

## Effects of video modeling on skill acquisition in learning the handball shoot

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### ABSTRACT

*The purpose of this study was to determine the effects of video modeling on skill acquisition in learning the handball shoot. Sixty girl students (age mean 16/34 years) participated in this study. All participants were pretested to determine initial skill level. Participants have no experiences in handball shoot. Each participant was randomly assigned to one of two groups: 1) Traditional group (control) learned this skill via teacher instructions. 2) Experimental group viewed a film demonstration for 20 minutes and teacher instruction. The demonstration was performed by professional players. After 5 weeks of film viewing, practice and class instruction, participants were analyzed to determine the level of improvement by Johnson test and power test. T-test analyzing information indicated significant within group pretest to posttest differences ( $p < .05$ ). Experimental group significantly were better than traditional group in shoot carefulness and angle test, but there were no significant differences in power test. 5-weeks Video modeling significantly improved the accuracy in handball shot. Furthermore, the finding showed no effect in shoot power. Then video modeling may not be associated with muscle strength.*

**Keywords:** Video Modeling, Traditional Method, Skill Acquisition.

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### INTRODUCTION

The theorists and ideologists of modern education disagree with the previous definitions of teaching as conveying knowledge and see teaching as making complex and difficult subjects understood by students. One of the techniques which are used to solve this complexity is the educational technology.

Employing educational technology in one of the educational centers has been able to reduce teaching time of individuals up to 28%. In addition, using those techniques and procedures has been able to elevate education in quantity terms and more educational subjects could be taught in shorter time.

Film and video is one of the educational equipment. Giving patterns and observation learning is one of the most important methods in achieving behavioral changes and acquiring new kinetic skills [1, 2 and 3]. In the course of observation, the trainee acquires spatial and time information on kinetic skills in a selective way. Those observations take mental image forms and are used as cognitive sources for performance [2]. The kinetic skills improve through imaging strategy as it is one of the important aspects of learning [4, 5]. Video modeling has been introduced as one of the most effective method of teaching amateur mountain climbers. Maryam Cheshmeh et al (2009) in a research

titled as “Comparing the Effects of Video Modeling and Verbal Training on Disc and Hammer Throw” showed that the video group’s performance was better than the other group [6].

Maleki (2010) showed that there was a significant difference between the three groups regarding the acquisition test in. They were randomly assigned to three groups: 1: Actual model observation group (AOG), 2: Actual model observation and verbal description group (AOVG), 3: Animated model observation and verbal description group (AONG) However, there was no significant difference among the three groups regarding the retention test. Our findings revealed that observation of model with verbal teaching improves learning of the handstand skill, while observation without verbal description has no effect on learning the skills [7].

Hougs & Franc (2002) introduced video as one of the strategic methods [8].

The general effect of film could be observed in its combined and compound model; that is, live teacher’s training and TV teaching. The procedure is that the teacher introduces film to the students thoroughly and shows a part or all of it for more than once [9]. Wendt & Butts (1962) in the effects of films show that films could be broadcasted for many times to teach physical skills. Of course, teacher should have a precise perception of principle of skills in order to present an effective and suitable model [3].

Using video model giving is one of the most common and effective methods in kinetic and physical education training; for, various techniques could be seen from different angles and by instructors help, the trainee will be able to analyze those movements thoroughly. Morrison & Reeve (2004) concluded that video education had higher score in analysis of kinetic skills compared to traditional verbal training [10]. The exhibition presented through giving models in video is used as a perceptive source in performances evaluation [11]. By using this source and frequent watching of model, the problem solution process takes place and kinetic learning becomes more feasible [4, 12].

Reo & Merer (2002) compared three groups who had been trained for upper body movements in video model, live performance model and written model methods. The results showed that there is no difference between video and live models; however, the performance of both groups was better than the written model [13].

Regarding employing this method in sports, Bacy, Christina and Shafter (1990) achieved this result that the precision of back line players increased through watching video exhibition but the video had no effects on speed of players’ respond. Barges (1984) showed that prediction performance of baseball player improved after frequent watching of film. Haskins & Di (1980) showed an increase in precision in predicting tennis ball landing after watching 10 sessions. Other researches agreed on positive effects of video processes in improving sports skills [13, 14], Football [15], tennis [16], gymnastic [17], gulf [18] and volleyball [19].

Some researches go beyond that stage and measure the effects of video model giving on post distance remembering tests. Among studies that evaluated the abilities of teachers in teaching and application in teaching, one may note that remembering test that was performed after one year and showed that video model giving was effective in helping instructor even in remembering terms [20].

The goal of this research is to compare combined education methods (teaching by video modeling and instructor) and the traditional teaching (by teacher).

## MATERIALS AND METHODS

The statistical society of this research consist 400 female students of second and third grade of high school in district 17 of Tehran in 16.34 years old average range. By completing the questionnaires it was showed that the subjects had no records of being taught handball sports field. 60 subjects were selected at random and were put in two groups of traditional and combined education methods groups.

The independent variable in the research is teaching three steps handball shooting by combined method (teacher and video) and the traditional or verbal method (by teacher). The dependent variable is degree of learning shoot skills in angle and power of shoot. Age, school, gender, sports records and teaching methods of instructor have been controlled. After assuring the homogeneity of groups by pre-tests, the plan was performed for one month, once per week according to education ministry’s plan. The skillful performance of player was shown in video tape at the

beginning of session for 20 minutes. At the discretion of instructor and request of students, some parts were shown again and in necessary cases, the slow motion technique was used as well. Instructor's teaching, giving necessary explanations and live performance of instructor were performed in the beginning of class. The teaching time of both groups was maintained at 90 minutes per session. Johnson's precision test, angle test and Cornish handball test were used as post-test/

The mean average and standard deviation in pre-test and post-test were obtained in precision, angle and power (Table 1). The hypothesis was tested in  $\alpha=0/5$  and with independent and dependent "t" student.

## RESULTS

### Research Results and Findings:

1- In pre tests, there is no significantly different between control and experimental groups in the three pre tests (Table 1).

**Table 1: Comparison control and experimental groups in angle, precision and shooting power tests**

TEST	GROUP	N	MEAN	S.D	SIG	CALCULATED t	TABLE t	DF
ANGLE	CONTROL	30	10/97	4/94	0/89	2/003	0/13	58
	EXPERIMENT	30	10/83	2/49				
PRECISION	CONTROL	30	3/37	3/37	0/100	-2/003	-1/67	58
	EXPERIMENT	30	3/11	3/11				
POWER	CONTROL	30	43/03	43/03	0/945	-2/003	-0/7	58
	EXPERIMENT	30	31/96	31/96				

By analyzing the independent and dependent "t" student in  $\alpha=0/5$ , following results was obtained:

2- Control and experimental groups had significant differences in the shooting angle; therefore, the traditional and combined teaching methods were effective (Table 2).

**Table 2: Comparison pre and post test of control and experimental group in shooting angle test**

GROUP	INDEX	N	MEAN	S.D	SIG	FD	TABLE t	CALCULATED t
CONTROL	PRE-	30	10/73	3/373	0/32	29	2/04	2/25
	POST	30	12/33	2/783				
EXPERIMENTAL	PRE-	30	13/13	3/115	0/00	29	2/04	4/44
	POST	30	16/93	4/185				

3- There is significant different between two groups, then combined groups are more effectiveness than control group (Table 3).

**Table 3: The post tests comparison of control and experimental groups in shoot angle test**

GROUP	INDEX	NUMBER	MEAN	S.D	SIG	FD	TABLE t	CALCULATED t
CONTROL	POST-TEST	30	13/40	5/43	0/00	58	2/003	2/381
EXPERIMENTAL	POST-TEST	30	16/73	5/5				

4. This table showed there are significant differences in shooting precision test between two groups. Therefore, the traditional and combined methods have been effective (Table 4).

**Table 4: Comparison of pre-test and post-test of control and experimental group in shooting precision tests**

GROUP	INDEX	NUMBER	MEAN	S.D	SIG	FD	TABLE t	CALCULATED t
CONTROL	PRE-TEST	30	10.73	3.373	0.32	29	2.04	2.25
	POST-TEST	30	12.33	2.783				
EXPERIMENTAL	PRE-TEST	30	13.13	3.115	0.00	29	2.04	4.44
	POST-TEST	30	16.93	4.185				

5. The mean post test of experimental group is more than mean average of post-test of control group in shooting precision; therefore, the combined training method is More effective (Table 5).

**Table 5: Comparison of control and experimental groups post-test in shooting precision test**

GROUPS	INDEX	NUMBER	MEAN	S.D	SIG	FD	TABLE t	CALCULATED t
CONTROL	POST-TEST	30	12.33	2.873	0.00	58	2.003	5.01
EXPERIMENTAL	POST-TEST	30	16.93	4.185				

6. Mean pre-test and post –test of control and experimental groups shows no significant differences in shooting power test; therefore, the traditional and combined method was not effective and could not cause progress (table 6).

**Table 6: The pre-test and post-test comparison of control and experimental groups in shooting power test**

GROUP	INDEX	NUMBER	MEAN	S.D	SIG	FD	TABLE t	CALCULATED t
CONTROL	PRE-TEST	30	315.33	43.05	0.508	29	3.04	0.67
	POST-TEST	30	317.67	38.83				
EXPERIMENTAL	PRE-TEST	30	318	31.883	0.158	29	2.04	1.45
	POST-TEST	30	323	33.026				

7. Mean post –test of control and experimental groups shows no significant differences in shooting power test; therefore, the traditional and combined method was not effective in increasing shooting power (table 7).

**Table 7: Comparison of control and experimental groups post-test in shooting power test**

GROUP	INDEX	NUMBER	MEAN	S.D	SIG	FD	TABLE t	CALCULATED t
CONTROL	POST-TEST	30	317.67	38.835	0.548	58	2.003	0.6
EXPERIMENTAL	POST-TEST	30	323	33.562				

## DISCUSSION

The results of this study showed that traditional method is effective in teaching precision in handball shooting skills; however, when the video training is used as well, the educational benefit will increase. Using educational equipment in general and video exhibition Film exhibition shows better, deeper and more durable learning.

Model giving is one of the most suitable and effective methods of education in physical education course. The model gives information to the learner on what there should be exhibited [11]. This information is used as a perceptive source through which source; a person could compare the model and his own performance and solve the problem. Acquiring sports skill is in fact a problem solving process. In order to ease the problem solving, the model should be shown frequency [4, 12].

One of the responsibilities of instructor and teacher in sports education class is to help student in achieving concerned technique. Therefore, instructor should have a full and initial perception of technique and in next stage; he could exhibit it as well. Film is one of the monitoring methods that have positive effects in acquiring and performance [3].

When watching film, the student is exposed to large amount of information and the teacher/instructor should point out concerned issues. Therefore, in order to dominate the excessive information load, Schmidt and Reedsburg (2004) have offered labeling technique to draw the attention. Labeling for attention is to present verbal sign in visual shows. In another word, giving direction to sight, concentration and attention of learner towards concerned point. For example, in handball shoot, the learner's attention is drawn to the model shooter's leg [21].

In this study, the combined method (verbal teaching and exhibiting film along with notes and remarks of instructor or teacher) provided more effective results than traditional method (verbal training) in shooting precision test. Those results are agreement with Ayati research [9].

The findings of this research on effective factors in showing films in various educational areas are in agreement with researches conducted by Hugo and Frank (2002)[8], Porta (1998)[22].

Among researches performed on sports that shows the results of this research on effects on efficiency increase of player, one may note: Boier et al (2009)[17], Cheshmeh (2009)[6], Xavier and Nicolas (2009)[5], Akin and Tekalb (20003)[15], Zetou et al (2002)[19], Gudangoli et al (2002)[18], wicks and Anderson (2000)[14].

Another result of this research is no effects of exhibiting films on increase in shooting power. Showing films for players for using proper technique would increase power; however, the increase is not significant. Increase in power is due to physiologic changes of tissues, Nero-systems and vessels and those changes require more than 4 sessions exercise plan. In this connection, Fox and Matios report that muscle power is obtained with maximum pressure against net resistance and the muscle power could be increased in 8-12 sessions significantly by undertaking a resistance exercise plan with weighs. Therefore, with respect to the existing information and results of this research, presenting a video model has no effects in increase in power.

### CONCLUSION

Our findings reveal that all two types of observational training result in improvement in subjects' performance in the acquisition phases. The results of study show that there is a significant difference between groups, as this difference was significant between the combined training group and the other group in shooting angle and accuracy. But there is no significant difference between 2 groups in shooting power.

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