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The Effectiveness of Mind Simulation on Soccer Skills Training in Adolescents

Hamid Kamarzarin[1*], Mojtaba Bigdeli shamloo[2], Monir Baigi[3]

[1]Assistant Professor in Clinical Psychology, Department of Psychology, Payame Noor University, Tehran, Iran
[2]MA, Department of Psychology, Payame Noor University, Tehran, Iran
[3]MA, Department of Psychology, Payame Noor University, Tehran, Iran.
*Corresponding author

Abstract

Introduction: Today, soccer is the most popular sport in the world and its skills have a fundamental and determining role in it. One of the new approaches to increase soccer skills is a technique based on the mind simulation. **Objectives**: In this study, we aimed to investigate the effectiveness of the mind simulation technique on football skills training in adolescents. **Method**: This study is semi-experimental with a pretest-posttest design with one group. Based on purposeful sampling, 20 adolescents from the football school were selected as the samples. Initially, in the pre-test stage, their skills in football were examined based on the specified criteria, including ball rotation, ball throwing, ball height, goal, and total training score. Then, the football skills were taught to them based on mind simulation technique (Ronaldo's professional station-kick training). In the next step, all skills were reexamined in the post-test stage. The research hypotheses regarding the effectiveness of mind simulation on each given skill were evaluated using Wilcoxon test analysis by SPSS-24 software. **Results**: The scores of these skills in the research group showed a significant increase after teaching Ronaldo's professional station-kicking through the mind simulation technique. In addition, ball rotation, ball height, goal, and total training score showed a significant increase at $P<0.0001$ as well as throwing skill increase at $P<0.005$. **Conclusion**: The results indicated that the use of the mind simulation technique in football skills training can accelerate the training process in a shorter time with higher efficiency.
Keywords: Mind simulation, skill training, football, adolescents, football school

Introduction

In recent years, attention to sports science, physical fitness, and health, as well as its application in championship sports around the world has expanded significantly. Coaches use experts in physiology, nutrition, biomechanics, psychology, and exercise science to increase athletes' skills and performance (AAbbasi, Hovanloo, & Milani, 2018).

Tellwell, Greenls, and Weston (2006) believe that in addition to evaluating outcome goals, process goals are also important in closely monitoring players' athletic performance. What is considered in processing goals is the players' function in applying performance components during the game, which is considered by analysts and sports coaches in evaluating the players' sports performance in a team and also comparing their performance with each other within the team. The components of a player's athletic performance in soccer include proper hitting the ball, ball delivery or ball transfer, and passing the ball accurately (Hughes & Bartlett, 2002).

Today, information and communication technology is an integral part of education, which is widespread. Nowadays, educational systems are looking for new approaches in the face of global changes (Mehtary, 2018). We can reach the information of the human mind with the aid of mind simulation knowledge. Mind simulation means simulating the information of the mind and converting it into physical data and observing them. Mind simulation knowledge is a combination of computer signs and psychology. By the use of mind simulation knowledge, it could be possible to access other people's information. In this technique, by using the language of the mind, the individual's behaviors are analyzed and an equation is answered: by solving the equation (the sent command and code + brain = behavior) and finding the unknown through it, the code, which is the main key in

solving this puzzle, will be achieved. When the code is passed on to other people, the desired behavior will be seen in them. This information can be conveyed to other people in a short period of time. This code is completely unintelligible and is made with the mind language. In order to teach and transfer this code to other people, it should be translated first, and then write on paper, and by designing a special educational program, turn them into an educational program (Bigdeli, 2017).

The integration of information and communication technology with education plays an important role in the development of individuals' mental skills and learning. Nowadays, new educational approaches with the aid of information and communication technology have been developed to help learners better comprehend the conditions of the real organizations, increase their scientific and practical knowledge, and also enhance their ability to communicate between theoretical and practical concepts in the real world (Aslan, 2018).

Educational simulations are used to provide the learner accessibility to safe, cost-free, or real-life learning experiences. In other words, simulation software provides the necessary conditions of learning to the learner without the need for high costs and accepting the risks to face the real conditions by providing environments that are most similar to the real world. For the examples of simulation, we can refer to physical simulations, medical education, flight, game (simulation games), engineering, computer, computer science simulation, and simulation in education. The educational simulation consists of the elements of learning environments that help the learners discover, guide, and learn more about the system or environment and include things that are not attainable from the others' experience (Gantt & Webb-Corbett, 2015).

The potential for learning the desired behavior in mind simulation is similar to the actual performance. In this method, besides the possibility to evaluate skills such as communication and professionalism, the environment can also be recoverable, whereas its evaluation is difficult by other methods. In other words, it can be said that simulation makes it possible to reconstruct real works through possible conditions in an artificial situation. In the simulation, real-world elements are simplified and used in the classroom and learning environment. In other words, it is an attempt to bring the elements as close to the real situation as possible so that the concepts learned and the solutions created can be transferred to the real world (Erfanian, 2010; Sadegh Zadeh,2016).

Weinberg (2011) reported in his review that 85% of the cases showed a positive effect of mental skills training on performance. The research showed that in recent years there have been some studies on the effectiveness of mind simulation techniques on the treatment of stuttering in adults (KamarZarin, Akbari, & Bigdeli, 2021) and the effect of decreasing stuttering on the communication attitude of children and adolescents with stuttering (Fallahi, 2021). Also, in 2009, a study was conducted on four players in the Khuzestan Steel Club in the youth category with the method based on mind simulation training of Ronaldo's station-kicks and foot inner styles. These players were randomly selected. First, each player was given 5 shots to measure their ability in station-kicks before training, in which the average of Ronaldo's station kick was zero goal out of 5 shots and the inside shot's average was one goal out of 5 shots. The defensive wall was 2 meters high and a Futsal gateway was used that was located on the eighteen-step line. After approximately 60 minutes of training, each player has kicked 5 times again, and these results were obtained: Out of five shots, four of Ronaldo's style kicking were inside the goal and out of five inner foot kicks, five shots went inside the goal. In 2010, another research was conducted on Milad Midawoodi. To teach Ronaldo's station-kicks style, first, ten kicks were given to Milad. For the defensive wall, a Futsal gateway was placed on the eighteen-step line of the ground. None of the 10 shots was in the goal. After about 30 minutes of training, the test was done again and this time, all 10 shots were inside the gate. In 2011-2012, research was done on the youth category players of the Omid team to test passing the ball through the three-meter barrier. Among them, five players were selected randomly and each of them was given five shots. A three-meter-high defensive barrier was placed on the eighteen-step line and none of the 5 shots hit the goal. After 30 minutes of training, the test was performed again, and this time, out of every 5 shots, 4 were in the goal (Bigdeli, 2019).

With regard to the abovementioned studies, the present study aims to answer the question of whether teaching Ronaldo's professional station-kick training through the package of mind simulation technique, developed by Bigdeli (2019), has a significant effect on enhancing the soccer skills of ball rotation, ball throwing, ball height, goal, and total training score.

Method

Due to the nature of this research and its objectives, the present research is applied in terms of purpose and is quasi-experimental in terms of the method with a pretest-posttest design and one group.

Participants

The statistical population of the study was all adolescents registered in the football school of Ahvaz city, among whom 20 were selected based on the Morgan formula and purposeful sampling method.

Research tools

Ronaldo's Professional Station Skills Checklist: This checklist includes skills of ball rotation, throwing height, and goal-hitting.

Mind simulation package

Mind simulation package was made by Bigdeli in 2009 and was implemented and approved in Khuzestan Football Club and has been completed over time. In developing this package, first, the players' actions were analyzed and the neural program of each kick was obtained by analyzing the player's behavior and simulating the mind. Necessary exercises were designed considering the steps that the program should include, the commands the brain gives, the actions involved in it, and the settings the body should have. This package is performed in five steps. Step 1: Ability to rotate the ball and rotate the foot; Step 2: Ability to rotate the ball in short shots; Step 3: Passing the ball through the defensive barrier; Step 4: Hitting the station-kick slowly, and Step 5: The station-kicking completely and powerfully.

Collecting Data

Initially, after receiving the necessary permission, we referred to the football school and obtained permission from the supervisors to teach the package and conduct research on the specified days, and then, from the adolescents who were learning football skills in this school, 20 subjects were selected purposefully. After providing the necessary explanations and stating the objectives of the research and testing their soccer skills, including ball rotation, ball throwing, ball height, goal, and the total training score, we asked them to attend Ronaldo's station-kick training class, as a part of Ronaldo's professional mind simulation training package, including ball rotation, ball throwing, ball height, and goal skills.

Data analysis

To analyze data, we used descriptive statistics including central tendency indices (mean, mode, and median) and variability indices (standard deviation and variance) as well as inferential statistics including Wilcoxon test by using SPSS-24 software.

Inclusion and exclusion criteria

Before selecting the samples, the researcher, in collaboration with the stadium officials and considering their medical health card, made sure of their physical and mental health and then conducted the sampling procedure accordingly. Those who did not have the specified criteria were removed from sampling.

Ethical consideration

At the beginning of the research, after providing the necessary and sufficient explanations about the method of implementation, duration, and objectives of the research, the participants signed a written consent to participate in this research project under the supervision of the researcher and relevant officials. This research plan was reviewed and approved by the ethics committee.

Results

The results of Shapiro-Wilk test analysis, regarding the normality of the research group, are shown in Table 1.

Table 1- Shapiro-Wilk test

p	Statistics	Post-test	p	Statistics	Pre-test
0.0001	0.40	Rotation	0.0001	0.43	Rotation
0.0001	0.78	Throw	0.11	0.92	Throw
0.0001	0.70	Height	0.0001	0.74	Height
0.0001	0.74	Goal	0.0001	0.35	Goal
0.0001	0.79	Total score	0.35	0.94	Total score

As the results in Table 2 show, the mean and standard deviation of the participants' scores in pre-test and post-test are different, in that the mean scores in the post-test in all cases are higher than the pre-test scores.

Table 2 - Mean and standard deviation of pretest and posttest scores

Stages					
Post-test		Pre-test			
SD	Mean		SD	Mean	Components
0.01	5	0.15		0.36	Rotation
1.02	4.10	1.61		2.90	Throw
0.01	5	0.90		1.16	Height
0.75	4.40	0.10		0.31	Goal
1	18.50	2.34		4.15	Total score

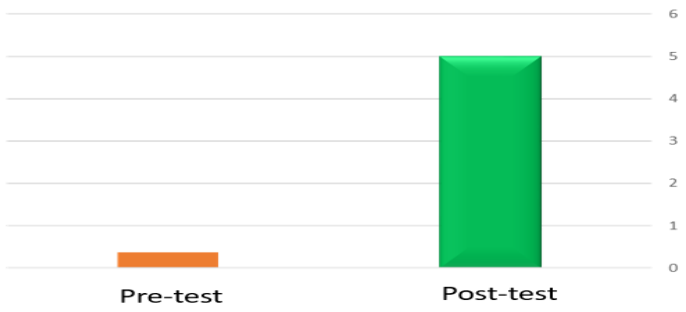

Figure 1 Mean of rotation score in pre-test and post-test stages in football

Figure 1 shows that the scores of rotation in the post-test are higher than in the pre-test.

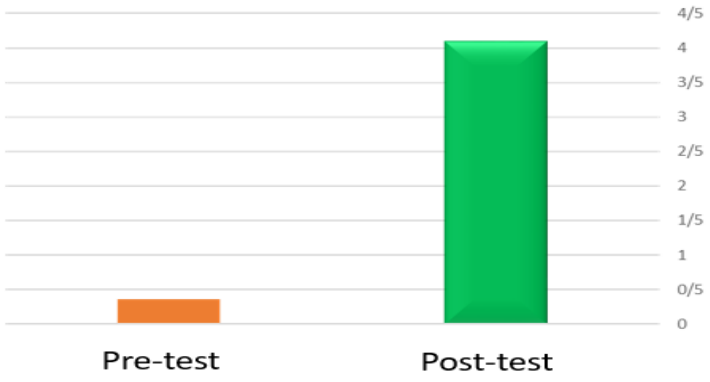

Figure 2- Mean of throwing score in pre-test and post-test in football

Figure 2 shows that the mean score of rotation in the post-test stage is higher than in the pre-test stage.

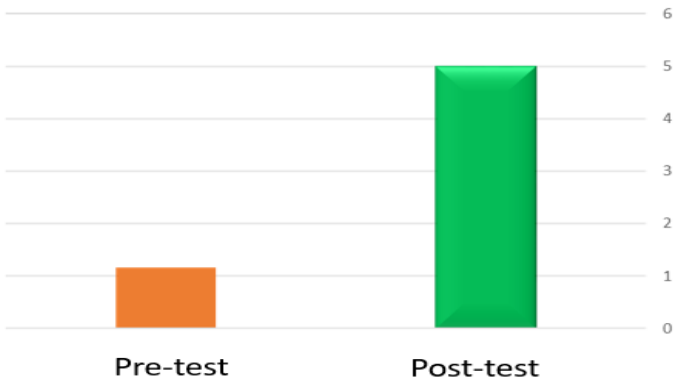

Figure 3- Mean score of ball height in the pre-test and post-test stages in football

Figure 3 indications that the mean score of ball height in the post-test is higher than in the pre-test.

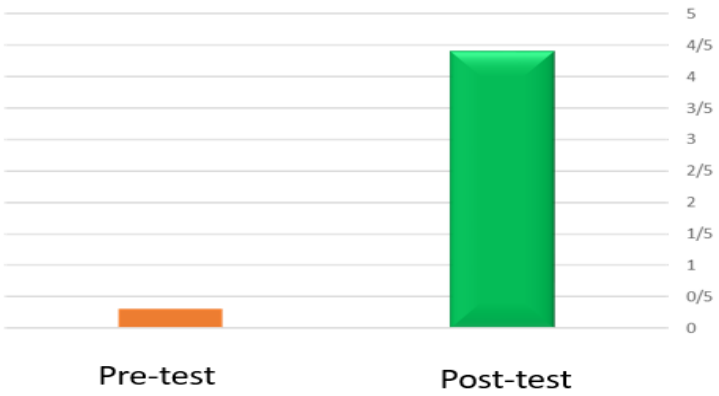

Figure 4 – Mean score of goal scores in pre-test and post-test

Figure 4 shows that the players' goal scores have increased in the post-test stage.

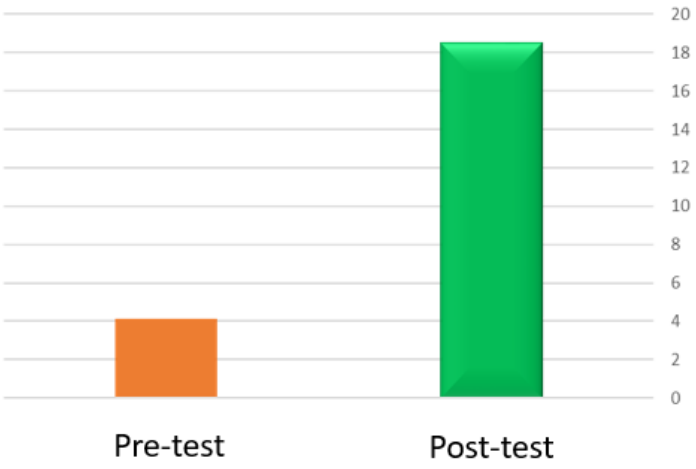

Figure 5. Mean of total score of football training in pre-test and post-test stages

Figure 5 shows that players' total training score have increased in the post-test stage after training.

In order to investigate the significance of the scores increase in the post-test stage compared to the pretest stage, we examined the results of the Wilcoxon test, which is shown in Table 3. As it is shown, the mean scores of rotation, throwing, height, goal, and total training scores in the post-test were significantly higher than the pretest. Hence, we can say that mind simulation training is significantly effective in enhancing Ronaldo's professional skills.

Table 3 - Wilcoxon test results

sig	z	N	Mean rating	Test		Components
0.0001	-4.16	0 20	0 10.50	Pre-test Post-test	negative ranks positive ranks	Rotation
0.005	-2.84	8 12	4 8.08	Pre-test Post-test	negative ranks positive ranks	Throw
0.0001	-4.002	0 20	0 10.50	Pre-test Post-test	negative ranks positive ranks	Height
0.0001	-3.99	0 20	0 10.50	Pre-test Post-test	negative ranks positive ranks	Goal
0.0001	-3.94	0 20	0 10.50	Pre-test Post-test	negative ranks positive ranks	Total score

Discussion and conclusion

The result of this study was in line with the findings of the study done on four players in Khuzestan Steel Club in 2009 using the mind simulation method in teaching Ronaldo's station-kicking and inner foot styles. And also it was consistent with the results of the study done on Milad Midavoodi in 2010 regarding teaching Ronaldo's station-kick style. It was also in line with the research conducted in 2011-2012 on the players of Omid's young team in testing passing balls in the three-meter barrier (Bigdeli, 2019). To explain it, we can say that the actions we see in football are the result of the command codes of the mind, and it is the difference between these codes that makes different actions. As a result of repetition, practice, and experiences, these codes become more completed.

These codes are the result of the functioning of the cognitive systems of the mind, and by rooting these codes, cognitive systems can be achieved. Cognitive systems are the source of talent. Every talent is considered an intelligence in psychology. Geniuses in football have more football intelligence than others. On the other hand, by using the knowledge of mind simulation, it is possible to achieve the thoughts and mind structures of the great players of the world by rooting the actions and behaviors of football geniuses. In this way, we can get a copy of football geniuses' abilities and skills by which we can design new training practices in football that can simulate the geniuses' mental function and brain in the other players' brains.

By doing this, we can accelerate the speed of progress of these players and enhance their abilities (Bigdeli, 2017). Soccer is one of the most popular sports in the world, which has attracted many fans around the world, including children, teenagers, and adults, and is one of the top four industries in the world. It is also very important economically and the top footballers who are the stars of football are its main assets. Today, it is possible to encode the mind path of a prominent football player by the use of the knowledge of the mind simulation, and by training it to the ordinary and talented players, we can greatly reduce the number of trials and errors in practices and achieve this in a shorter time.

Limitations of study

Given that the world is currently infected with coronavirus and many people are in quarantine and witness the illness and death of many loved ones, we were no exception to this rule and encountered many problems in sampling and performance in this study.

Suggestions

It is recommended that in a public and managed program, football coaches be taught the method of mind simulation first, and then run in small and large clubs across the country. It is worth mentioning that the use of mind simulation techniques in all sports can lead us to a better future. So, coding and using it in all sports is necessary. Certainly, coding educational procedures, not only in sports but also in any science or profession, can be a big step towards great achievements. Therefore, it is suggested that the use of this method be considered in other sciences and techniques.

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