting in an acceptance rate of 54.54%. The forms were collected and processed, and Table (3) shows the agreement of experts and specialists regarding the determination of physical and motor abilities according to their relative importance.:

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Table (3) shows the determination of physical and motor abilities

Acceptance rate	ability The candidate	Percentage Important Relativity	Degree College	1 repetition	2 repetition	3 repetition	4 repetition	5 repetition	Physical abilitiesand kinetics	No
54.54	√	96.364	53	0	0	1	0	10	Power characterized by speed	1
	×	52.727	29	3	3	2	1	2	Ultimate power	2
	×	49.091	27	6	0	1	2	2	Endurance	3
	×	52.727	29	3	3	2	1	2	Endurance	4
	√	92.727	51	0	0	1	2	8	Kinetic speed	2
	√	94.545	52	0	0	1	1	9	Transitional speed	3
	√	90.909	50	0	0	2	1	8	Motor reaction speed	4
	√	96.364	53	0	0	0	2	9	fitness	5
	√	92.727	51	0	0	1	2	8	Flexibility	6
	√	96.364	53	0	0	0	2	9	compatibility	7
	√	92.727	51	0	0	1	2	8	Balance	8

Factor analysis was then used. As shown in Table (4):

Table (4) The interpretation of variances for factors after rotation is shown.

the components	Primary self-values			Extracting the sum of squares Downloads			Squaring rotations of loads		
	the total	%from Contrast	Cumulative percentage	the total	%from Contrast	Cumulative%	the total	%from Contrast	Contrast%
1	1.430	17,870	17,870	1.430	17,870	17,870	1.271	15.883	15.883
2	1.108	13,849	31.719	1.108	13,849	31.719	1.180	14,754	30.637
3	1.053	13.167	44.886	1.053	13.167	44.886	1.140	14,248	44.886
4	980	12,247	57.133						
5	925	11,563	68.696						
6	900	11.255	79.951						
7	809	10.110	90.061						
8	795	9.939	100,000						
Extraction method: Analysis of the basic components									

Table of underlying roots of factors: Where the factor thatIts valueGreater than one is acceptable, therefore there is(3) Factors that were accepted

Table (5) The saturation of elements on factors after rotation is shown

The third factor	The second factor	The factorfirst	Abilities	T
094	752	151	power distinctive Quickly	1
-.091	-396	432	speed transitional	2
142	-095	533	speed Kinetics	3
-413	-031	767	speed to reply The verb	4
026	-100	885.-	fitness	5
638	-016	-469	Flexibility	6
-098	660	-.129	compatibility	7
800	035	158	Balance	8

The table above identifies the physical and motor abilities with high saturation of the three factors.

Research variable tests: Physical ability tests

a testPower characterized by speed:

1-Knee flexion and extension test in (10) Second:

The purpose of the test: Measuring the speed-strength (power) of muscles that perform flexion and extensionThe knees.

Tools used: Stopwatch.

procedureTest: From a standing position, fully bend and extend your knees in a time equivalent to tenSecond, with a note No part of the body should be resting on the ground or anything else, as shown in Figure (1).

Rating: Number of times in a ten-day periodSecond, an indicator of power.

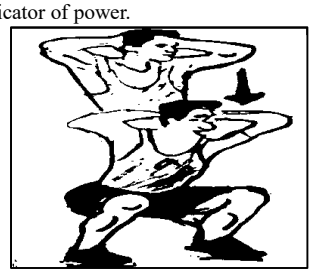

Figure (1) illustrates the knee flexion and extension test

Motor skills tests:

First: Fitness test (Running test around a circle):

The purpose of the test: to measure a person's ability to change the direction of body movement.

Tools: A stopwatch, a circle drawn on the ground with a diameter of twelve (12) feet.

Performance specifications: From a specific point on the circumference of the circle, the test-taker runs upon hearing a signal., Start by performing a complete rotation around the circle as shown in the figure (2).

Registration: The time taken by the test-taker in running around the circle (one lap) is recorded.

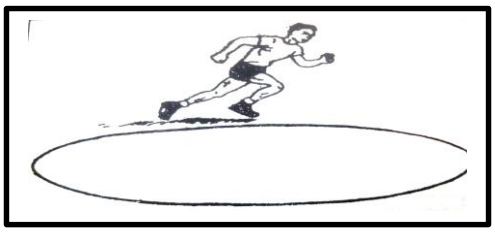

Figure (2) illustrates the running test around the circuit

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Second: Flexibility test (Bottom and side touch test):
The purpose of the test: It is test is one of the tests used to measure dynamic elasticity, as it measures bending and stretching.
Spinal rotation.
Tools: Stopwatch, wall.
Performance specifications: Draw an (×) mark on two points:(On the ground between the feet of the thief, on the wall behind the back
The hidden (in the middle). Upon hearing the starting signal, the tester Bend your torso forwards and downwards to touch the ground with your fingertips at the (X) mark between your feet. Then, extend your torso upwards while rotating to the left to touch the (X) mark behind your back with your fingertips. Next, rotate your torso and bend it downwards to the (X) mark between your feet again. Finally, extend your torso while rotating to the right to touch the (X) mark behind your back. Repeat this action as many times as possible within thirty seconds. Note that the mark behind your back should be touched once from the left and once from the right. See the figure (3).
Instructions:
1- The feet should not be moved during the performance.
2- The specified sequence of touches must be followed as stated in the specifications.
3- The knees should not be bent at all during the performance.
Registration: The laboratory records. The number of touches he made on the two marks within thirty seconds.

Figure (3) The bottom and side touch test demonstrates

The experiment exploratory: Wage researcher the experiment exploratory on the date9/2/Sunday, 2025With the support team, a sample of the research population was selected, amounting to (10) students if They were subsequently excluded from the experiment Main.
Pre-tests for the research sample:I conductedTestsTribal affiliation of the research sample dated 18-192/2019 tenth A.M For Tuesday and Wednesday The researcher applied all Tests Physical And the kinetics on both groups (The officerandempiricismWhere it was appliedT TestsPhysical (and strength characterized by speed)and kinetic speedTransitional speedand reaction speed)andMotor tests (agility and flexibility)and compatibilityAnd balance) and the results were recorded according to conditionsTestsThe specifications are in forms prepared by the researcher, who took into account the circumstances related to the tests in terms of time, place, tools, and methods.AmtoThe method of implementation and the supporting team, in order to provide it inTestsThe dimension that will be applied later.
Main experiment: The researcher conducted the main experiment from 2/20/2025 to 4/6/2025 on the experimental group for (6 weeks) at a rate of two units per week, which were divided into three sections (preparatory section, main section, and final section).
Educational games for physical and motor skills:
Power characterized by speed:

1- Markers are placed on both sides with a distance of (half a meter) between the markers. Medium-height obstacles are placed in front of the markers. Jumping over the markers and obstacles forwards is done, then going back, and then running forwards, as shown in picture (1).

Image (1) illustrates the educational game of jumping over obstacles and markers

2- Large pillars are placed, each with a pole attached to its center for jumping over from the side. The distance between them is (2m). Small round plates are placed next to each pillar. The runners circle the plates, then circle the plates and the small pillars, in succession. Then turn around and run forward at the last marker as shown in picture (2).

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Image (2) The educational game demonstrates jumping on a stick fixed to the stakes and spinning around the plates and stakes.

3- Hoops are placed in a straight line, and the person jumps inside the hoops, front and back. A ground ladder is placed, which was made by the researcher, and the person jumps onto the ladder in the same way. Double stakes are placed in front of the ladder, and the person jumps onto them and then runs forward, as shown in picture (3).

Image (3) shows jumping over hoops, ladders, and stakes

Agility:

1- We place (7) medium-sized markers. The distance between one marker and another is half a meter. Run (zigzag) around the markers, then run and catch the ball and run forward as shown in picture (4).

Image (4) illustrates the agility game of running around cones and catching the ball

2- It is situation collars In a way straight Distance between collar and another (half meter) It is Jumping inside collar Forward And from then It is rotation around Signposts The subject one before the other on appearance square And from then Running Forward as Explained in Image(5).

Image (5) shows jumping inside hoops and circling around targets

Flexibility:

1- The students stand in two groups, each group holding a medium-sized ball. Upon instruction, the ball is passed until it reaches the last student. At the end of each group, there is a colored plate on which the ball is placed for the fastest group, as shown in picture (6).

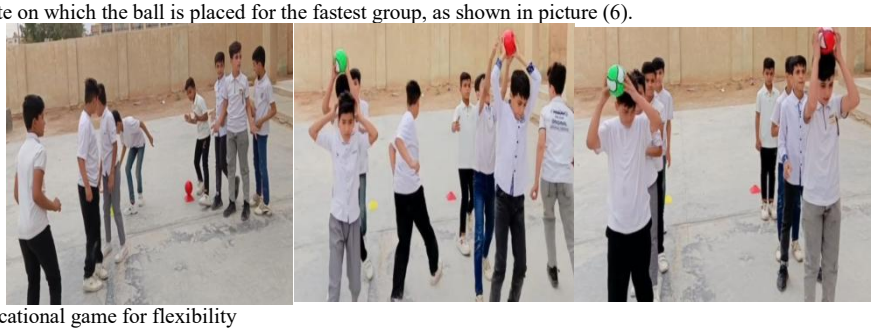

Image (6) illustrates the educational game for flexibility

2- It is collar number (2) For two groups when Instruction jumps pupils inside collar And it is placed before all collar Two people One of them size middle And next to him Its size small And it is rotation About them And from then Running Forward as Explained in Image(7).

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image (7)It explains Jumping inside collars and rotation around Signposts

-The scientific basis of testing:

To determine the scientific weight of the research tests, findTresearchersThe scientific foundations (truth, reliability, and objectivity) are as follows:

Honesty:

Honesty is an important quality that a good test should possess, and a test that does not have a good level of honesty is not He can perform his job, and honesty is not an absolute quality, meaning that it does not It can be said that this test is true or false in absolute terms, but rather its truth rate is determined by its degree of truth., Validity means that the test measures what It was designed to measure the abilities of those being tested, and it has been usedTresearchers Is the content credible or the substance?By identifying all the test components in a questionnaire form and presenting them to (experts and experts)Special(China) and through them the validity of the test was obtained,Test validity means that a valid test measures what it was designed to measure.To be sureBased on the accuracy of the tests and the strength demonstrated by the resultsSeparationmoral

Stability:

A test is considered consistent if we obtain results from it. This is closely related to re-administering it to the same individuals under the same conditions to establish consistency. The researcher used the test-retest method. A reliability coefficient was applied to a sample of 10 students. The first administration of the tests was conducted on Tuesday, February 18, 2025. Six days later, the tests were administered again to the same sample under the same conditions. This was done to obtain the most accurate results possible, and then to calculate Pearson's simple correlation coefficient. This confirms that the test has a high degree of reliability, as explained in Table 6.

Objectivity:

Objectivity describes an individual's abilities as they actually are, not as we wish them to be. Objectivity can be achieved through a group of experts agreeing on the objectivity of the tests and research by issuing a report. Objectivity is far removed from subjectivity and bias. Objectivity was achieved by recording the test results. When reliability was calculated using two assessors and the correlation between their scores was established, a strong correlation was found, as shown in Table (6).

Table (6) It showsReliability and objectivity of the tests under study

sig	Objectivity factor	sig	stability coefficient	Statistical processing / Variables	No
0.000	0.93	0.000	0.88	Running (achievement)	1
0.000	0.91	0.000	0.87	Running (Technical Performance)	2

TestsDimensional:

I conductedTestsPost-hoc analysis of the research sample in history8-9/4/2025 Tuesday and Wednesday, 10 AMinPrimary schools in Dhi Qar Governorate, afterFinishFrom the duration of application (educational gamesHe was keenTresearcherTo provide conditionsTestsTribalism itself inTestsPostural.

Statistical methods:

It was completeduseSocial Statistical Portfolio System (Using SPSS version (V24), (Statistical Package for the Social Sciences), the values of percentage, arithmetic mean, standard deviation, median, and coefficient were calculated.DifferenceRelative importance, and simple correlation coefficient(Person), and the (T-test).

Presentation, analysis, and discussion results Differences between Tests Tribalism And the aftermath Control group in variables Search:

Table (7) It shows the values of the arithmetic means, standard deviations, and the value of (TResults of achievement values and technical performance in running for the pre- and post-tests of the control group

Statistical significance	value ((sig) level of significance	value (t) Calculated	F A	F S	Post-test		Pre-test		unit of measurement	Statistical processing / Variables	T
					±A	S	±A	S			
moral	0.000	8.343	0.808	1.742	1.878	24.714	2.044	26.456	Time	Running (achievement)	1
moral	0.000	15.19	1.121	4,400	0.915	6.133	0.703	1.733	degree	Running (Technical Performance)	2

Table (7), which shows the results of the differences between the pre-test and post-test scores for the officers' group, indicates that the mean running (performance) score in the pre-test was 26.456 (standard deviation 2.044), while the mean in the post-test was 24.714 (standard deviation 1.878). The mean difference between the two tests was 1.742 (standard deviation 0.808). The t-test value for paired samples was 8.343, which is statistically significant compared to the adult significance value (0.000) at a significance level of 0.05. Since it is less than 0.05, this indicates a statistically significant difference between the pre-test and post-test results, favoring the post-test. In running (technical performance), the mean score in the pre-test was 1.733 (standard deviation 0.703). The mean score in the post-test was 6.133 (standard deviation 0.915). The mean difference between the two tests was 4.400 (standard deviation 1.121). The t-test value for paired samples was 15.19, which is statistically significant compared to the adult significance value (0.000). Since it is less than 0.05, this indicates a statistically significant difference between the pre-test and post-test results, favoring the post-test.

Discussion of Results:Reviewing Table (7) regarding the pre-test and post-test results for achievement (and technical performance), and for the overall score, reveals statistically significant differences between the pre-test and post-test results, favoring the post-test for the control group. This indicates that the differences between the pre-test and post-test results for the control group were slightly statistically significant, favoring the post-test results. The results of these tests for the control group, who were not exposed to educational games prepared by the researcher but rather games prepared by their teacher, were based on the researcher's own methodology. This was reflected in the results of the statistical analysis of the t-values calculated for all research variables, which were related to the pre- and post-test scores of the control group. Therefore, to determine the significance of these differences between the experimental and control groups in the post-tests, a t-value was calculated for both groups. This will reveal the location of statistical significance and which group benefited. The t-value was calculated using a matched sample for all research variables. The reason for the absence of such differences for the control group compared to the experimental group in all tests is that the researcher's t-value may be due to a lack of vocabulary or a continuation of... exciting and engaging educational games presented in an appealing way for students, relying on traditional methods of implementation. The games, supervised by the teacher, are required to be implemented by the group members. The results of these tests for the control group members, who were not exposed to the variables adopted by the researcher for the experimental group members, are the responsibility of the teacher.

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Presenting, discussing, and analyzing the results of the differences between the pre- and post-tests for the experimental group in the research variables:
Table (8) It shows the values of the arithmetic means, standard deviations, and the value of (TResults of achievement values and technical performance in running for the pre- and post-tests of the experimental group

Significance Statistics	value (sig)Level of significance	value (t)Calculated	F A	F S	Post-test		Pre-test		unit of measurement	Statistical processing Variables	N
					±A	S	±A	S			
moral	0.000	5.299	3.019	4.130	2.063	21.60	2.216	25,730	Time	Running (achievement)	1
moral	0.000	16.31	1.060	4.466	0.516	6.533	0.798	2.066	degree	Running (Technical Performance)	2

Table (8), which shows the results of the differences between the pre-test and post-test scores for the experimental variables, indicates that the mean score for running (achievement) in the pre-test was 25.73 (standard deviation 2.216), while the mean score in the post-test was 21.60 (standard deviation 2.063). The mean difference between the two tests was 2.245 (standard deviation 3.019). The t-test value for paired samples was 5.299, which is comparable to the adult significance value (0.000) at a significance level of 0.05. Since it is less than 0.05, this indicates a statistically significant difference between the pre-test and post-test results, favoring the post-test. As for running (technical performance), the mean score in the pre-test was 2.066 (standard deviation 0.798). The mean score in the post-test was 6.533 (standard deviation 0.915). The mean difference between the two tests was 4.400 (standard deviation 1.060). The t-test value for paired samples was 16.31, which is statistically significant compared to the p-value of 0.000. Since it is less than 0.05, this indicates a statistically significant difference between the pre-test and post-test results, favoring the post-test.
Discussion of Results:By reviewing Table (8) regarding the pre-test and post-test results, in terms of achievement (and technical performance), the overall experimental research, and the researcher's characteristics, the emergence of these results for the educational games developed by the researcher and their suitability for the level of the target student sample.

Present, discuss, and analyze the results of the differences between the post-tests of the two experimental and control groups:
Table (9) It shows the values of the arithmetic means, standard deviations, and the value of (TResults of achievement values and technical performance for the two post-tests for the control and experimental groups.

Significance Statistics	value (sig)Level of significance	value (t)Calculated	Experimental group		Control group		unit of measurement	Statistical processing Variables	T
			±A	S	±A	S			
moral	0.000	4.323	2.063	21.60	1.878	24.714	Time	Running (achievement)	1
moral	0.031	2.269	0.516	6.533	0.915	6.133	degree	Running (Technical Performance)	2

Table (9), which shows the results of the differences between the post-tests for the two groups, indicates that the mean score of the control group in the running (achievement) test was 24.714 with a standard deviation of 1.878. For the experimental group, the mean score was 21.60 with a standard deviation of 2.063. The calculated value for the unpaired samples t-test was 4.323 at a significance level of 0.05. This difference is statistically significant compared to the p-value (Sig). The p-value is less than 0.05, indicating a statistically significant difference between the results of the two research groups in favor of the experimental group. In the running (technical performance) test, the mean score of the control group was 6.133 with a standard deviation of 0.915. The experimental group also had a mean score of 6.133 with a standard deviation of 0.915. The calculated value of the unpaired samples t-test was 2.269 (6.533, standard deviation 0.516), with a significance level of 0.05. This value is statistically significant compared to the significance level of 0.031 for adults. Since it is less than 0.05, this indicates a statistically significant difference between the results of the two research groups, favoring the experimental group.

Discussion of Results: As shown in Table 9, for the post-tests of the experimental and control groups, the t-value was statistically significant in favor of the experimental group across all research variables. There are statistically significant differences between the post-tests of the two groups in the research variables, favoring the experimental group. The researcher attributes these differences to the experimental group's exposure to the independent variable elements, which included educational games. The researcher also prepared the plan that the main experimental group implemented throughout the duration of the educational games. The games were conducted under the researcher's supervision and with the direct participation of the teacher, who assisted the researcher in conducting the experiment and the related research tests. This was achieved through meticulous planning of all organizational procedures for the support team and the group, defining each individual's role in implementing the experiment, and ensuring the group's full commitment to its application. Participants were asked to perform educational games throughout the week. The researcher obtained the results of post-tests from this group, which accurately reflected the researcher's work and the sample. These objective post-test results, based on the statistical table prepared by the researcher, were used for comparison with the control group, whose role was to control the variables. This comparison aimed to support the researcher's findings and achieve the study's objectives.

Conclusions:

1- Using educational games to learn jumping and running skills in athletics has a positive and effective impact on students' development.
2- The experimental group outperformed the experimental group in technical performance and achievement in running and long jump when using educational games.
3- Educational games contribute significantly to the development of certain physical abilities (such as speed, strength, and reaction time) and motor abilities (such as agility, flexibility, and balance), in addition to enhancing basic motor skills such as motor coordination and neuro-motor coordination.

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ISSN: 1053-7899
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