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Investigation of Perceptual Abilities between Expert Versus Novice Soccer Referees

Fahimeh Rezaei[a], Mahta Eskandarnejad[b]

[a] *Master Student of Motor Behavior, University of Tabriz, Tabriz, Iran.*

[b] *Associate Professor of Motor Behavior, University of Tabriz, Tabriz, Iran.*

Abstract

The present research aimed to assess comparatively the perceptual abilities of expert and novice soccer referees. For this purpose, 18 expert judges and 14 novice judges with an average age of (28.87±6.74) were selected by using purposive sampling from Tabriz. In order to collect data it was used of simple, choice and discriminative vision reaction time test, that were conducted with the computer test. Data were analyzed by using Independent- Samples T test. The results showed that there are not significant differences between expert and novice soccer referees in every three reaction time test. In general, the results of this research indicated the inconsiderable role of experience in high level perceptual abilities of judges and here there may be presented some other factors such as genetics discussions and individual differences.

Keywords: Perceptual Abilities, Reaction Time, Soccer, Expert Referees, Novice Referees

Introduction:

Nowadays, the research area and sports science has gone so far as to neglect and failing to use the science in action causes its inefficiencies and falling behind in today's world. The judgment of sporting events are not seperated from this domain. Referees who are judging different sports, in addition to their specialized features need to learn (Weinberg & Richardson, 2002) high physical and cognitive abilities. (Catteeuw et al, 2010) The recognition ability is the characteristics of a good referee, he noted that in addition to his placement in the right place, judgment and knowledge of the laws of mechanisem (Weinberg& Richardson, 2002), also needs to have high multiple senses. Since the senses,are the chanals for data entry in our bodies , it is obvious that while this information is more accurate and more complete, it is better that we can communicate with their surroundings (Bailey et al, 2006).

In most sports, the referees in the game have to receive and process large amounts of information from multiple senses that they are faced with. therefore, it is quite obvious that cognitive efficiency is very important in the first instance decision (Helsen & Bultynck, 2004). referees must consider various information sources (such as markers on the fild, player and ball positions, assistants' reports, etc.), make rapid decisions, and discuss calls with the person who analyzes and criticizes their decisions based on slow-motion replays from diffrent angles (Ghasemi et al, 2011). Given that a referee makes an average of 140 decisions during a game, all likely to affect its final result, the ability to receive much data from different sources and to sort them out appropriately becomes even more important (Helsen & Bultynck, 2004). Therefore, in such circumstances, visual perceptual abilities is necessary for judges. among the five senses, the eyesight has a more important role for the regulation of many human behaviors, including behaviors related with the environment, navigation and understanding to the situation there. In fact, about 40 percent of the information that enters the brain is through the different senses, where they are processed, visual information (Siminghalam & Alibakhshi, 2011).

Including perceptual abilities of attention during recent years have attracted the researchers in the vision reaction time (Nuri et al, 2012). The reason for the extraordinary importance of this case is its dirrect relation to decision-making skills (Williams et al, 2005). Reaction time, period of time,is the causing of stimulus or signal reach for the unforeseen and sudden onset of the stimulus (Canal-Bruland & Schmidt, 2009). This is used in laboratories to measure the speed of information processing that is widely used. This data is a highly sensitive parameter and represents the motor and cognitive function that has been used for many studies (Nuri et al, 2012).

Reaction time is a factor in many sports and succeeding in reducing the run out reaction time (Soheilipour et al, 2013). The improvement in reaction time can improve the speed of processing information, or improve the speed of nerve transmission through the body, or a combination of factors is that in human consciousness, improves reaction time (Jaskowaski, 1984; Schmidt & Lee, 2012; Wang, 2009). Such maternal behavior over many years of practice, along with a substantial amount of capability is needed. According to Ericsson's long-term memory theory (1983), skilled players are able to encode and retrieve information specific task, based on a set of communications conditions – practice are called the product. Hence, the products are responsible for starting an appropriate response under a special provision. Such skillfull behavior need the practice over the years, task-specific knowledge structures, along with the processes of encoding and efficient recovery of the day. This structures in time limitation help to expert players to adopt the more appropriate decision about the novice players (reported of Abdoli et al, 2015).

Therefore, in this study, regarding the important role of perceptual abilities, especially in sports, we have the visual reaction time. In particular, there are some discussions about the decision of the arbitration and due to the lack of coordination in the research literature on differences in perceptual abilities elite sports beginners and as well as the lack of research on the assessment of perceptual abilities of arbitration for sport, a comparative study of perceptual abilities of expert and novice soccer referees in order to find an answer to this question that whether is the relation among the experience of arbitration for sport with the visual information processing speed or not?

Research Background

The first research was performed by Helsen & Pauwels on the difference between novice and expert athletes. The player's performances were designed and tested in a wide range of different tasks in the operation of general abilities that are related to the central nervous system were and then the football-specific skills tested. He was described findings about high skills relations with different processes. expert players have more choice and more accurate interpretation of environmental cues, and choose the right answer faster. expert players had softer and more effective movement than the beginner players**.**

Montes-Mico et al in a study named" Eye-hand and Eye-foot visual reaction time of young soccer players" concluded that expert soccer players were better than non-athletes in eye–hand and eye-foot visual reaction times.

Ghasemi et al in a study named" The difference in visual skills between expert versus novice soccer referees" showed that the expert soccer referees were superior in all of the visual skills, but there was no significant difference between novice referees and non-athletes.

In another study of Ghasemi et al named" visual skils involved in decision making by expert referees" visual skills of two groups of expert referees, successful and unsuccessful in decision making, were compared. Visual tests included visual memory, visual reaction time, peripheral vision, recognition speed, saccadic eye movement, and facility of accommodation. Results showed that The Successful group had better visual skills than the Unsuccessful group.

Pietraszewskia et al has studied" differentiation of perceptual processes in elite and assistant soccer referees" and concluded that top level referees demonstrated better perceptual abilities than first-league referees.

Bared et al did not see the difference between time and accuracy of decision-making skilled and unskilled gymnastics referees. The literature has also shown that there are fundamental differences in visual processing elite and beginners, it can not be due to differences in the implementation of their athletic skills.

Research methodology

The population, sample and sampling

Research design is a quasi-experimental. The population for this study was comprised of referees in the city of Tabriz in the year of 2016. A total of 18 people after the Premier League and Division One football (with the National Arbitration and level 1) and 14 ones were selected after the provincial level football (with the Judges 2 and 3level) with a mean age (28.87 ± 6.74) that were chosen by sampling method respectively.

Research tools

Research Tools were used to collect data, answer period of psychological meter (Company of Padidar Omid Farda), respectively. The device feature is a simple, choice and discriminative visual reaction time, with its hands and feet.

Test method which used was as simple reaction time, participants have to move as soon as they appear upon the screen,and was desired a key from the keyboard was pressed as soon as possible. Reaction time of driving is a choice of four colors: red, green, black and blue were randomly appeared on the monitors. Human test subjects should occur, when one of the four key are appeared on their keyboard by driver. The discriminative reaction time of while driving in all four red, green, black and blue were displayed. However, Human test subjects should appear only once stimulus to press the green button. In each test (simple, choice and discriminative reaction time) nine attempts and a total of twenty seven trials were recorded for each person.

The Analysis of Data

For analyze the data, descriptive statistics were used in the central tendency and dispersion of mean and standard deviation calculation . Furthermore, inferential statistics were used to evaluate significance to the differences. In this study, a Kolmogorov-Smirnov test confirmed normal distribution of data ($P>0.05$). To compare each variable between expert and novice soccer referees, Independent- Samples T test was used in statistical methods. The level of significance ($P<0.05$) was considered. The analysis of the data was performed with using SPSS software (version 20).

Research Findings

All descriptions of simple, choice and discriminative reaction time amount are presented to distinguish between groups that are shown in Table 1.

Table 1: The mean and standard deviation of simple, choice and discriminative reaction time amount are presented to distinguish between groups

Standard Deviation	Mean	Group	Variables
69/04	449/94	expert referees	Simple reaction time
71/24	439/85	novice referees	
118/63	718/36	expert referees	Choice reaction time
134/84	679/35	novice referees	
239/77	1294/1	expert referees	Discriminative reaction time
215/24	1294/35	novice referees	

To investigate the significant difference between the groups, Independent- Samples T test was used. Its results are in Table 2.

Table 2: Independent- Samples T test to compare the mean groups

sig	F	t	df	Std. Error Difference	Mean Difference	Variables
0/953	0/336	0/06	30	33/81	2/02	Simple reaction time
0/392	0/241	0/869	30	44/86	39	Choice reaction time
0/998	1/115	0/003	30	80/94	0/25	Discriminative Reaction time

According to Table 2, in each test reaction time, there are not significant differences between expert and novice soccer referees (P>0.05).

Conclusion:

The aim of this research was comparison of perceptual abilities in football expert and novice referee. The results showed that there are not significant differences between expert and novice soccer referees in all three test and there is a reaction time test. These findings is consistent with previous results Coskun et al. In that study he also not found significant differences between simple reaction time and choice of players karate national and international levels. Bared et al did not see any difference between skilled and unskilled gymnastics judges in their study and carefully decided about it. Memmert et al also reported that there is not difference between the visual attentions of elite handball players with beginner. The research literature shows that while elite in many respects beginners act differently, but in terms of perceptual abilities such as reaction time, peripheral vision, there is no difference between them. This pattern is also right in many sports.

In another study, Zwierko showed a significantly shorter reaction times on the handball players than non-athletes vision that is inconsistent with the findings. One reason for this difference is probably the type of research participants. For athletes and non-athletes were compared to the survey, while in the present study comparison between elite and beginner referees is considered. It is likely that the provincial judge in various competitions can improve perceptual ability in beginner referees. They also showed the performance of their greater incentive to elite referees. Similarly, Pietraszewskia et al and Wu et al, with different studies concluded that the referees and elite athletes have higher perceptual abilities compared to the beginners . The reasons of this imbalance can be noted by use of unusual tests to measure the abilities in various researches. As well as distinctive definitions of proficiency in sports, the professional and the

beginner evaluated in several studies that has caused unusual test subjects. As a result, it is difficult to compare the findings with previous researches.

The limitation of the present study was the lack of controlling the factors such as motivation and personal factors that were outside of the control scope.

Practical suggestions:

Since the study of perception as a cognitive basis due to the complexity and diversity of judges is necessary, it is recommended that future studies use the other tests to measure perceptual abilities in these privates.

The relationship between age and gender of referees with their perceptual abilities should be studied.

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