

Effect of Application of the Theory of Consistency of Content on Teaching Handball Diving Shot Skill for Prep School Girls.

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Abstract

The purpose of this research was to identify the effect of application of the theory of consistency of content on teaching the skill of diving shot in handball for prep school girls. The researcher used the experimental method of three experimental groups and the research people were intentionally selected and were girls in the 2nd prep grade at Al-Ahramat School, Giza. They consisted of (5) classrooms including (75) girls in 2012/2013 school year and (3) classrooms were randomly selected as three experimental groups that the 1st experimental group was subjected to regular teaching, the 2nd experimental group was subjected to random teaching and the 3rd experimental group was taught by merging the regular and random methods. Thirty girls remained from the research people were used for pilot studies. As a research tool, the theory of internal consistency in education was used to study the best method of teaching motor skills and how fast and precisely gained with its two branches viz. low internal consistency known as regular teaching aiming at following logic repetitive gradual sequence, high internal consistency known as random teaching aiming at following a sequential transitional method irregularly during teaching motor skills and the merged method combining the regular and random methods.

The researcher concluded that in the first phase of acquisition and retention, the differences were in favor of the group that has been subjected to the merged method followed by the group taught regularly and then the group taught randomly and in the second phase of transiting, thinking and remembering, differences were in favor of the group that has been taught by merging method followed by the group subjected to the random method then the group taught regularly and all results were statistically significant.

Introduction:

Physical education has physical social and mental values that could not be achieved once the students participate in the playing only but it needs special orientation, good selection of subjects of curriculum, working plan and correct use of teaching methods that ease the development of physical abilities and gaining motor skills for students who make physical, mental and social benefits. The selection of lesson material is accomplished to fulfill a specific purpose wanted to be done. A whole lot of scientists agreed that students do not respond to the teaching process of one method and it is necessary to use new different educational methods to build and to develop abilities and knowledge of students. The actual practice is the best method to teach motor skills as it has a direct effect on making decisions related to the type, the amount and the sequence of the practice. When learning is affected in a particular situation based on a new method it will carry the effect of the learning the skill that should be taught (11-29).

On the other hand, the basic education stage has a great effect on teaching and motor learning particularly the late stage of basic education. Children in this stage strongly

wish to incorporate into any motor activity particularly that needs the action of large muscles (3,72).

The researcher thought that the continuity of teaching greatly depends on the type and the level of treating information for goals to be achieved. Teaching became depending on how to teach, to gain and to master skills in physical activity as there are several theories that search for how fast and precisely to gain and to master motor skills of different physical activities. Such theories include the internal consistency in education searching for the best method of teaching motor skills and how to gain and to master them fast.

Abdel Hamid Al-Amir (2003) and Ibrahim Khallaf and Mohamed Abdel Razeq (2005) indicated that type and strategy of learning were represented by two methods used to present the theory of consistency of content. They were the theory of low consistency of content known as regular teaching and the theory of high consistency of content known as random teaching and interested in following an iterative and transitional method irregularly during teaching motor skills (8)(1). Charman (1995) thought that through application of random, regular and the merged method of teaching, the regular teaching method was more efficient and effective in gaining and learning motor skills,

whereas the random teaching method was more efficient and effective in the phase of maintaining the learning as well as the transition of the effect of learning in the same or new similar training goals (13:252).

However, Moto (2006) indicated that the regular teaching method led to short-term learning but learning the current perception causing retrieval of the conceptual skill classification and therefore improving teaching, whereas the random teaching requested the learners to reload motor perception repeatedly against each training goal leading to retrieve what has been taught (15).

Stewart Halls *et al.*, (1993) thought that memory was as an important process as teaching and the concepts of learning were closely associated with memory because the results of specific learning experience should be kept and retained in order to be cumulative, hence, the memory had several aspects such as long term memory that measured in minutes, hours, days or years and when a task should be kept and retained for more than one minute, it should be in long term memory. The second type of memory was the short term that should require a shorter time period and it should be easy to keep information of the short term memory as long as the information could be repeated. There was another type of memory shorter than the short term memory called sensory memory where a semi complete and precise image of the information presented to senses was kept but easily to be removed (5: 417-418).

Esam Abdel Khaleq (1990) confirmed that the sensory memory received and loaded information in a relatively crude form i.e. without preparation or treatment and the short memory retained it for no more than 30 seconds and in contrary to the sensory memory, information in the short term memory was subjected to preparation and treatment in respect of comparing and changing its order or regulation. The short term memory had limited capacity defined within periods and the long term memory was the most important component of the system of treatment of information and types of education and thought that has been re-worded and re-treated and it stood behind all strategic and cognitive conservation, retention, remembering and thinking processes (10 : 331-379).

As for the educational purpose was to teach diving shot skill in handball that has been decided on the prep school and to learn the skill, it needs a level of perception and coordination between the shot and diving movements and using the theory of consistency of content may lead to achieve the goal of teaching the diving shot skill in handball and that agreed with Esam Abdel Khaleq (1990) and Ahmed Amin Fawzi (1992) that the skill meant that the ability of the individual to recognize the complex kinetic perception easily and precisely and to respond

quickly to varied situations to score the best result (10: 177) (2: 309).

The researcher believes that when the girl masters the diving shot skill especially in handball that means giving a chance to shoot the ball from the throwing position toward the circle where the girl is able to shoot the ball easily to score a goal in the opposing team that needs the girl to master the diving shot skill as one of the handball skills and as the skill is one of the courses of teaching handball for 2nd grade in prep stage indicating that the diving shot skill is important and without mastering the shot skill, the performance of the other skills in fact will be useless.

Therefore, the current investigation is important in assisting girls learn the diving shot skill in handball, use all the girl's senses to recognize minutes and details of movement and increase the girl's understand the performance leading to enrich her motivation toward the best performance and hence, the girl learns quickly and masters the diving shot in handball. The researcher noticed that despite technical and cognitive development in the field of teaching and the importance of the diving shot skill in handball, teaching this skill still has been done traditionally with the result that lots of mistakes have accompanied with the skill performance. Added to this researchers have not enough considered such skill in respect of methods of teaching particularly the theory of content consistency. From this point of view the research problem became clear and represented by identifying the effect of applying the theory of content consistency on teaching the diving shot skill in handball for the prep school.

Research objective:

The purpose of the current investigation was to identify the effect of applying the theory of content consistency with regular random and merged methods on teaching diving shot skill in handball for the prep school.

Research hypotheses:

- 1- There are significant differences between mean of scores of diving shot skill in handball by using regular random and merge teaching in gaining and retention phase in favor of teaching by merge method followed by regular and random methods.
- 2- There are significant differences between mean of scores of the level of diving shot skill in handball by using regular random and merge teaching in transition thinking and remembering phase in favor of merge teaching followed by random and regular teaching.

Research procedures:**I. Method:**

The researcher used the experimental method for suiting the nature of the current investigation by pre and post-measurement to three experimental groups that the 1st experimental group was subjected to regular education, the 2nd experimental group was taught randomly and the 3rd experimental group was taught by merging regular and random methods of teaching.

II. Research people:

They were chosen intentionally and represented by girls in the 2nd prep grade at Al-Ahramat School, Giza. They were (5) classrooms including (65) girls in 2012/2013 school year.

III. Sample:

- Three classrooms were randomly selected from classrooms of the research people and were divided as follows:
- The 1st group (grade 1) of (15) girls and was subjected to regular teaching.
- The 2nd group (grade 2) of (15) girls and was subjected to random teaching.
- The 3rd group (grade 3) of (15) girls and was subjected to merge teaching (regular and random merge teaching).
- The researcher applied pilot studies to the remaining (30) girls constituting the research pilot sample. The research sample homogeneity was carried out in age, height and weight variables. Table (1) illustrates arithmetic means and skewness coefficients for the three experimental groups. Meanwhile, the regular and the random and the merged teaching groups were equalized and the researcher considered their measurements as a pre-measurement for the three groups as stated in Table (2).

Table (1)
Homogeneity of age, height and weight (n=45)

Variables	Measuring unit	Arithmetic mean	Standard deviation	Median	Skewness
Age	Year	14.11	0.37	14.00	0.83
Height	Cm	142.20	6.35	141.20	0.47
Weight	kg	43.67	8.44	43.76	-0.02

Data in Table (1) illustrate that the skewness coefficient of age, height and weight variables ranges between (-0.02 and 0.83) and such values lay between (± 3) and under the normal curve indicating that the research sample was homogeneous.

Table (2)
Analysis of variance between the pre-measurements of regular random and merged teaching groups in diving shot test under investigation

Tests	S.V	SS	DF	MS	Computed (F)
Diving shot	Between groups	8.24	2	4.13	0.78
	Within groups	223.44	42	5.32	

Tabulated (F) at 0.05 significance level and (2:42) degree of freedom =3.22

Data in Table (2) show that there is no significant difference between the pre-measurements of the experimental groups representing regular random and merged teaching methods in test of diving shot under investigation as the value of computed (F) is less than that of the tabulated at (0.05) level of significance and (2:42) degree of freedom indicating that the research groups were equivalent in diving shot test.

Tools of collecting data:

1. Medical balance to measure weight in (kg).

2. Restameter to measure height in (cm).
3. Test of diving shot skill in handball (Attachment 1):
Through the researcher's referential frame, she selected the test of diving shot skill in handball (Attachment 1).
4. A judgment committee to evaluate the level of performance and to apply the post-measurement. The committee consisted of 3 members of the handball experienced school teachers.

- The diving shot skill was evaluated in respect of the level of performance of the action and the number of correct performance in the test and the average of the sum of the two scores was calculated to represent the final score of the test.

Application of the research tools:

Pilot study:

The researcher carried out the pilot study on purpose to find out scientific coefficients of the diving shot skill test

representing validity and stability on the pilot sample of (30) girls from the research people but out of the main research sample from 15/1/2012 to 18/1/2012 as follows:

I. Validity:

The researcher used the validity of differentiation through the terminal comparing method on the pilot sample of (20) girls from the research people and out of the main research sample. The low and high quartiles that have been compared by using (t) test to find out the difference between them.

Table (3)

Statistical treatment to show validity of the test of diving shot skill under investigation (N=30)

variables Tests	Measurement unit	Low quartile		High quartile		Differences	T value
		M	SD	M	SD		
Diving shot	No.	4.28	2.44	8.00	2.54	-4.28	3.36*

*Tabulated (T) value at (0.05) level of confidence = 2.04

Data in Table (3) clarify that there is a statistically significant difference between the low and high quartiles in the diving shot test under investigation as the computed (T) value is higher than that of the tabulated at (0.05) level of significance indicating that the diving shot test under investigation was valid.

II. Stability

The researcher used the method of test and re-test on the pilot research sample provided that

the test and re-test should be done in 3 days interval from 15/1/2012 to 18/1/2012 and the sample included (30) girls who have been used to find out the validity coefficient. Pearson's correlation coefficient was found to outline the stability of the diving shot test under investigation.

Table (4)

Statistical treatments to outline stability of tests under investigation (n=30)

Variables Tests	Measurement unit	1 st application		2 nd application		Differences	Correlation Coefficient
		M	SD	M	SD		
Diving shot	No.	4.28	2.44	4.10	2.37	0.18	0.88

*The value of correlation coefficient at (0.05) level of significance =0.444

Data in Table (4) show that there is a significant correlation between the 1st and the 2nd measurements of the diving shot test under investigation as the correlation coefficient is (0.88) that is higher than that of the tabulated indicating that the diving shot test was stable.

Application of the suggested program:

After the regular random and merged groups have been outlined to teach the diving shot skill in handball under investigation the work was organized for the 3 groups as follows:

- The researcher explained the skill to each group in time of teaching outlined for each group to learn the skill in acquisition and retention phase.

- Three areas were defined in the playfield and those were middle right and left the free areas to carry out the skill under investigation.
- The girl performed the skill (3) times from the assigned area as a group and repeated it (4) times i.e. (3x4=12 times) in each area.
- The sum of the trials to repeat the skill in all areas was (12x3=36 trials).

Carrying out the program for the three research groups:

I. Regular teaching group:

- Acquisition and retention phase:
Each girls was given (36) trials regularly as requested from the girl without changing the

position. Those trials were divided into (3) parts and each part contained (3) groups given (4) trials each i.e. (3x4= 12 trials) and that each wrong trial was to be repeated directly followed by the measurement of this phase i.e. the acquisition and retention phase.

- **Rest phase**
Each girl was given 2 days rest.
- **Transition thinking and remembering phase**
Each girls was given (27) trials regularly without changing the position and those trials were divided into (3) parts and each part contained (3) groups given (3) trials each i.e. (3x3 = 9 trials) in each part provided that each wrong trial should be repeated directly and then the measurement of such phase represented the transition thinking and remembering.

II. Random teaching group:

- **Acquisition and retention phase**
Each girls was given (36) trials that (4) groups performed given (3) trials each i.e. (4x3 = 12 trials) from a position like the right of the free area then moving to the 2nd area like the middle of the free area where the girls should perform what she have done in the right area and moving to the 3rd area like the left of the free area where the girl should perform what she have done in the right area and the girl should repeat the wrong trial at once. Finely, the measurement was taken to represent acquisition and retention phase.
- **Rest phase**
The girl was given 2days rest.

- **Transition thinking and remembering phase**
After the 2 days rest from the end of transition thinking and remembering, each girl was given (27) trials in the transition thinking and remembering phase with (3) trials at each position that should be repeated (3) times without repetition of the wrong trial. The measurement was done half an hour from the end of the (27) trials.

III. The merged group:

- **Acquisition and retention phase**
Each girl was given (36) trials as in the above two groups as in the following order: (4) groups containing (3) trials each i.e. (4x3= 12 trials) from each position on the right middle and left of the free area that have been previously outlined provided that each wrong trial should be repeated at once in the acquisition and retention phase and then the measurement should be done for this phase.
- **Rest phase:**
Girls were given 2days rest.
- **Transition thinking and remembering phase:**
After 2 days from the end of the acquisition and retention phase, each girl was given (27) trials in the transition thinking and remembering phase with (3) trials from each position and repeated (3) times provided that each wrong trial should be repeated at once and the measurement of this phase should be done after the end of the (27) trials.

Table (5)

Steps of carrying out the current investigation

Skill	Group	Acquisition and retention	Measurement	Rest	Transition and thinking	Rest	Measurement
Diving shot	Regular teaching	36 trials	Measurement of the phase	2 days	27 trials	30 min.	Direct measurement
	Random teaching	36 trials			27 trials		After ½ an hour
	Merged teaching	36 trials			27 trials		Direct measurement

Main experiment:

The researcher applied the research main experiment to the research sample for each group on the playfields at Al-Ahramat School, Giza with effect from 21/2/2012 to 5/4/2012 for six weeks by two lessons a week.

Post-measurements:

They were conducted in the period from 8/4/2012 to 11/4/2012.

Statistical treatments:

The researcher used a pack of social science statistical programs SPSS and used the descriptive statistics viz. arithmetic mean, standard deviation, median and skewness coefficient, Pearson's correlation coefficient, (F) test and percentage of differences.

Presentation and discussion of the results:

I. Presentation of the results:

(a) Differences between mean of scores of the level of diving shot by using regular random and merged teaching in acquisition and retention phase.

Table (6)

Analysis of variance between mean of scores of the level of diving shot by using regular random and merged teaching in acquisition and retention phase
n1=n2=n3=15

Tests	S.V	SS	DF	MS	Computed (F)
Diving shot	Between groups	60.38	2	30.16	9.93*
	Within groups	127.72	42	3.04	

Tabulated (F) at 0.05 significance level and (2:42) degree of freedom =3.22

Data in Table (6) illustrate that there are significant differences between the post-measurements of the three experimental groups representing regular random and merged teaching in the test of diving shot under investigation in acquisition and retention phase as the

computed (F) value is higher than that of the tabulated at (0.05) level of significance and (2:42) degree of freedom indicating that individual comparison between means of measurements should be conducted to identify the trend of differences by using Tokey's method.

Table (7)

Trend of differences between the post-measurements of the research groups in the diving shot test in acquisition and retention phase by using Tokey's the most significant valid difference

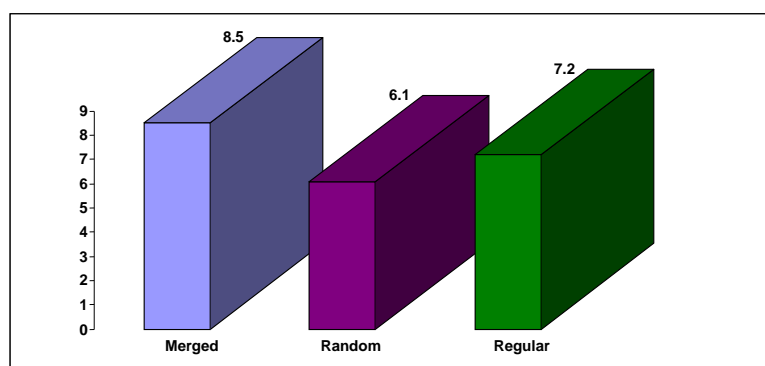
Tests	Groups	M	Regular	Random	Merged	Tokey
Diving shot	Regular	7.20	-	1.10*	1.40*	0.41
	Random	6.10		-	2.40*	
	Merged	8.50			-	

Data in Table (7) indicate that there are significant differences between means of the post-measurements of the experimental groups representing regular random and merged teaching to teach diving shot in acquisition and retention phase in favor of the 3rd experimental group used

the merged method followed by the 1st experimental group used the regular method and the 2nd experimental group used the random teaching method. Fig. (1) illustrates differences between groups.

Figure. (1)

Differences between means of the post-measurements of the experimental groups representing regular random and merged method to teach diving shot in acquisition and retention phase.



(b) Differences between mean of scores of the level of diving shot in handball by using

regular random and merged teaching in transition thinking and remembering phase.

Table (8)

Analysis of variance between mean of scores of the level of diving shot skill by using regular random and merged teaching in transition thinking and remembering phase

$$n_1=n_2=n_3=15$$

Tests	S.V	SS	DF	MS	Computed (F)
Diving shot	Between groups	69.67	2	34.84	11.31*
	Within groups	129.47	42	3.08	

Tabulated (F) at 0.05 significance level and (2:42) degree of freedom =3.22

Data in Table (8) demonstrate that there are significant differences between the post-measurements of the experimental groups representing regular random and merged teaching in the diving shot test under investigation in transition thinking and remembering phase as the

computed (F) value is higher than that of the tabulated at (0.05) level of significance and (2:42) degree of freedom in favor of the post-measurement, consequently, it is necessary to compare means of measurements to know the trend of differences by using Tokey's method.

Table (9)

Trend of differences between the post-measurements of the research groups in the diving shot test in handball in the transition thinking and remembering phase by using Tokey's most significant valid difference method

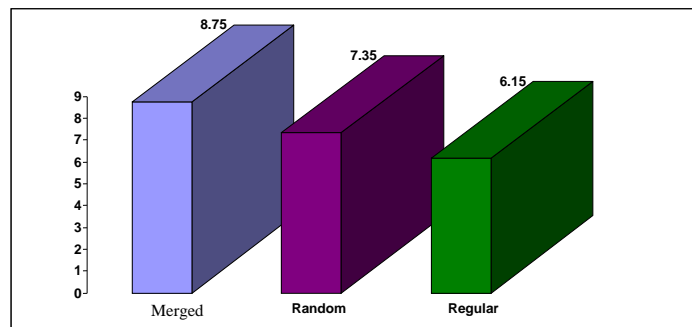
Tests	Groups	M	Regular	Random	Merged	Tokey
Diving shot	Regular	6.15	-	1.20*	2.60*	0.55
	Random	7.35		-	1.40*	
	Merged	8.75			-	

Data in Table (9) show that there are significant differences between means of the post-measurements of the experimental groups representing regular random and merged teaching methods to teach diving shot in the transition thinking and remembering phase. The

differences are in favor of the 3rd experimental group used the merged method followed by the 2nd experimental group used the random method and the 1st experimental group used the regular method. Fig. (2) illustrates differences between groups.

Figure. (2):

Illustrate differences between the post-measurements of the experimental groups representing regular random and merged teaching methods to teach the diving shot skill in the transition thinking and remembering phase.



II. Discussion of the results:

Differences between the regular random and merged methods in the acquisition and retention phase.

There were significant differences between regular random and merged teaching in the acquisition and retention phase in favor of the merged teaching followed by the regular and random methods. The researcher related such results to the repetition of the skill that has been taught by the regular and random methods for a number of 36 trials for each girl and teaching was quick and it was easy to learn the skill during the acquisition, retention and merge phase. The repetition of trials of the same skill led to originate feedback in girls and acquire them the skills under investigation. Correcting errors and performance motor paths led to increase motor-sense recognition in girls and acquire them the diving shot skill quickly.

These results were in agreement with those of Abdel Aziz Al-Mostafa (1992)⁽⁹⁾, Said Ali Mohamed Al-Hemdan (2003)⁽⁶⁾, Abdel Hamid Al-Amir (2003)⁽⁸⁾, Ibrahim Khallaf and Mohamed Abdel Razeq (2005)⁽¹⁾.

Lateness of the random teaching group in the acquisition and retention phase was because girls did not use the feedback due to tabulation of teaching that has not given the chance to the girl to make use of the feedback of the skill that has been taught due to lack of the repetition of the wrong trial leading to lower the level of performance in the acquisition and retention phase.

These results were in harmony with those of Abdel Aziz Al-Mostafa (1992)⁽⁹⁾, Abdel Hamid Al-Amir (2003)⁽⁸⁾, Ibrahim Khallaf and Mohamed Abdel Razeq (2005)⁽¹⁾.

The results were high in the acquisition and retention phase supporting the validity of the theory of consistency of content that learning skills needs experiences and knowledge to assist teaching and training process and that confirms the validity of the 1st hypothesis stating "there are significant differences between mean of scores of the level of diving shot in handball by using regular random and merged teaching in the acquisition and retention phase in favor of the merged method followed by regular and random methods".

Differences between regular random and merged teaching in the transition thinking and remembering phase.

There were significant differences between regular random and merged teaching in the transition thinking and remembering phase in favor of merged teaching followed by random and regular teaching. The researcher related such results to the theory of consistency of content with its regular random and merged branches that have high consistency of content and that the girl in handball by regular teaching in the acquisition and retention phase was able to learn the diving shot skill. This was in contrast to what happened to the random teaching group of understanding that has been learnt during the diving shot skill in handball in the transition thinking and remembering that affected the girl's ability within this group to learn the diving shot skill, consequently, girls in the random teaching group were superior to girls in the regular teaching group in the transition thinking and remembering phase.

Such results agreed with those of Abdel Aziz Al-Mostafa (1992)⁽⁸⁾, Said Ali Mohamed Al-Hemdan (2003)⁽⁶⁾, Abdel Hamid Al-Amir (2003)⁽⁸⁾, Ibrahim Khallaf and Mohamed Abdel Razeq (2005)⁽¹⁾ and that confirms the validity of the 2nd hypothesis stating "there are significant differences between mean scores of the level of the diving shot skill in handball by using regular random and merged teaching in the transition thinking and remembering phase in favor of the merged method followed by random and regular methods".

Conclusions:

In the light of the research results and in the limits of the sample, the researcher concluded the following:

- The merged learning method by using the theory of consistency of content had more positive effect on developing the diving shot skill in handball in the transition and acquisition phases than the regular and random learning methods.
- The regular learning method by using the theory of consistency of content had more positive effect on developing the diving shot skill in handball in the acquisition and retention phase than the random learning method.
- The random learning method by using the theory of consistency of content had more positive effect on developing the diving shot skill in handball in the transition thinking and remembering than the regular learning method.

Recommendations:

In the light of the research results, the researcher recommended the following:

- Using the theory of consistency of content on teaching the diving shot skill in handball.
- The merged, regular and random learning methods should be considered on tabulating teaching skills in handball for prep school girls.
- Similar studies should be conducted on the other handball skills.
- Similar studies should be conducted on different physical activities.

References

1. Ibrahim Khallaf Abo-Zeid and Mohamed Ahmed Abdel Razeq (2005): Effect of applying the theory of consistency of content on learning some essential and merged skills in football. Scientific Journal of Researches and Studies in Physical Education, No. (11), Faculty of Physical Education, Port Said, Suez Canal University.
2. Amin Anwar Al-Kholi and Osama Kamel Rateb (2007): Theories and Programs of Motor Education for Children, Cairo, Dar Al-Fekr Al-Arabi.
3. Stewart H. Halls *et al* (1993): Psychology of Learning, translated by Fowad Abo-Hatab, Amal Al-Sadeq and Abdel Aziz Al-Quadahi, International Publication and Distribution House, Cairo.
4. Said Ali Mohamed Al-Hemdan (2003): Application of the theory of overlapping content and merge training and its effect on learning a motor skill in simple mental retardants, M. Sc. Thesis (unpublished), King Saud University, KSA.
5. Abdel Hamid Bin Abdullah Alamir (2003): Effect of the type of training to teach service skills in volleyball by applying the theory of consistency of content. Scientific Journal of Researches and Studies in Physical Education, No. (6), Faculty of Physical Education, Port Said, Suez Canal University.
6. Abdel Aziz Abdel Karim Al Mostafa (1992): Learning shooting skill in football in the light of the theory of overlapping contents (applied study). Journal of Physical Education Researches, Assiut, Assiut University.
7. Essam Abdel Khaleq (1990): Physical Training, Theories and Applications. 6th ed., Dar Al-Maaref, Alexandria.
8. Mohamed Hussam Gharib (2009): Sports Psychology, Al-Nagaf, Al-Dhbaa House.
9. Al-Ameer & Toole, T. (1993). Combination of blockek and andom practice order : Benefits to acquisition and Retention. Journal of Human movement Studies, 25: 177-191
10. Charman, Dan; Elmes, Andy (1995): A Computer Based Fomative Asssesment strategy for Basic statistics Module in Geogrphy, Journal of Geography in Higher Education, Vol., 22, issue 3, P 381.
11. Joe Whelton (1998) Step by Step ball skills, English Basket ball association
12. Moto learning-peermentery versus comping models the influence on chil 2006.3-30

