



Effect of strategy conceptual maps corroborative with teaching instruments in the development of mental perception and intelligence and the most important forms of shooting for junior players in handball

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Abstract:

This study was developed to investigate the influence of Effect of strategy conceptual maps corroborative with teaching instruments in the development of mental perception and intelligence and the most important forms of shooting for junior players in handball. Researchers used an experimental design study with equal groups and study society is determined by beginners players of Al-Qassim youth forum in handball that totaling 32 players and we selected randomly sample totaling (24) players then we divided the sample into two groups (experiment and control) each group included 12 players. Moreover, data of our study was analyzed by using (mean, standard deviation, K^2 test, T-test for independent and dependent samples, person correlation coefficient, mode, and skewness coefficient). In conclusion we found that an improvement has been appeared in mental perception and intelligence test and tests of shooting forms for beginner players in handball for two groups.

Key words: conceptual maps, teaching instruments, mental perception, intelligence, shooting, junior players, handball.

1. Introduction:

Recently the world has seen significant developments in all fields including education field in Physical Education and this is an indication of the great interest from specialists and researchers in developing the educational process continuously in order to raise the sport level and achievement. Sport field is one of fields which using new strategies to develop fast of learning of basic skills and invest the effort in time.

Motor learning is more important part of learning sections which has diverse methods and numerous instruments through all these years. However, different strategies have been showed during sport developments in present time and one of these strategies is conceptual maps corroborative with teaching instruments which is a set of tools using to help required sport skills learning processes where approaching the idea with the image for the learner.

The intelligence is the basis for mental capabilities which help the process of learning and problem solving to link intelligence with kinetic behavior of the player. In dead, it is a natural ability linked closely to the success of the individual in his career life and multiple intelligences theoretical which allows the individual to explore the attitudes and see for them in multiple views, so the individual can reconsider its position through living the events and the mental competency of human can be considered a set of mental abilities and skills called intelligences.

Handball game has been accompanied the development and progress which has seen many changes in the learning and training methods in different areas including particularly the changes in the methods of teams playing in terms of the application of defensive and offensive plans to surprise their rival as well as following new strategies to learn and develop basic skills through diversification positions of exercise and its forms in order to make the player has the ability to process of selecting the appropriate motor program to solve the motor duty in the best image and depending on the situation faced in the defense and his ability to carry out offensive skills well.

The important of present study is to know the effect of strategy conceptual maps corroborative with teaching instruments in the development of mental perception and intelligence and the most important forms of shooting for junior players in handball to be learning tools which using by coaches. However, the problem of our study is no study has been achieved about these strategies and most of coaches didn't using these strategies to improve mental abilities and basic skills of handball.

2. Methodology

Researchers used the experimental approach with equal groups because it relevancies of the nature of the study as shown in table (1).

Table (1)
shows experimental design of study

Research procedure Groups	Pre-tests	Research procedure	Post-tests
Control group	- Mental imagen questionnaire - Intelligence questionnaire - Tests of shooting forms	Program of coach	The same pre-tests
Experiment group	- Mental imagen questionnaire - Intelligence questionnaire - Tests of shooting forms	Learning program by using conceptual maps corroborative with teaching instruments	The same pre-tests

2.1 Participant

Study society is determined by beginners players of Al-Qassim youth forum in handball that totaling (32) players and we selected randomly sample totaling (24) players that they divided into two groups (experiment and control) each group included 12 players. The number of participants required for this study was calculated to be (24) players from Al-Qassim youth forum in handball. However, for purpose of achieve homogenization for study sample researchers used statistical instruments such (mean, standard deviation, mode, skewness coefficient) as shown in table (2).

Table (2)
Shows mean, SD, and skewness coefficient for homogenization

N	Variables	Statistical	Mean	SD	Mode	skewness coefficient
1	Height		170	3.42	167	0.87
2	Weight		72.21	4.26	69	0.75
3	Age		14.3	1.07	14	0.28
4	Training age		4.10	1.02	4	0.09

Table (2) shows values of skewness coefficient for studied variables as well as height, weight, age, and training age which are less than (± 1) this confirm that our study sample is homogeneity at all variables.

After completing the homogenization we divided sample of the study into two groups (experiment and control) each group included 12 players, then we achieved the equal between groups in variables of the study by using T-test for independent samples as shown in table (3).

Table (3)
Shows the equal between study sample

N	Tests	Control group		Experiment group		T-test	Significant
		Mean	SD	Mean	SD		
1	Mental auditory perception	11.08	1.16	10.58	0.99	1.30	No
2	Mental visual perception	11.91	2.19	11.83	1.58	0.10	No
3	Mental perception sense-kinesthetic	12.41	2.06	12.16	1.52	0.33	No
4	Mental and emotional perception	12.66	1.77	12.25	1.54	1.61	No
5	Intelligence test for Raven	37.83	3.92	36.91	4.18	0.55	No
6	Focal shooting from head level	3.16	0.83	3.08	0.66	0.27	No
7	Shooting from high jumping	3.33	0.77	3.25	0.75	0.26	No
8	Shooting from fall to the front	2.57	0.45	2.50	0.52	1.25	No

Table (3) shows that T-test values for variables of study smaller than tabulate values amounted (1.71) at the significant level (0.05) and under freedom degree (22), this means there is an equal between groups in variables of the study.

2.2 Field study procedures:

2.2.1 Validate of mental imagen questionnaire and intelligence test:

For the purpose of determining the validity of mental perception scale consists of four dimensions (auditory, visual, common-kinesthetic, emotional) and each dimension ranging its degree (4-20) degree and was placed in questionnaire form and presented to experts and specialists in the field of psychology and sport training and handball, after collecting the forms of (9) experts proved the validity of the scale by accepting (100%). Whereas, intelligence measure researchers depended on intelligence test which made by Raven and applied on Iraqis by (Abdel Fattah, 1978), this test consists of (60) matrix divided into five sections is (A. B. C. D. E) and each matrix has separated part in which the player asks to specify a form of the forms is appropriate to put it in the allotted place in the matrix, then it is placed in a questionnaire form and presented to experts and specialists in the field of psychology, sport training and handball, table (4) shows validate of mental imagen questionnaire and intelligence test.

Table (4)
shows validate of mental imagen questionnaire and intelligence test

N	Name of test	Validate		K ²	Significant
		Validity	No validity		
1	Mental perception scale	9	0	9	S
2	Intelligence scale for Raven	9	0	9	S

Table K² value at the freedom degree (1) and significant level (0.05) amounting (3.84)

2.2.2 Validate of shooting forms for junior players in handball:

To specify the most important shooting forms in junior handball, researchers choice a set of formats nomination of (11) forms which were placed in a questionnaire form and presented to the experts and specialists totaling (7) experts, after collecting the data from the forms we excluded some forms which gained the importance of relative less than (40) and the percentage (57%) and the table (5) illustrates this.

Table (5)

Shows the importance of relative and percentage for forms of shooting skill

N	Skills	N	Forms	Measurement Unit	Relative importance	Percentage	Test result
1	Shooting forms	1	Stable shooting	Number of goals	34	%48.5	X
		2	Focal shooting from head level	Number of goals	58	%82.8	✓
		3	Focal shooting from above a head	Number of goals	31	%44.2	X
		4	Focal shooting from shoulder level	Number of goals	28	%40	X
		5	Shooting from level of hip and knee	Number of goals	35	%50	X
		6	Shooting from running	Number of goals	39	%55.7	X
		7	Shooting from forward jumping	Number of goals	38	%54.2	X
		8	Shooting from high jumping	Number of goals	64	%91.4	✓
		9	Shooting from fall to the front	Number of goals	61	%87.1	✓
		10	Shooting from fall to the side	Number of goals	24	%34.2	X
		11	Fly shooting	Number of goals	29	%41.4	X

2.2.3 Identify the tests of shooting skill forms in junior Handball

For the purpose of determining the most important forms of skill shooting in junior handball, the researchers nomination set of formats were placed in questionnaire form and presented to the experts and specialists totaling (5) experts, after collecting the data from forms we excluded some of forms which got the relative importance less than (30) and percentage (60%), table (6) illustrates this.

Table (6)

illustrates the relative importance and percentage of shooting skill forms tests

N	Skills	N	Forms	Measurement Unit	Relative importance	Percentage	Test result
1	Shooting	1	Focal shooting from head level to the squares of shooting accuracy (50 × 50)	Number of goals	45	%90	✓
		2	Stable shooting from head level to the	Number of goals	16	%32	X

		rectangles				
	1	Shooting from high jumping to the squares of shooting accuracy (50 × 50)	Number of goals	39	%78	✓
	2	Shooting from high jumping to the goal which is drawing on the wall and divide into five circles	Number of goals	18	%36	X
	1	Shooting from fall to the front to the squares of shooting accuracy (50 × 50)	Number of goals	44	%88	✓
	2	Shooting from fall to the front to the overlapping boxes measured in degrees	Number of goals	22	%44	X

2.3 Pilot study:

Pilot study was achieved on 25\ 2\ 2015 for measurements of mental perception and intelligence and shooting forms tests in handball which is at exactly three o'clock in the afternoon on the sample is amounted approximately (8) junior players from training center in handball and we re-trailed on 10\ 3\ 2015 to know:

1. To make sure the clarity of the instructions and paragraphs of the questionnaire to the players.
2. Identify the time it takes to answer on the questionnaire.
3. Identification the conditions and difficulties of the questionnaire application.
4. Identify the negatives and positives which effect during achieve the tests.
5. Ensure appropriate of the tests to the nature of the study sample.
6. Extract the scientific bases for measurements and tests studied (consistency and objectivity).

2.4 Pre-tests:

Pre-tests were done on 15\ 3\ 2015 with number of players that amounted (24) players and the tests included tests of mental perception measurement, intelligence test for raven, and shooting forms tests.

2.5 Learning curriculum:

The researchers have prepared a learning program for experiment group by using strategy conceptual maps corroborative with teaching instruments for junior handball players. The program started on 20\ 30\ 2015 and finished on 19\ 5\ 2015 for a period of two months, three times per week and the total number of training unites is (24) unites. 3 o'clock is time of training and the worm time is (10-15) minutes.

2.6 Post-tests:

Post-tests were done on 20\ 5\ 2015 for two groups with the same way of pre-tests.

2.4 Statistical analysis

Researchers used SPSS to analyze the data which was collected from tests by using (mean, standard deviation, and T-test for independent and dependent samples, K^2 , mode, skewness coefficient, and relative importance Law (Salah Aldeen, 2000).

3. Results and discussion

Table (7)
Shows mean, SD, and T-test of pre and post-tests for control group in study variables

N	Tests	Pre-test		Post-test		T-test	Significant
		Mean	SD	Mean	SD		
1	Mental auditory perception	11.08	1.16	12.33	2.14	2.15	S
2	Mental visual perception	11.91	2.19	13.08	2.27	2.18	S
3	Mental perception sense-kinesthetic	12.41	2.06	13.75	1.65	2.11	S
4	Mental and emotional perception	12.66	1.77	13.83	1.74	2.07	S
5	Intelligence test for Raven	37.83	3.92	39.75	2.34	2.73	S
6	Focal shooting from head level	3.16	0.83	4.08	0.66	3.52	S
7	Shooting from high jumping	3.33	0.77	4.16	0.83	2.15	S
8	Shooting from fall to the front	2.57	0.45	3.58	1.31	2.80	S

Table (7) shows different results between pre and post-tests which mean a significant improvement has been occurred, mean of pre-test of mental auditory perception was (11.8) with SD (1.16) whereas mean of post-test of the same variable was (12.33) with SD (2.14). However, means of pre-tests of Mental visual perception, Mental perception sense-kinesthetic, Mental and emotional perception, Intelligence test for Raven, Focal shooting from head level, Shooting from high jumping, and Shooting from fall to the front were (11.91), (12.41), (12.66), (37.83), (3.16), (3.33), and (2.57) with SD (2.19), (2.06), (1.77), (3.92), (0.83), (0.77), and (0.45), whereas means of post-tests of the same variables were (13.08), (13.75), (13.83), (39.75), (4.08), (4.16), and (3.58) with SD (2.27), (1.65), (1.74), (2.34), (0.66), (0.83), and (1.31).

Through means and standard deviations that were displayed to the variables, we find there are significant differences between the two tests so researchers have used T-test for the dependent samples to know the differences, the values of T-test were: (2.15, 2.18, 2.11, 2.07, 2.73, 3.52, 2.15, and 2.80) which are greater than the value of tabulate (T) amounted (1.79) at the degree of freedom (11) and the level of significance (0.05) which indicates a significant difference between the two tests and in favor of the post-tests.

Table (8)
Shows mean, SD, and T-test of pre and post-tests for experiment group in study variables

N	Tests	Pre-test		Post-test		T-test	Significant
		Mean	SD	Mean	SD		
1	Mental auditory perception	10.58	0.99	14.58	0.83	9.46	S
2	Mental visual perception	11.83	1.58	14.16	1.52	3.18	S
3	Mental perception sense-kinesthetic	12.16	1.52	15.25	0.96	4.69	S
4	Mental and emotional perception	12.25	1.54	15.08	1.44	3.84	S
5	Intelligence test for Raven	36.91	4.18	43.50	3.65	3.27	S
6	Focal shooting from head level	3.08	0.66	4.91	1.31	3.74	S
7	Shooting from high jumping	3.25	0.75	4.83	0.93	3.97	S
8	Shooting from fall to the front	2.50	0.52	4.75	1.48	5.24	S

Table (8) shows different results between pre and post-tests which mean a significant improvement has been occurred, mean of pre-test of mental auditory perception was (10.58) with SD (0.99) whereas mean of post-test of the same variable

was (14.58) with SD (0.83). However, means of pre-tests of Mental visual perception, Mental perception sense-kinesthetic, Mental and emotional perception, Intelligence test for Raven, Focal shooting from head level, Shooting from high jumping, and Shooting from fall to the front were (11.83), (12.16), (12.25), (36.91), (3.08), (3.25), and (2.50) with SD (1.58), (1.52), (1.54), (4.18), (0.66), (0.75), and (0.52), whereas means of post-tests of the same variables were (14.16), (15.25), (15.08), (43.50), (4.91), (4.83), and (4.75) with SD (1.52), (0.96), (1.44), (3.65), (1.31), (0.93), and (1.48).

Through means and standard deviations that were displayed to the variables, we find there are significant differences between the two tests so researchers have used T-test for the dependent samples to know the differences, the values of T-test were: (9.46, 3.18, 4.69, 3.84, 3.27, 3.74, 3.97, and 5.24) which are greater than the value of tabulate (T) amounted (1.79) at the degree of freedom (11) and the level of significance (0.05) which indicates a significant difference between the two tests and in favor of the post-tests.

Table (9)
Shows mean, SD, and T-test for post-tests of two groups in study variables

N	Tests	Control group		Experiment group		T-test	Significant
		Mean	SD	Mean	SD		
1	Mental auditory perception	12.33	2.14	14.58	0.83	2.46	S
2	Mental visual perception	13.08	2.27	14.16	1.52	2.16	S
3	Mental perception sense-kinesthetic	13.75	1.65	15.25	0.96	3.43	S
4	Mental and emotional perception	13.83	1.74	15.08	1.44	1.90	S
5	Intelligence test for Raven	39.75	2.34	43.50	3.65	2.99	S
6	Focal shooting from head level	4.08	0.66	4.91	1.31	1.96	S
7	Shooting from high jumping	4.16	0.83	4.83	0.93	1.84	S
8	Shooting from fall to the front	3.58	1.31	4.75	1.48	2.04	S

Table (9) shows that means of control group of post-tests such Mental visual perception, Mental perception sense-kinesthetic, Mental and emotional perception, Intelligence test for Raven, Focal shooting from head level, Shooting from high jumping, and Shooting from fall to the front were (12.33), (13.08), (13.75), (13.83), (39.75), (4.08), (4.16), and (3.58) with SD (2.14), (2.27), (1.65), (1.74), (2.34), (0.66), (0.83), and (1.31), whereas means of post-tests of the same variables for experiment group were (14.58), (14.16), (15.25), (15.08), (43.50), (4.91), (4.83), and (4.75) with SD (0.83), (1.52), (0.96), (1.44), (3.65), (1.31), (0.93), and (1.48).

Through means and standard deviations that were displayed to the variables, we find there are significant differences between the two groups, so researchers have used T-test for the dependent samples to know the differences, the values of T-test were: (2.46, 2.16, 3.43, 1.90, 2.99, 1.96, 1.84, and 2.04) which are greater than the value of tabulate (T) amounted (1.71) at the degree of freedom (22) and the level of significance (0.05) which indicates a significant difference between the two groups and in favor of the experiment group.

There is an improvement for two groups control and experiment because of using suitable programs to the study sample, control group used normal curriculum which was made by the team coach as well as effect of continuous and regularity of the players in the training which has had a clear role in the development, Saad Mohsen, 1996) confirmed that no effect for differences of scientific and practical culture of experts opinions in make the training program and it inevitably leads to the development of achievement if built on a scientific basis in the organization of the

training process and programming and the use of appropriate intensity and progressive and note individual differences as well as the use of optimal frequencies and periods of rest under the supervision of specialists coaches under good conditions in terms of space, time, and used tools. Hanafi Mahmoud (1994) confirmed that continuous training has an important role in the arrival of the player to good level in terms of performance, integration, and set of high performance mechanism.

Results of our study showed significant differences in favor of experiment group in study variables because of the learning curriculum which was made by researchers is developed player's abilities and intelligence. In addition, researchers used conceptual maps corroborative with teaching instruments in the development of mental perception and intelligence and the most important forms of shooting for junior players in handball because these maps had displayed in a new method by using posters which helped to attract the attention of the player and increased their love and motivation toward learning where it was provoke their senses and thus increased their focus, Fouad et al., (1988) found that using more than one sense through learning is increased learning process. Moreover, this strategy helps player to make maps are required to increase their confidence of themselves and improve the performance which leads to reduce the negative desire into the skill performance during training who they believe is a difficult and this was confirmed by the results of the post-test, this results agree with (Mahmoud & Mustafa, 2001) they said that internal motivation emanating from within the individual helps the individual to overcome the difficulties and obstacles which require more effort and courage or because of pleasure aesthetic resulting from the agility and consistency of performance or as a result of internal motivation stemming from outside of the individual which raise and direct of the behavior towards practice or sport performance. In addition, researchers used positive reinforcement results in an impact to increase player's motivation for more learning and these outcomes agreed with founds of (Osama & Ibrahim, 2005) that immediate positive reinforcement has a great role to increase the motivation toward learning more than later positive reinforcement. Researchers also find these differences because of watching visual models which entrenched in their mind the right performance and make the player compares between himself and his performances then improve their level, Sahar (2000) showed that models whether visual or printed player can be compared between the current performance and the model presented to realize his mistakes and weaknesses and the required responses, where the public image of the right response has become known for the player so he has to attempt to modify the responses to determine the desired objective.

4. Conclusions

In conclusion we found that an improvement has been appeared in mental perception and intelligence test and tests of shooting forms for beginner players in handball for two groups. Moreover, best improvement has been appeared for experiment in study variables and using strategy of conceptual maps corroborative with teaching instruments helped to reduce the effort and time for coach and learner in developing of mental perception and intelligence test and tests of shooting forms for beginner players in handball, as well as using this method resulted in interaction learners during exercise and increased the motivation and desire to learn.

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