

Comparison of Three Methods of Practice on the Learning of Volleyball Basic Skills in School Boys

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Abstract: The present study compared three methods of practice: blocked practice, random and blocked - random to learn volleyball basic skills. The statistical population of the study consisted of Isfahan school boys aged 12 -14 who were registered in Volleyball Training Center in the year 2010. Five centers including 210 subjects were selected randomly and in an equal way stayed in the three training groups. They were trained for 2 months with 12 sessions in each month. Blocked practice group practiced just one skill in both sessions of the first month and one skill in each session of the second month. Random practice group practiced two skills in each session of the first month and three skills in each session of the second month. Blocked-random practice group practiced just one skill in both sessions of the first month and three skills in each session of the second month. For the statistical analysis, one-way variance and a portion test were used. The results showed that the difference between the mean scores of the participants is just meaningful in waterfall test, ($p \leq 0.05$). Blocked - random practice compared to blocked and random practice compared to blocked were more effective in learning these skills. It can be proposed volleyball coaches use blocked-random and random practice in the training of spike skills to the beginners.

Keys words: Blocked practice • Random practice • Volleyball basic skills

INTRODUCTION

Training is essential for learning and better performing of movable skills [1]. Exercise increases performance and accuracy or reduces errors, increases compliance flexibility to prepare desired function and reduces the attention of performance [2].

Some coaches are interested in the increase of exercise training time rather than effectiveness of exercise training. Time of practice is not the most important factor in planning training program and the quality of practice should be considered [3]. Different methods of training of learning and its sensitivity to movable skills somehow make systematic methods of learning and teaching in a classroom with a limited capacity and possibly change it to a different and unlimited class with amazing greeting of children, adolescents and adults and vice versa. It is

possible that improper exercise technique be based on personal tastes. This would prevent learners from learning and selecting a certain field [4]. It should be organized to improve practice. Several ways of organizing practice are suggested but it is difficult to understand how they affect each other and how they affect learning [5]. However, the selection of a preferred method of practicing and using it instead of others may depend on the kinds of skills, time available for training, the purpose of activity, the level of skill, the intelligence of acquirer, skill and complexity of skills [5].

Qualifications are based on stability of environment and skills are performed and divided in two groups: open skills and close skills. Close skills are the ones that have a stable environment from the beginning to the end of the performance and the elements of time and space of each work are fixed, but in an open skill the environment is

variable and the elements of time and space for the performance of each implementation vary. Another important case is the complexity and organization of the skill. The organization of skill refers to the internal communication of skills' element but the complexity refers to the skills needed for processing of information [6]. A variety of skills is the reason for a variety of training methods. Training can be organized in various forms. Variability in practice should be taken into consideration in the training organization; this variability refers to a variety of environmental features that students experience during the practice of skills [5]. One of the important expectations in the Schmidt's schema theory is that the successful performance of a skill depends on the amount of variability of practice [7, 8]. According to this theory training can be designed in a way that people be able to experience different situations in practice. If a person practices repeatedly only a particular skill, the low variability of practice, the blocked training will be done, but if he practices the skill in different conditions, random practice will be done [3]. When a person exercises only a certain skill, a little background interference is done, but when he practices a few skills then a lot of background interference is done. Battig [9] used background interference as naming interference in 1979 and this term was applied to the practice of a task in a practical situation. Mostly background interference is seen as a negative factor, but background implied that the low contextual interference led to better training but high background interference led to better retention and transition [4]. Two hypotheses have been proposed for background interference. Shea and Morgan [10] developed Elaboration hypothesis in the way that an athlete during the random practice is involved in many and varied strategies and because a person keeps all changes of skills in the active memory, he can compare them together in a way that they are distinguished from each other. The result of engaging in the cognitive activities during training is memory representation that is available in the test. The action plan reconstruction hypothesis of Magil and Lee (1984) stated that background interference is beneficial for learning because it induces the person to create specific changes in skills and in an effort in order to reconstruct the action plan [11]. To reconstruct is essential because the action plan of prior action to the change of this skill because of intervention efforts is generally or we can say partially forgotten, but a person who follows a blocked practice program can use that action plan from the previous attempts without even a partial change. This hypothesis

is also called Forgetting or Spacing hypothesis and its meaning is stated in the Forgetting hypothesis, although there is a lot of background interference in the random exercise that caused decreasing performance in the step of learning process and improving performance in the step of retention process, what makes learning better is the process of making forgetting reproducible. A person forgets the way of movement in the random practice and has to remember that again, but we don't have such a situation in the blocked practice [4]. According to the results of the studies that have been done both in an experimental conditions [12-18] and real conditions [19-26]. Random practice causes better learning, although some of the persons could not certify this subject [26-30]. According to the results of some of the studies, a little blocked practice for the beginning of skill's practice is better, because under this situation a person can acquire a framework of that particular skill [3] and using a combination method, blocked-random method is more useful than random method in the process of learning [31-33] but it was not certified by some person's study [34]. The aim of this study reviewed of priority blocked-random practice than random or blocked practice on volleyball skills learning. This study was semi experimental and it was a field work.

M,ATERIALS AND METHODS

Sample Preparation: The population of this research included a sample of 12-14 years old boys who registered in 10 volleyball learning institutes in Isfahan in 2010 among whom five centers were selected randomly by cluster analysis. The study sample included 210 people who practiced in these centers. Subjects were divided into three groups: blocked practice, random practice and blocked-random practice. They were trained for 2 months and practiced for 12 sessions in each month. The blocked practice group practiced only a particular skill in both sessions in the first month and practiced a certain skill in each session of the second month. The random practice group practiced two skills in the first month and three skills in each session of the second month. The performance of the blocked-random practice group in the first month was similar to the blocked practice group and in the second month, similar to the random practice group.

Research Instrument: In this study four AAHPERD Standardized Tests were used (35); these tests have validity, reliability with an acceptable objective for adolescents and young adults.

Finger Test: In this test a rectangle with the length of 5.1 meter and the width of 9.0 meter at a distance of 3.3 meters on the wall was drawn and subjects were asked to throw claws into the rectangle for one minute (35). The numbers of claws that they threw correctly to the target were recorded as points.

Forearm Test: In this test the ball was thrown to the subjects and they had to throw the ball into the goal on their left and right and each ball that entered into the goal area was followed by a single point (35).

Service Test: For this test the land was divided in terms of points, in a way that the side areas of land had more points rather than the middle area. Each subjects performed 10 correct services and the points were calculated (35).

Spike Test: In this test an examiner passed 10 balls to a subject and he must hit a ball in a way that fell in the target area and a point was given just to this actions (33).

Analysis of Data: At first, for the analysis of the data the standard error was calculated because of being clear the difference between taken point and total point, then the groups were compared by F test and portion test was used for meaningful differences.

RESULTS

In response to the first hypothesis, based on differences between the three methods of practice (blocked, random and blocked-random) in learning the skills of claw, results showed that since the amount of $F(F=0.534$ and $P<0.05)$ is less than the critical value of table (3.04), there is not a meaningful difference between three methods of training so we could say that there is not a meaningful difference between the average of the standard error of the training groups (Table 1), so this hypothesis is rejected. The results showed that there is not a meaningful difference between these three methods of practice in forearms' training ($F=1.53$ and $P<0.05$), so the second hypothesis was not confirmed (Table 2). In response to the third hypothesis, based on a significant difference between the three methods of practice (blocked, random and blocked-random) in the learning of services' skill, results indicated that there is not a meaningful difference ($F=2.283$ and $P<0.05$) between these three methods of training (Table 3), so this hypothesis was rejected. In response to the fourth

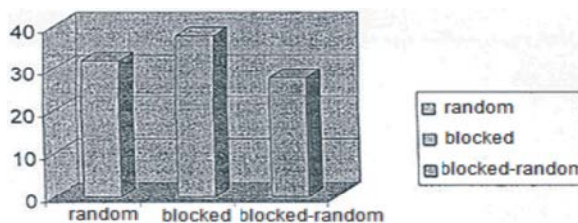


Fig. 1: The comparison of standard error variance of practicing groups in Spikes' skill

hypothesis the results showed since the amount of $F(F=29.298$ and $P<0.05)$ is more than the critical value, there is a meaningful difference between these three methods of practice or even we could say between a mean of standard error of the practicing groups in the learning of waterfalls' skill, so this hypothesis is confirmed (Table 4). Portion test indicated that the comparison of blocked practice and random and also the comparison of blocked practice and blocked-random are meaningful (Table 5). Figure 1 shows that the average error of the blocked practice group was more than the two other groups and the error of the random practice group was also more than blocked-random practice group.

DISCUSSION

The aim of this study was to compare the impact of the three methods of practice on learning the basic skills of volleyball between 12-14 year-old beginner boys. The results showed that the three methods of learning don't have a meaningful difference between beginners in tests of finger, forearm and service. This result is in contrast with some previous studies [36, 37]. Perhaps, we can justify the subject by explaining that these three types of skills have a little complexity and organization and are categorized in the packaged skills, but the training methods have a meaningful difference in a Spike test and the ones who practiced by the method of blocked-random practice played better than two other groups in the spike test which agrees with the findings of many investigators [3, 38, 39] and contradicted with the findings of Han and Shea [23]. It was also marked that a random practice is more effective than blocked practice in the learning of spike that contradicts with the findings of many researches [20, 26, 33, 35, 36] and complies with some finding [9, 14, 16, 17, 18, 21, 22, 23, 24, 28, 34, 36, 37]. The implied interference in the random practice causes a person to have a lot of attention to a practice (39) and also there is a possibility that the expansion and amnesia are the reasons of this significant difference [40].

Table 1: Checking the summary of variances' analysis of comparison of the means of the standards error of blocked, random and blocked-random practicing groups in the fingers' skill

	Means of square	Total square	Degrees of freedom	F	FP
Between-group variance	25.605	51.220	2	0.534	0.587
Within-group variance	47.916	9918.714	207		
Total	73.521	9969.924	209		

Table 2: Checking the summary of variances analysis of comparison of the averages of the standard error of blocked, random and blocked-random practicing groups in forearms skill.

	Means of square	Total square	Degrees of freedom	F	FP
Between-group variance	13.662	27.324	2	1.530	0.210
Within-group variance	8.687	1798.300	207		
Total	227.340	1825.624	209		

Table 3: Checking the summary of variance analysis of comparison of the averages of the standards error of blocked, random and blocked-random practicing groups in services skill.

	Means of square	Total square	Degrees of freedom	F	FP
Between-group variance	74.743	149.486	2	0.105	2.283
Within-group variance	32.746	6778.343	207		
Total	107.489	76927.829	209		

Table 4: Checking the summary of variances' analysis of comparison of the averages of the standards error of blocked-random and blocked-random practicing groups in spikes' skill.

	Means of square	Total square	Degrees of freedom	F	FP
Between-group variance	224.376	448.752	2	29.298	0.00
Within-group variance	7.658	1585.271	207		
Total	301.034	2034.024	209		

Table 5: Checking the meaningfulness of the differences between the averages of practicing groups in Spikes' test

	Blocked practice	Random practice	Blocked-random practice
Blocked practice	-	2.760	3.360
Random practice	-	-	0.60
Blocked-random practice	-	-	-

Finally, it can be proposed that volleyball coaches and sport teachers use blocked-random and random practice in the training of spike skills to the beginners because in this way they are involved in learning process better and also the profit of practice goes up.

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