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Using the Four Pillars Strategy in Playing Small Games with Varied Content and its Impact on the Aspects of Attention and Kinesthetic Intelligence for Fifth-Grade Primary School Students)

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ABSTRACT

The ideal method for teaching physical education subjects is not limited to the routine method. However, some new comprehensive methods and techniques work to develop all elements of the educational institution and all aspects related to the educational process. The research aims to design a program that includes small games with various content according to the four corners strategy. Also, to reveal the effect of the educational pillars strategy in developing aspects of attention and kinesthetic intelligence among fifth-grade primary school students. For this purpose, the researchers used the experimental method to suit this research. The research population was represented by fifth-grade primary school students aged (10-12) years at Aladnaniea Primary School for Boys in Mosul in the first semester of 2022/2023. The researchers adopted the experimental and control groups' design as an experimental design with a post-test. This includes an experimental group and a control group. The research instrument consisted of tests of attention and its aspects (concentration, distribution, and shifting), and a scale of kinesthetic intelligence. The results showed that the members of the experimental group who taught according to the educational pillars strategy outperformed those of the control group, who taught according to the traditional small-game method in the tachistoscope test and the kinesthetic intelligence scale. The researchers recommended considering the gradation in the content of small games from easy to difficult and from simple to complex. Also, conducting studies similar to the current study in developing some other mental abilities..

Keywords: Four Pillars Strategy; Small games; Attention aspects; Kinesthetic intelligence

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INTRODUCTION

The world is witnessing great development in the scientific and technological fields and various scientific fields, especially in the field of education. As nations race to bring about developments in various fields, using the weapon of science and technological means programmed for teaching in the educational process. Therefore, the ideal method for teaching physical education subjects is not limited to the routine method, which is common among some. Rather, some new comprehensive methods and techniques work to develop all elements of the educational institution and all its aspects related to the educational process. Considering that educational institutions

are the hope for creating the future, education is one of the important strategies for developing society (Abdo, 2019).

Modern and active strategies and methods have emerged in education, including active education strategies, which have proven effective in bringing about unprecedented educational development. These strategies are especially effective for students in the second stage of primary education, through which the student's personality is formed. Implementing these strategies in education would help the student acquire different basic skills, create an integrated, positive, and constructive personality in society, and develop higher thinking skills (Al-Assaf, 2022).

The Four pillars strategy is one of the strategies based on active learning principles. It is an effective means of communication that provides movement, vitality, interaction, and activity when implemented in group activities, eliminating students' boredom. This strategy also contributes to attention seeking, concentration, thinking, choosing, asking the teacher questions, and discussing to gain information and take notes. This strategy is also distinguished by its clarity, ease, and accuracy in all details. It is one of the strategies that stimulates students' mental ability and stimulates thinking. (Al-Shammari, 2011). This was confirmed by the study of Jassim et al., 2022. The age group (10-15) is considered one of the most important fertile stages for developing various physical abilities and motor skills. Learners at this basic stage are also characterized by the rapidity of their morphological development (Farag, 2007).

Learning through play certainly provides an effective educational method to achieve the educational institution's goals related to developing the behaviour and personality of learners. This is because it creates an atmosphere in which entertainment and academic achievement mix, creating suspense and excitement and thus making learning popular for the learners. Since active teaching is a process of participation and interaction between learners, educational materials, and teachers, playing games as a method of teaching enhances this interaction. Moreover, learning through play has a role in treating learners who suffer from learning difficulties. (Attia, 2008).

Through small games, it is possible to improve the learner's activity and personality and develop him in terms of cognitive, motor, and social aspects. In addition to developing responsibility, teamwork spirit, and kinesthetic intelligence. Abdel Hamid described them as "simple games accompanied by joy and pleasure, carrying within them the spirit of fair competition, and characterized by ease in time. They do not contain complex motor skills, but rather, their rules are characterized by flexibility and simplicity (Abdul Hamid, 2005, p. 147). This was confirmed by the study of (Mustafa et al., 2022).

By examining the literature and studies on the physical education lesson, the researchers found out that the groups that adopted the method used in teaching the content of the physical education lesson had adopted traditional, routine educational contexts during the lesson. This had a negative impact on the performance of these groups in terms of physical and skill aspects. It may lack the elements of suspense, excitement, pleasure, and the spirit of cooperation. This had a negative impact on the student's performance in the physical education class in terms of skill, physical, psychological, and mental abilities. In addition to the limited tasks of learners in active interaction, participation, development of mental abilities, and decision-making. In order to keep pace with the rapid developments in the reality of physical education lessons in primary schools, in a way that ensures activating the role of the learner and

making him central to the educational learning process. It is also important to advance the reality of physical education lessons in primary schools and move away from traditional contexts to more modern races to ensure that the learner's role is made more effective. As well as to improve physical and skill qualities, the idea of organizing the content of the physical education lesson came up according to the use of the four pillars strategy in playing small games with varied content, which has an impact on developing aspects of attention and kinesthetic intelligence for fifth-grade primary school students.

METHOD

Search Strategy

The researchers used the experimental method for its suitability and the nature of the research. The research population was represented by students in the fifth grade of primary school, ages (10-12) years old, at Aladnaniea Primary School for Boys in the city of Mosul, the first semester of the academic year 2022/2023 AD. As the number of students reached (161) students, the researchers adopted the boys' school stage as a research population.

The research population consisted of (161) students distributed among (3) academic divisions. By drawing lots, divisions (B and C) were chosen to represent the research sample. As the number of division (B) reached (53) students and the number of division (C) reached (53) students. The researchers excluded Section (A), which numbered (55) students. In order to determine the experimental and control research groups, the researchers conducted a lottery process (by a simple random method) among the study groups. So, division (C) would be the experimental group to which the four pillars strategy will be applied. The control group was division (B), which taught according to traditional small games. This is done to avoid the effect of previous experience as a procedure so that it does not affect the research results and so that abnormal statistical values do not appear in the research data. The researchers excluded a number of students who failed, deferred, and transferred and who did not commit to the program's lessons, amounting to (16) students. After implementing these procedures, the research sample became composed of (90) students, with (45) students for the experimental group and (45) students for the control group. Table (1) shows the distribution of the research sample into two experimental and control groups.

Table 1. Distribution of the research sample into two experimental and control groups

Group	Number before exclusion	Number of excluded students	Number after exclusion
Experimental	53	8	45
Control	53	8	45
Total	106	16	90

*(Sig) at an error rate ≤ 0.05 and (DF) equal to (44).

The researchers adopted the experimental and control groups' design as an experimental design with a post-test. This includes an experimental group and a

control group, which requires equivalence between the two groups and a post-test on the dependent variables (aspects of attention and kinesthetic intelligence). Table (2) shows the experimental design for the control group with the post-test.

Table 2. Experimental design for the control group

Variable / Group	Equivalent	Independent variable	Post-test
Experimental	1. Multiple intelligences. 2. Chronological age.	Four pillars program	1. Aspects of attention. 2. Kinesthetic intelligence scale
Control		Small game	

The researchers relied on the equivalence procedure for the two research groups in the following variables (multiple intelligences, chronological age). The t-test was used to compare the two research groups on the mentioned variables. The researchers applied the multiple intelligences test, the Teele list by (Afaneh & Al-Khazandar, 2007) to the students of the two research groups, which was used by (Al-Taie & Najm, 2022, pp. 184-187), on (20-22/2/2023). The answers were corrected, and then the arithmetic means (AM) and standard deviations (SD) were extracted for the two research groups, using the t-test to compare the two study groups. It was found that there were no significant differences, and thus the two research groups were equivalent in the multiple intelligence variables, as shown in Table (3).

Table 3. AM, SD, calculated (t) values, and significance percentages for multiple intelligence tests for the pre-test

Group / Multiple intelligence	Experimental		Control		t-calculated	Sig
	AM	SD	AM	SD		
Verbal linguistic intelligence	3.2667	1.17551	2.8444	1.59481	1.430	.156
Physical motor intelligence	5.1778	1.40274	5.0667	1.45227	.369	.713
Spatial intelligence	3.8444	1.46094	3.7556	1.40058	.295	.769
Musical intelligence	2.6000	1.28629	3.2222	1.96433	1.778	.079
Logical-sport intelligence	2.6222	1.38644	2.6000	1.60114	.070	.944
Intrapersonal intelligence	3.9556	.97597	4.4667	1.53149	1.888	.062
Interpersonal intelligence	6.4889	1.19891	6.0444	1.55147	1.521	.132

It is noted from Table (3) that the t-values calculated on the equivalence test for multiple intelligences (linguistic, logical, spatial, musical, kinesthetic, interpersonal and intrapersonal intelligence) between the experimental and control groups were non-significant at an error rate ≤ (0.05) and a degree of freedom equal to (44). In other words, the two groups are equivalent in this test. The school administration obtained information regarding this variable from the students' ID cards. Each student's birth year was recorded, and the chronological age in months was calculated, as shown in Table (4).

Table 4. AM, SD, calculated (t) values, and significance ratios for chronological age

Group	Experimental		Control		t-calculated	Sig
Equivalence test	AM	SD	AM	SD		
Chronological age	118.66	18.88	120.48	12.39	.541	.590

From the observation of Table (4), it is clear that the calculated t-values in chronological age (measured in months) between the experimental and control groups were non-significant according to the significance percentage at an error rate ≤ (0.05) and a degree of freedom equal to (44). In other words, the two groups are equivalent in this variable. The subject teacher (Yasser Al-Awni) taught the two research groups according to their own plans, with two educational units for each group per week, with a total of (12) educational units over six weeks and a time of (40) minutes for each unit.

The research instrument consisted of tests of attention and its aspects (concentration, distribution, and shifting), and a scale of kinesthetic intelligence. Tachistoscope test: The researchers analyzed the content of studies and literature that dealt with attention tests and their manifestations, which are compatible with the study's objectives and the target sample. The researchers found a group of tests that fit the category, which is the (Tachistoscope) test, which is of Russian origin and used by Mustafa (2014) and Al-Taie & Najm (2022). After obtaining the test, the researchers administered it electronically using the PowerPoint program, benefiting from the program's slide show feature. These tests are standardized, applied to the Iraqi environment, and meet the scientific conditions of validity, stability, and objectivity.

Test specifications: The Tachistoscope test measures aspects of attention (acuity of attention, distribution of attention, stability of attention, concentration of attention, intensity of attention, and shifting attention) through an optical device (Tachistoscope). It displays for a second after discarding the board. The tester is asked to draw an exact image of the positions of the (X) mark to calculate the time taken to place the marks and the number of correct marks that match the original board. Figure (1) shows this. (Mustafa, 2014, 44).

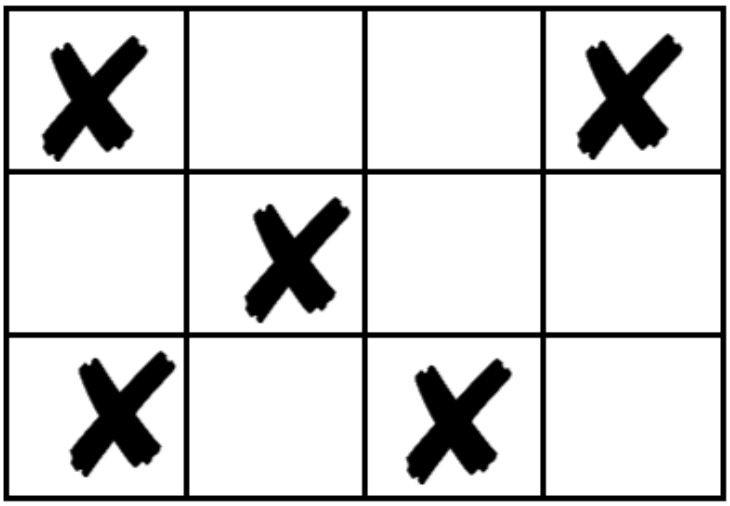

Figure 1. Tachistoscope test model

For the purpose of employing the test with the research objectives, the researchers designed an electronic test to measure the aspects of attention (concentration, shifting, and distribution). This test requires a device that displays a square shape containing (20) boxes. Inside each box, there is a specific mark, and this shape is displayed for one second. Then, a board containing the same square shape but empty cells is placed in front of the tester. The tester is asked to fill in the cells as in the figure presented to him. The time required to fill out the form is calculated. Then, the time taken and the number of correct marks is recorded.

The tachistoscope square is displayed to the tester for a second using the computer (laptop), and the pieces are of one geometric shape (circle). Then a board containing a tachistoscope square is placed in front of the tester, and the tester is asked to place the pieces of the six circles that he saw in the square that was presented to him on the computer. The time for placing the circle pieces and the number of pieces placed in their correct place are calculated. Figure (2) shows the modified Tachistoscope test for focusing attention and the empty board.

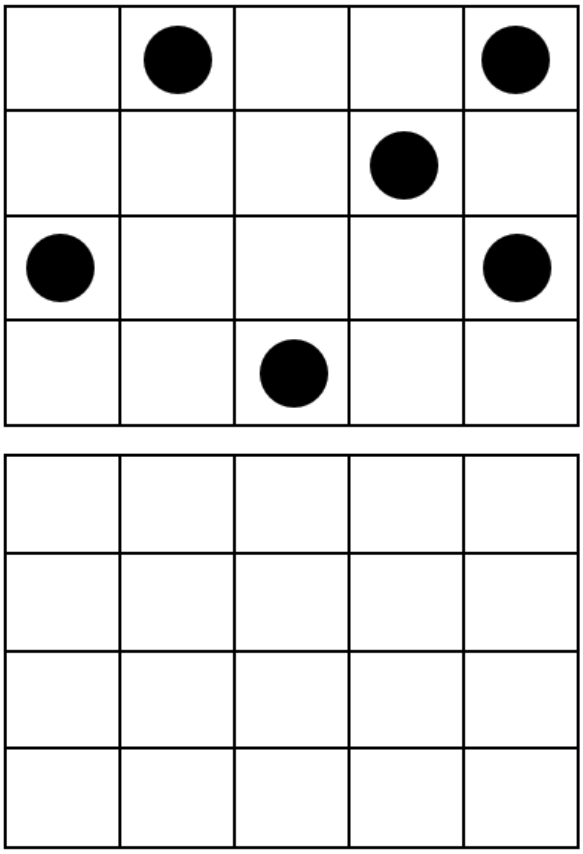

Figure 2. Modified tachistoscope test for concentration of attention and empty board

The student is shown a telescope square for one second using the Lap Top device, but this time the pieces inside the square's fields are different. Then a board is placed in front of the student containing a tachistoscope square, where he is asked to place the pieces of the six geometric shapes on the empty board as it was presented to him. But this time the student must distribute his attention to the distributed pieces. It calculates the time to fill the fields with pieces and the number of pieces placed in their correct place. Figure (3) shows the modified tachistoscope test for distributing attention and the empty board.

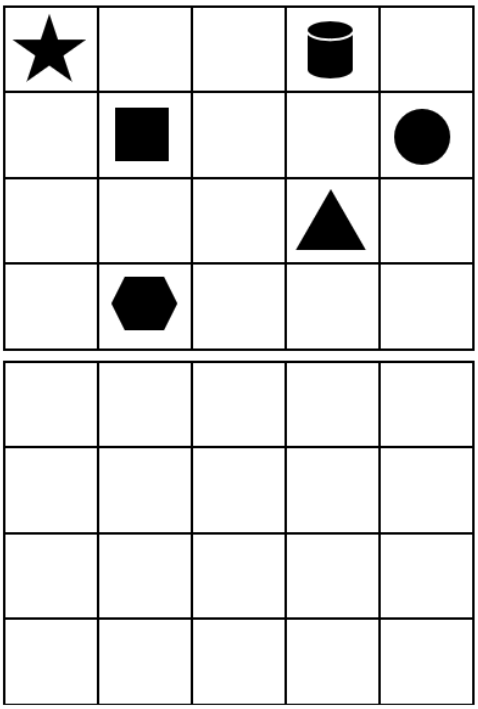

Figure 3. Modified tachistoscope test for distributing attention and the empty board

A tachistoscope is displayed to the student for one second through the laptop. Then the six pieces of geometric shapes (triangle, circle, square, star, cylindrical, hexagonal shape) displayed are repeated and varied. An empty tachistoscope board is placed in front of the student, and he is asked to fill in the field by telling him where the triangle piece is located, then he is told where the star piece is located, and so on. Then the time for placing the pieces and the number of pieces placed in their correct location is calculated. Figure (4) shows the modified tachistoscope test for shifting attention and the blank board.

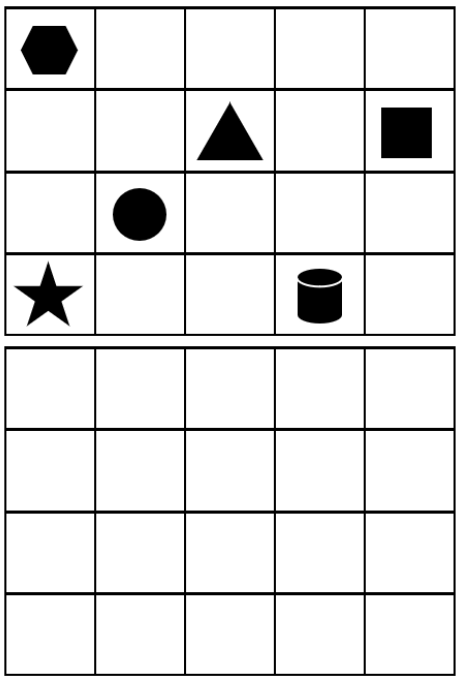

Figure 4. Modified tachistoscope test for shifting attention and the blank board.

RESULTS AND DISCUSSION

Results of the first hypothesis: The results of the first hypothesis are shown in Table 5.

Table 5. AM, SD, calculated t-values and significance for the experimental and control groups on the post-test of the attention aspects tests and their respective times

Group	experimental group		control group		t-calculated	Sig.
Attention aspects	AM	SD	AM	SD		
Concentration	3.311	1.018	4.00	1.243	2.875	.005
Concentration time	18.154	10.870	14.08	5.111	2.272	.026
Distribution	1.466	1.120	2.33	1.044	3.796	.000
Distribution time	14.449	4.421	18.86	10.136	2.679	.009
Shifting	1.022	1.076	1.64	0.980	2.867	.005
Shifting time	19.253	4.741	22.51	6.507	2.716	.008

It is observed from Table (6) that the calculated t-value on the post-test of attention tests and its aspects (attention concentration, attention distribution, and attention shifting) between the experimental and control groups was significant (sig) at an error rate ≤ 0.05 and a degree of freedom equal to (44). In other words, we accept the research hypothesis.

Discussing the results of the first hypothesis: The t-test results showed statistically significant differences between the experimental and control groups in the posttest of attention aspects and their time. The researchers attribute the superiority of the experimental group taught according to the Four Pillars Strategy to the fact that the nature of the Four Pillars steps requires students to participate, interact, answer the teacher's questions, discuss, and perform duties and tasks.

It worked to enhance mental abilities in the main part of the lesson. Since concentration, distribution, and shifting of attention are mental abilities, the development of these aspects is inevitable as a result of the way the rules and instructions of the game are presented and explained through the use of educational means to apply the situations of the game. That contributed to concentrating the learners' attention on what the teacher presents in each educational means.

This is what Ghaleb (2011) confirmed: "Using educational means within these corners of educational images and questions characterized by excitement and suspense helps attract the learner's attention and push him to focus." It also helps the teacher to convey information and ideas to the minds of students easily and conveniently" (Ghaleb, 2011). It also enhanced the distribution of their attention to the data of one game (the situation). Moving the teacher's presentation from one method to another throughout the period of one lesson also enhanced their ability to shift their attention to the course of the lesson. In addition, the students carry out tasks and assignments with the help and guidance of the teacher. Also, using games within the corner strategy enhanced the mental ability of the students of the experimental group. All of this contributed positively to enhancing the ability of the

experimental group students in the tachistoscope test to concentrate, distribute, and shift attention compared to the ability of the control group students in the post-test.

This is consistent with what Jassim et al. (2022) indicated: working with educational corners works to divide educational situations in an organized and sequential manner that leads to students acquiring and developing mental abilities such as attention, perception, imagination, remembering, thinking, discrimination, classification, analysis, and synthesis… and their knowledge of each part of the situation (game) and learning it easily (Jassim et al., 2022).

The control group students practiced the program and prepared for traditional or similar small games, which are devoid of strategic steps such as questions, discussion, answers, and methods. This is what made the experimental group superior to the control group in the test of attention and its aspects.

Table 7. AM, SD, T-values calculated, and significance for the experimental and control groups on the post-test of the kinesthetic intelligence scale

Group	experimental group		control group			
Areas of kinesthetic intelligence	AM	SD	AM	SD	t-calculated	Sig.
Flexibility	12.02	3.02	10.13	2.15	3.40	.001
Originality	11.84	2.77	9.55	2.50	4.10	.000
Dependability	11.97	3.06	9.82	2.32	3.75	.000
Persistence	12.24	2.96	10.11	2.87	3.46	.001
The total score	48.08	5.43	39.62	4.26	8.22	.000

From the observation of Table (7), it is clear to us that the T-values calculated on the post-test of the kinesthetic intelligence scale (flexibility, originality, dependability, and Persistence) between the experimental and control groups were significant according to the significance of an error rate ≤ (0.05) and a degree of freedom equal to (44). In other words, we accept the research hypothesis.

Discussing the results of the second hypothesis: The t-test results showed statistically significant differences between the experimental and control groups on the post-kinesthetic intelligence scale. The researchers attribute the reason for these results to preparing the educational program content for the experimental group. As it was distinguished by the diversity and organization of its various activities in terms of (small games, the map of the four corners, asking questions, discussion, student answers, formations, educational methods, and tools used). It was prepared in each of the four corners of the arena and was characterized by focus and gradation in difficulty in an interesting and scientific manner that is compatible with the student's capabilities and appropriate for their ages. This gave the teacher the opportunity to engage students in understanding and applying the content of the program's activities, according to the steps of the four corners strategy.

In addition, playing small games throughout the duration of the educational units. It was used to develop the kinesthetic intelligence of the experimental group members and the factors it contained of suspense, encouragement, enticement and competition without boredom or coercion when repeated in the same lesson and with rules and performance methods that differed from one game to another. It has contributed to stimulating students' motivation towards achieving their goals and proving themselves.

It included sensory-motor and intellectual games through situations and questions that stopped the students and made them use their mental abilities (most notably thinking and sensory-motor intelligence). Also, use their body parts with balance, speed, distinctive dexterity, originality, vitality, and activity to solve motor problems. Consequently, this was reflected in the superiority of the students of the experimental group over the students of the control group in the areas of the kinesthetic intelligence scale and the general sum. This is consistent with what Wafaa Al-Ghurairi (2012) pointed out: cognitive development studies have confirmed that the origin of human intelligence lies in the sensory-motor activities that he performs during the early stage, which means the necessity of stimulating his senses (sight, hearing, touch…). In addition to the necessity of practicing motor activities in which the child expresses his creativity and innovations (Al-Ghurairi, 2012).

CONCLUSION

Based on our results we concluded that the students of the experimental group taught according to the Four Pillars strategy outperformed those of the control group who taught according to regular small games in tests of attention aspects. Additionally, the experimental group students taught according to the Four Corners strategy outperformed the control group students taught according to the small games in the kinesthetic intelligence scale (flexibility, originality, dependability, and persistence).

Recommendation: 1) Adopting the four pillars strategy in teaching sports educational content in primary schools in the city of Mosul; 2) Taking into account the gradation in the content of small games from easy to difficult and from simple to complex; 3) Conducting studies similar to the current study in developing some other mental abilities; 4) Conducting studies using the four corners strategy at different age stages; 5) Conducting a comparative study between the four corners strategy and the method used for various sporting events; 6) Adopting the kinesthetic intelligence scale to identify student characteristics and indicators in teaching skills for other activities.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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