

ANALYSIS OF GOALS SCORED IN TURKEY E-SPORTS FOOTBALL LEAGUE: HOW IS IT DIFFERENT FROM REAL COMPETITIONS?

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ABSTRACT

The aim of this study was to analyze the goals scored in the Turkish E-Sports Football League in three seasons. A total of 1016 goals scored in 348 competitions played in three seasons in the Turkish E-Sports Football League were evaluated. Nine different criteria were used in the evaluation of the goals. SPSS 25 package program was used for statistical analysis of the data obtained. Frequency and percentage, which are descriptive statistics, were used in the analysis of the data. As a result of the research, it was observed that 219 (21,5%) of the 1016 goals scored in the Turkey E-Sports Football League were scored between 76-90 minutes and 255 (73,2%) teams that scored the first goal in 348 competitions won the competition. In the Turkey E-Sports Football League, 925 (91%) goals were scored as a result of organised attacks and 67 (73,6%) of the set-piece goals were scored from penalties. In the Turkey E-Sports Football League, 615 (60,5%) of the goals scored were scored with a single shot. It is observed that 984 (96,8%) of the goals scored in Turkey E-Sports Football League were scored from inside the penalty area and 938 (92,3%) of the goals were scored with a foot strike. It was observed that 693 (68,2%) goals scored in the Turkey E-Sports Football League were scored from the 3rd zone defined inside the penalty area and 201 (24,3%) assists were scored from the 9th zone defined outside the penalty area. It is seen that real football competitions and E-Sports football competitions are similar according to the analysis results.

Key words: E-Sports. Digital Game. Goal. Match Analysis. FIFA

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RESUMO

Análise dos gols marcados na liga de futebol de e-sports da turquia: qual a diferença em relação às competições reais?

O objetivo deste estudo foi analisar os gols marcados na Liga Turca de Futebol E-Sports em três temporadas. Foi avaliado um total de 1016 gols marcados em 348 competições disputadas em três temporadas na Turkish E-Sports Football League. Nove critérios diferentes foram usados na avaliação dos gols. O programa SPSS 25 foi usado para a análise estatística dos dados obtidos. A frequência e a porcentagem, que são estatísticas descritivas, foram usadas na análise dos dados. Como resultado da pesquisa, observou-se que 219 (21,5%) dos 1016 gols marcados na Turkey E-Sports Football League foram marcados entre 76 e 90 minutos e 255 (73,2%) equipes que marcaram o primeiro gol em 348 competições venceram a competição. Na Turkey E-Sports Football League, 925 (91%) gols foram marcados como resultado de ataques organizados e 67 (73,6%) dos gols de bola parada foram marcados em pênaltis. Na Turkey E-Sports Football League, 615 (60,5%) dos gols marcados foram marcados com um único chute. Observa-se que 984 (96,8%) dos gols marcados na Turkey E-Sports Football League foram marcados de dentro da área de pênalti e 938 (92,3%) dos gols foram marcados com um chute de pé. Observou-se que 693 (68,2%) gols marcados na Turkey E-Sports Football League foram marcados a partir da 3ª zona definida dentro da área de pênalti e 201 (24,3%) assistências foram marcadas a partir da 9ª zona definida fora da área de pênalti. Observa-se que as competições de futebol real e as competições de futebol E-Sports são semelhantes de acordo com os resultados da análise.

Palavras-chave: E-Sports. Jogo digital. Gol. Análise de partida. FIFA.

INTRODUCTION

Today, as a result of extraordinary developments in the field of technology, many new concepts and sectors have emerged.

Developments in digital technologies have led to the emergence of new developments in the field of sport as in every field. One of these developments in the field of sport is "electronic sport", which has become one of the most important phenomena of today (Argan et al., 2006).

Electronic game, computer game, video game, cyber game, online game, virtual game, game sports, electronic sports, electronic sports, etc. in the literature related to the concept of electronic sports as a newly developing sports field (Argan et al., 2006).

Although there is no clear definition in the literature about e-sports, which is increasing in popularity today and has managed to attract the attention of many circles in industrial or academic dimensions over time, Wagner (2006) defines it as "E-sports are sports activities where people develop their mental and physical abilities by using information and communication technologies".

Based on all these definitions; E-Sports can be defined as a sports branch in which amateur and professional athletes compete with each other using computers and game consoles that have emerged as new sports with the development of digitalisation and technology in the globalising world.

E-Sports emerged as a result of the production of games played through electronic systems that emerged in the 1950s (Albayrak, 2019).

The Spacewar game, developed by Steve Russell and his friends in 1972, was organised in Stanford University's Artificial Intelligence Laboratory as the first E-Sports game tournament under the name "Intergalactic Space War Olympics". Organised with the participation of 24 players, the prize was announced as a one-year subscription to Rolling Stones magazine (Larch, 2019).

Two events were organised in the competition: a five-person competition open to everyone and a team competition. Slim Tower and Robert E. Mass won the team category of the Intergalactic Space Battle Olympics. Bruce Baumgart was the winner of the individual competition (Good, 2012).

The "Space Invaders Championship" tournament, organised by Atari in 1980, was the first major tournament of e-sports in the United States where more than 10,000 competitors competed (Li, 2016).

The National Video Game Championship, held at the Chicago Convention Centre in 1981, went down in history as the Centipede game, which was financed with \$240,000. In 1984, the National Video Game Master Tournament was held in which more than 60 different arcade games were played (Borowy, Jin, 2013). In 1985, Alexey Pazhitnov, working at the Moscow Academy of Sciences in Russia, developed the game 'Tetris' (Yılmaz, Çağıltay 2004).

In the 1990s, newly developed sales strategies and games directed consumers away from arcades and towards playing at home (Borowy, 2012).

In the 1990s, Nintendo published the 'Super Mario 3' game cartridge, which was known and loved by the whole world (Yılmaz, Çağıltay 2004). Thanks to the home game consoles released by Atari and Super Nintendo brands, the first international gaming tournament was organised in multi-user online games (Burns, 2014).

In the 90s, when the internet technology did not fully accelerate, tournaments did not develop due to infrastructure problems. After the internet network became widespread, these systems, which allow individuals in different countries to play online games with each other, started to become more effective with the increase in internet access speed (Seo, 2013).

Griffiths et al., (2003) also stated that the widespread use of Local Area Networks (LAN) and the internet enabled individuals to play games together and as a result of the development of LAN technology, E-Sports has transformed from a mode where man plays against machine to a mode where man plays against man.

Some of the e-Sports leagues were established towards the end of the 1990s. These leagues are the Cyberathlete Professional League (CPL), the Professional Gamers League and Quakecon. Events of games such as Quake, Counter-Strike and Warcraft were organised in these leagues (Süngü, Bostan, 2020).

In 1993, the game named "Doom", which was released as a single-player game,

paved the way for the start of the single-player era (Seo, 2013; Kushner, 2003). The era officially started with the game called "Quake", which was pioneered by this game in the First-person Shooter (FPS) genre and released by id Software in 1996 (Snively, 2014).

The tournament held in the United States in 1997 under the name of "Red Annihilation" is considered to be the first official E-Sports tournament (Walther, 2001), opening the door to the modern era for E-Sports (Bulut, 2020).

In the 1997 Red Annihilation tournament, Quake was won by Dennis Fong, who used the nickname Thresh. Dennis Fong was presented with a Ferrari 328 GTS, which belonged to John D. Carmack, one of the developers of the Quake game, as a championship prize (Chapman, 2016).

The first event organized live and in front of an audience was called "The Foremost Roundup of Advanced Gamers (The FRAG)" in 1997 (Hoyngo, Steenberg, 2019).

In 1999, the company 'Valve' released a new game called 'Counter Strike' and the game was incredibly popular in a short time and managed to surpass the game 'Quake III' and became the centre of E-Sports in Western Culture (Wagner 2006).

With the widespread use of the internet in the 2000s, games have turned into online gaming. As a result of these developments, games have ceased to be single-player and have become multi-player (Coşkun, Öztürk 2016).

In 2000, E-Sports gained momentum with the establishment of World Cyber Games (WCG). On 7 October, an event called "The World Cyber Game Challenge" was held. The event was sponsored by the Ministry of Culture and Tourism of the Republic of Korea, the Ministry of Information and Communications and Samsung. In the tournament, Quake III Arena, FIFA 2000, Age of Empires II and StarCraft: Brood War many games were played, including the "The Game". 174 competitors from 17 countries participated in the tournament, which ended on 15 October 2000 (Wikipedia, 2021). Gold, silver and bronze medals were awarded to the ranking players (Wagner, 2006).

The establishment of the Korea E-Sports Association (KESPA), which is responsible for the development and

supervision of E-Sports in South Korea with the approval of the Ministry of Culture, Sports and Tourism, also took place in 2000 (Seo, 2013). Under the leadership of South Korea, E-Sports gained a new momentum and became professionalised and institutionalised (Jin, 2010).

In 2008, the International E-sports Federation (IeSF), which set out to establish E-Sports as a real sport and has 105 member countries today, was established based in South Korea (IeSF, 2021). Especially in the early 2000s, FPS type games contributed to the growth and development of E-Sports tournaments (Üçüncüoğlu, Çakır, 2017).

In 2010, the "Global StarCraft 2 League" tournament, which started in South Korea and has grown continuously since then, has become the most prestigious event of E-Sports games. In 2015, it attracted particular attention with a prize pool of 3 million dollars (Bostancı, 2019).

E-Sports Game Types

Online Multiplayer Battle Arena - Multiplayer Online Battle Arena (MOBA)
Real-Time Strategy Game - Real-Time Strategy (RTS)
Survival Games - Battle Royale
First-Person Shooter (FPS)
Fighting Games (Fighter)
Massively Multi-user Online Role Playing Games - Massively Multi-user Online Role Playing Games (MMORPG)
Sport Games

E-Sports in Turkey

The Turkey Digital Games Federation (TÜDOF) was established in 2011 to serve digital gamers and digital gaming communities. However, in 2013, this federation was cancelled and included in the "Federation of Developing Sports Branches". In 2018, Turkey E-Sports Federation (TESFED) was established under the founding chairmanship of Alper Afşin Özdemir. TEFED opened the first E-Sports coaching course in 2021.

Since 2013, the only official E-Sports league in Turkey, League of Legends Championship and Promotion League, has been continuing its activities. Players competing in these leagues are given official player

licences by the Ministry of Youth and Sports (Üçüncüoğlu, Çakır, 2017).

Turkey's first E-Sports team was established in 2003 under the name "Dark Passage" for the Counter Strike game. The first E-Sports team established by a professional sports club in our country and worldwide is Beşiktaş Espor (Yüksel, 2021), and Beşiktaş club also established Turkey's first E-Sports team consisting of the world's best female E-Sports players.

Match Analysis in Football

In football, the analysis of the match or the evaluation of the players is an extremely important concept for the coach. In football, a comprehensive analysis is needed to develop and train the skills to improve team and individual performance. Due to the high number of variables affecting each other in the game of football, it is necessary to develop a systematic for analysing the game (Eniseler, 1995).

After the scientists named Sanderson and Purdy included match analysis into football in the 1970s, match analysis has been developed until today with the studies of scientists such as Reilly, Hughes, Lees, Croucler, Winkler and Treadwell who worked on match analysis in 1993 and later (Hughes, Franks, 1997).

Match analysis helps the coach to see the strengths and weaknesses of his/her team and to implement the studies to be applied for the development of the team, which will reveal the potential of the team (Tokul, Mülazımoğlu, 2018).

It is of great importance for football clubs to make match analyses in order to minimise errors both in tactical studies and in the evaluation phase and to monitor the performance of players and teams (Zivalioğlu et al. 1998).

In football, there is only one statistic that explains the score without error; it is the number of balls that cross the goal line and meet the nets and gain goal value (Çobanoğlu, Terekli, 2018).

Determining the factors that affect match performance can be revealed by analysing the goals scored (Armatas et al., 2009).

Parameters other than goals scored can give clues about the coach's understanding of the game (Çobanoğlu, Terekli, 2018).

This study was conducted to analyse the goals scored in the competitions played in three seasons of professional E-Sports football clubs competing in the Turkey E-Sports Football League.

MATERIALS AND METHODS

Research Model

General survey model was used in the research. It is defined as "a model that aims to portray a phenomenon or event that has been going on from past to present as it is, and for the situation that is the subject of the study, the person or object is tried to be described as it exists" (Karasar, 2014).

Universe and Sample

The population of this study consists of football clubs in the Turkey E-Sports Football League. The sample consists of 1016 goals scored in 348 competitions played in Turkey E-Sports Football League.

Data Collection

The research data were obtained by watching all the competitions available on Youtube and taking notes of the parameters used.

Data Analysis

All data obtained in the research were recorded in SPSS 25 package programme and frequency and percentage values were used among statistical techniques.

RESULTS

In this section, the results of the statistical analysis of 1016 goals scored in 348 competitions that resulted in wins, losses and draws of the teams in the Turkey E-Sports Football League are given under headings.

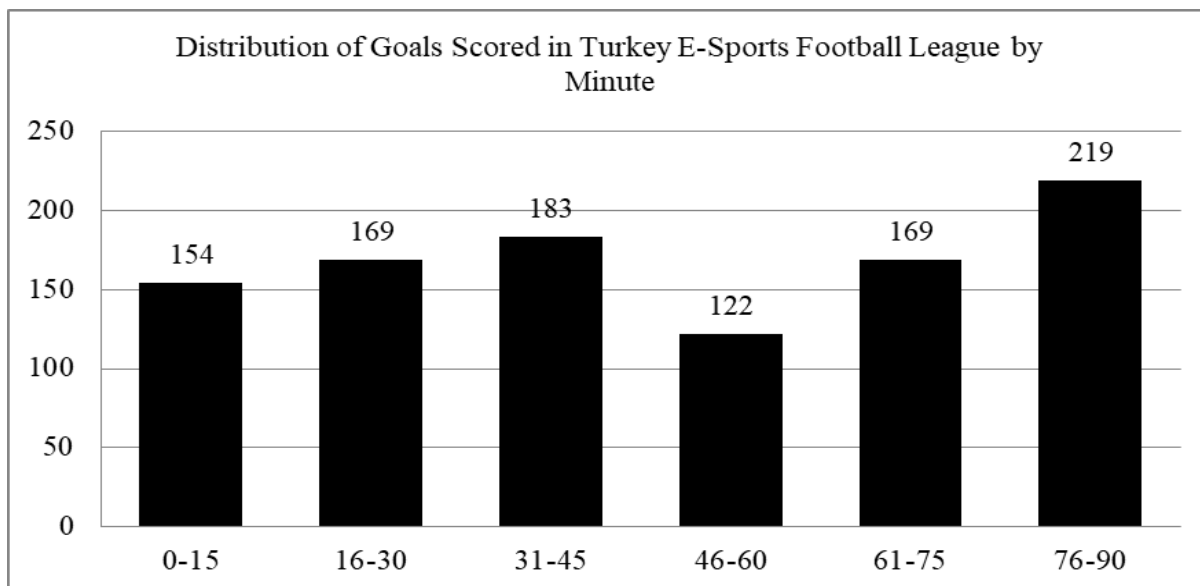


Figure 1 - Distribution of Goals Scored in Turkey E-Sports Football League by Minutes.

According to the findings obtained in the study, 219 (21,5%) of the total 1016 goals scored in the Turkey E-Sports Football League were scored between 76-90 minutes, while the

minutes with the least number of goals were between 46-60 minutes with 122 (12%) goals. It was observed that the most goals were scored in the second 45 minutes with a rate of 50,1% (510 goals) (Figure 1).

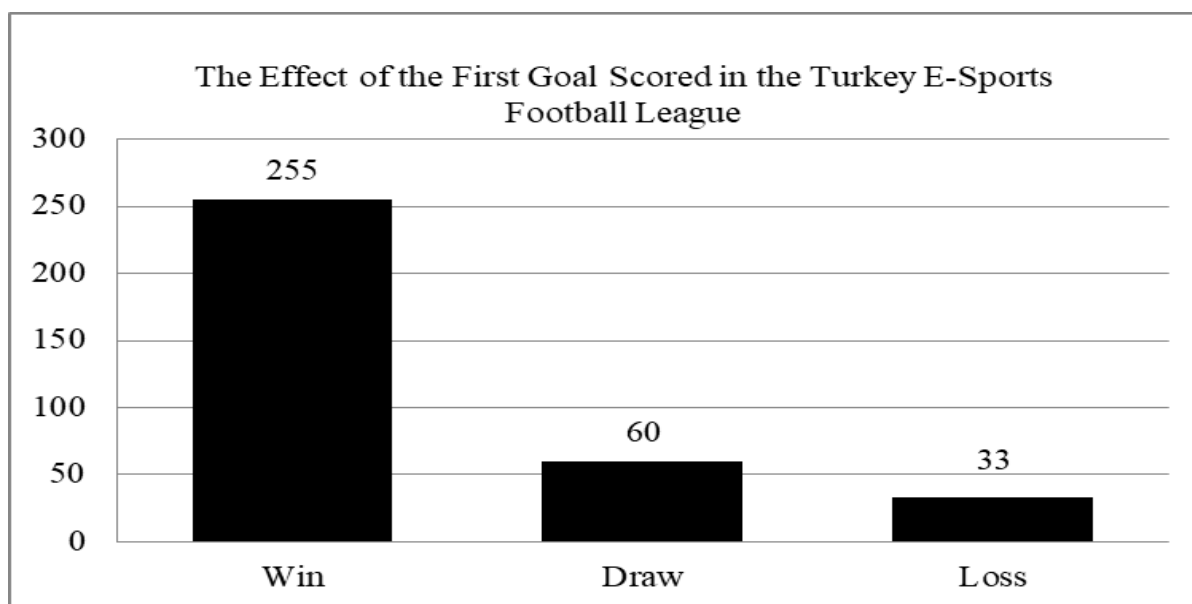


Figure 2 - The Effect of the First Goal Scored in the Turkey E-Sports Football League.

According to the findings obtained in the study, it was observed that 255 (73,2%) teams who scored the first goal in 348

competitions played in the Turkey E-Sports Football League won the competition (figure 2).

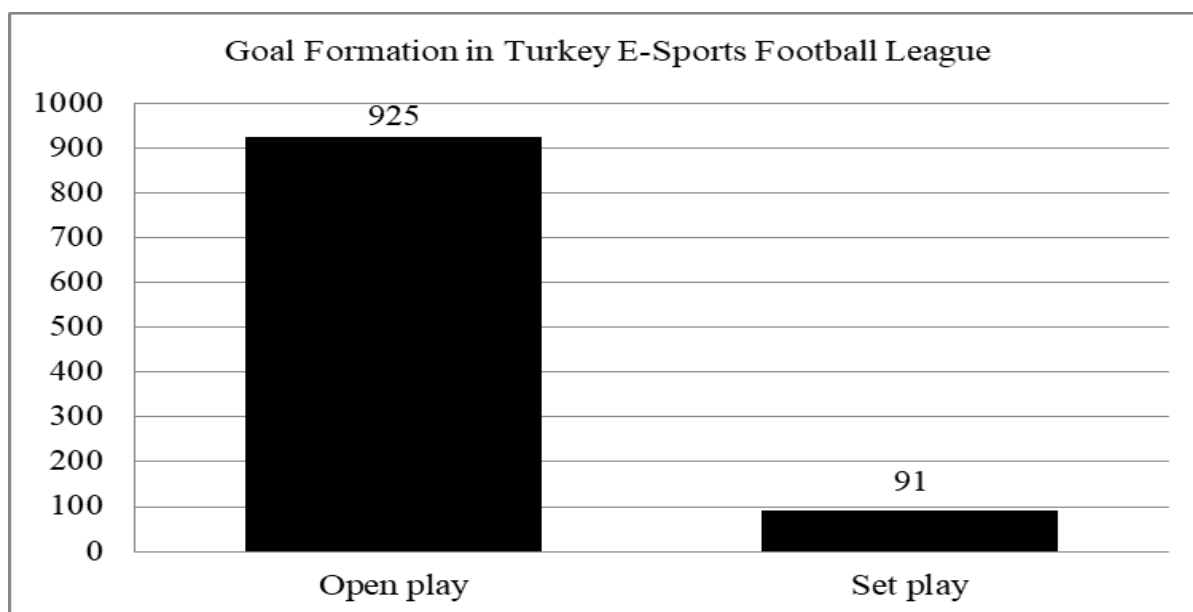


Figure 3 - Goal Formation in Turkey E-Sports Football League.

According to the research findings, it was observed that 925 (91%) goals were

scored as a result of organised attacks in the competitions played in the Turkey E-Sports Football League (Figure 3).

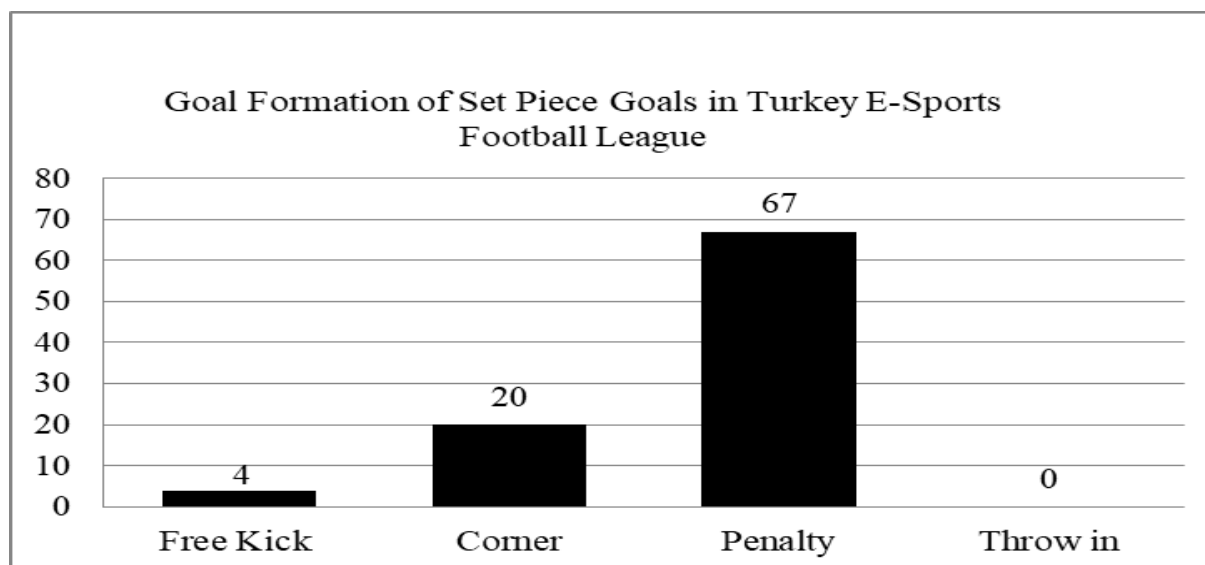


Figure 4 - Goal Formation of Set Piece Goals in Turkey E-Sports Football League.

According to the findings of the study, 67 (73,6%) of the set-piece goals in the Turkey E-Sports Football League were scored from

penalties. The least number of goals was scored from free kicks. No goal was scored from a throw-in (Figure 4).

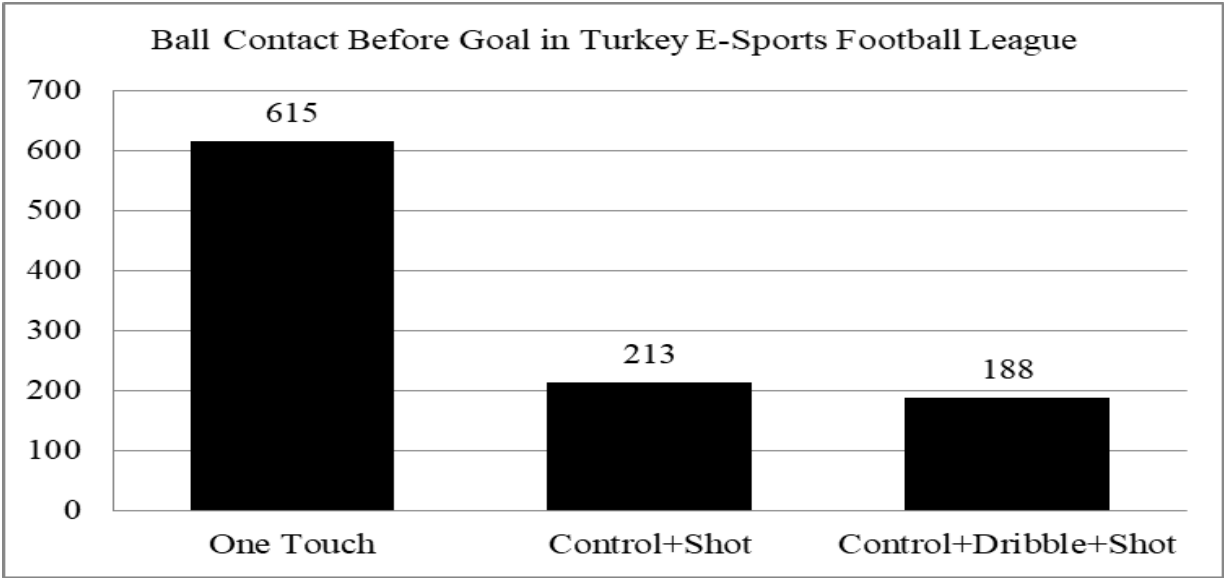


Figure 5 - Ball Contact Before Goal in Turkey E-Sports Football League.

According to the findings of the study, 615 (60,5%) of the 1016 goals scored in the

Turkey E-Sports Football League were scored with a single shot (Figure 5).

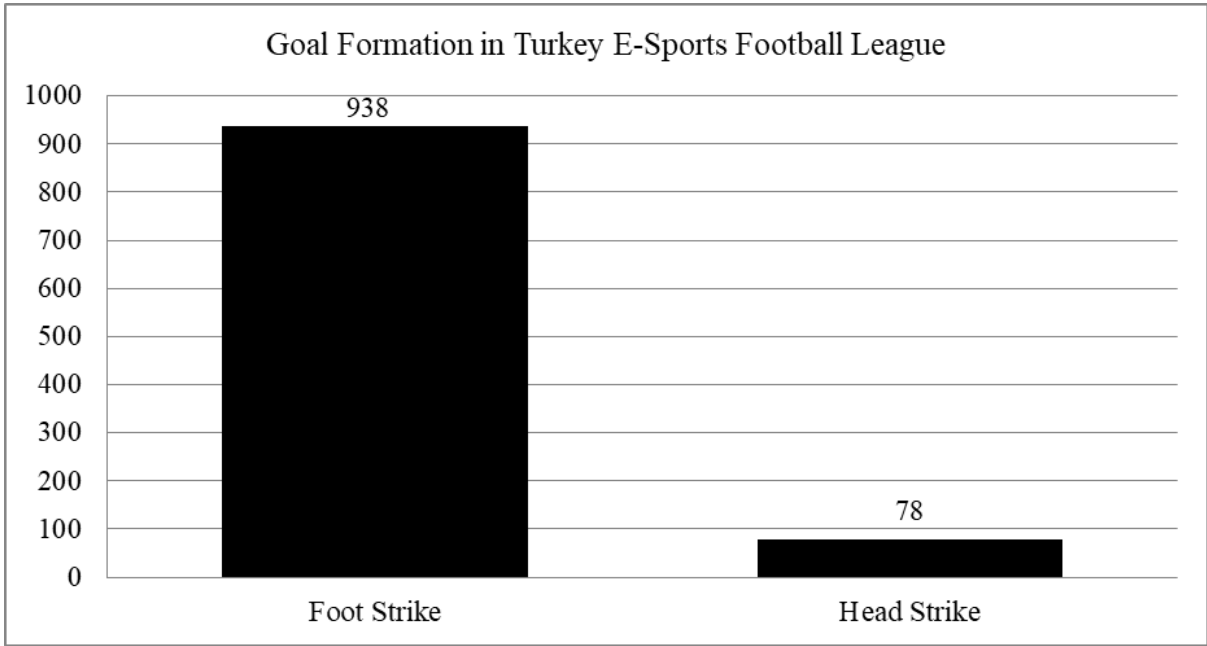


Figura 6 - Goal Formation in Turkey E-Sports Football League.

According to the research findings, it was observed that 938 (92,3%) goals scored in the Turkey E-Sports Football League were

scored with a foot strike. 78 (7,6%) goals were scored with head strike (figure 6).

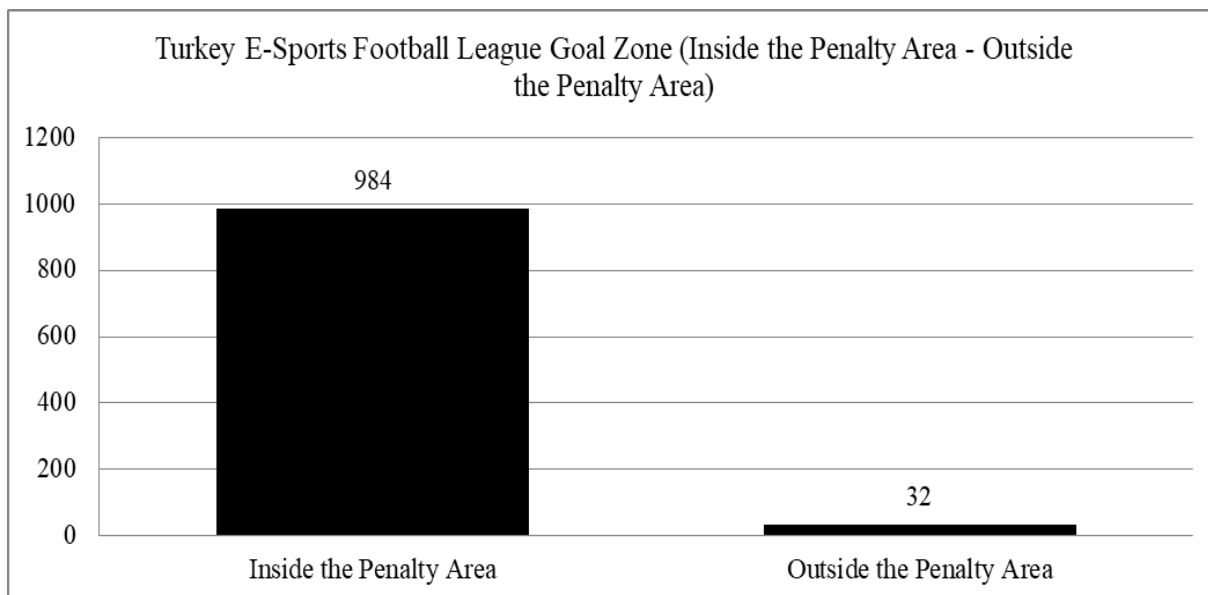


Figure 7 - Turkey E-Sports Football League Goal Zone (Inside the penalty area - Outside the penalty area)

According to the findings of the study, it was observed that 984 (96,8%) goals scored in

the Turkey E-Sports Football League were scored from inside the penalty area (Figure 7).

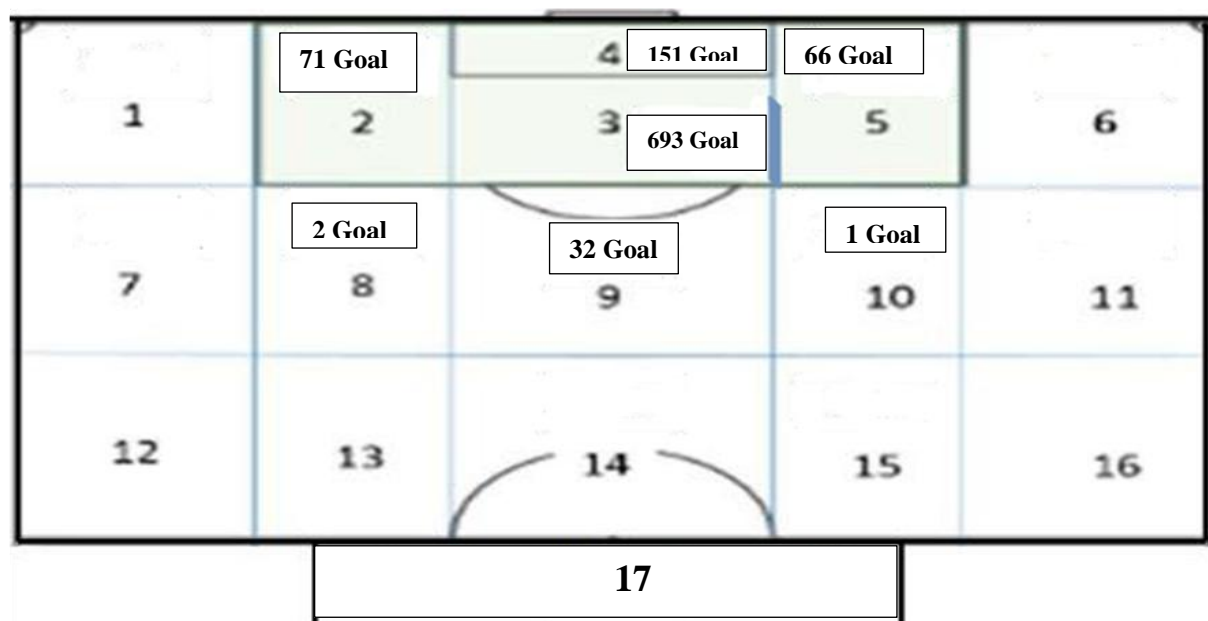


Figure 8 - Turkey E-Sports Football League Goal Zone.

According to the research data, it was observed that 693 (68,2%) of the goals scored in the Turkey E-Sports Football League were

scored from the region numbered 3. The region with the least number of goals scored is region number 10 with one goal (Figure 8).

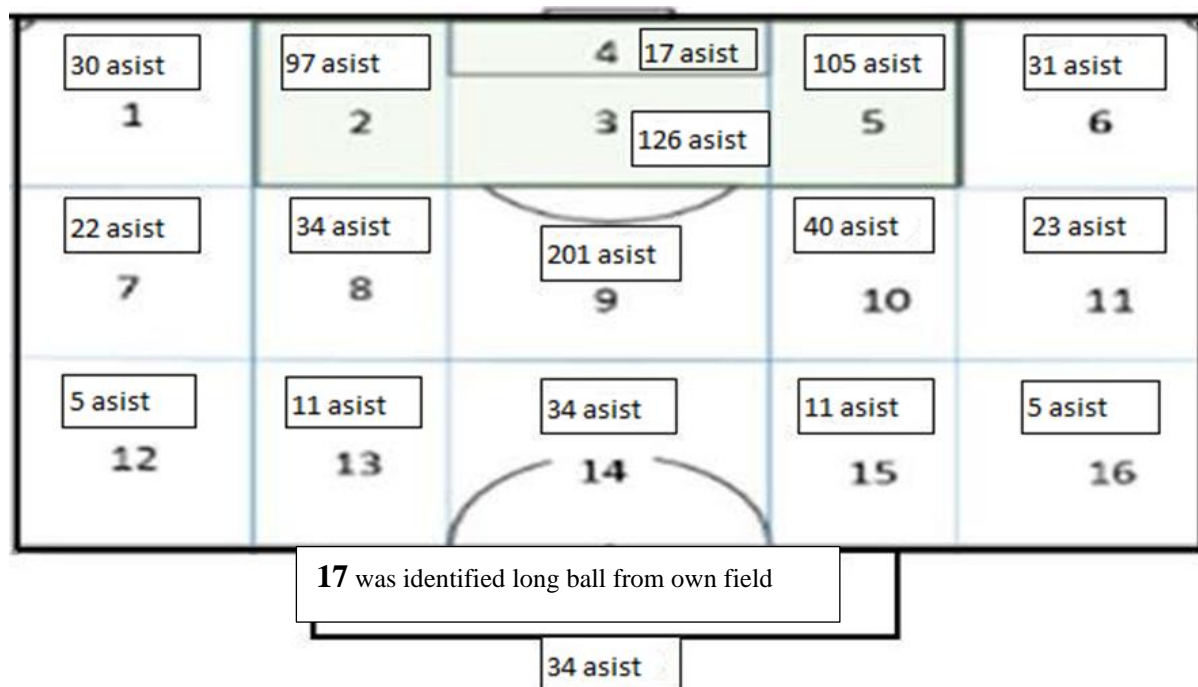


Figure 9 - Turkey E-Sports Football League Assist Zone.

According to the findings of the study, 201 (24,3%) of the assists made before the goal were realised from the assist zone numbered 9. The least number of assists was 5 assists from the assist zones 12 and 16 (Figure 2).

DISCUSSION

In this study, 1016 goals scored by E-Sports football clubs competing in the Turkey E-Sports Football League in a total of 348 matches played in three seasons were evaluated in the light of certain parameters and analysed in nine different ways. Since there is no research on goal analysis in E-Sports football competitions in the national and international literature, the findings related to the analysed criteria are discussed by comparing them with the research on real football competitions.

In this study, as a result of the frequency analysis, it was determined that the goals scored in the Turkey E-Sports Football League were scored between 76-90 minutes

with a rate of 21,5%. This is followed by 31-45 minutes with 18%, 16-30 and 61-75 minutes with 16,5%, and 0-15 minutes with 15%. In 15-minute periods, the least number of goals was scored between 46-60 minutes with 12% (figure 8).

The majority of the goals scored were scored as a result of organised attacks. The majority of the attacks in which these goals were scored started in the attacking zone. When the attacking zone from which the goals were scored was analysed, it was found that most of the goals were scored from central attacks. Nearly the majority of the goals were scored from inside the penalty area.

Busert (2001) found that 20 percent of the goals scored in the 1994 World Cup were scored between 76-90 minutes.

Loy (1990) analysed the goals scored in the World Cup in Italy in 1990 and found that 29% of the goals scored by the Italian national team occurred between 76-90 minutes of the match.

Cerrah et al., (2016) analysed 1020 (28,22%) goals scored from set-pieces in 5 seasons in the Turkey Super League and found that these goals were scored between 76-90 minutes, including extra time.

Armatas et al., (2007) analysed the goals scored in the World Cups in terms of their times and in the light of this, they found that the goals scored in the 1998, 2002 and 2006 World Cups were mostly between 76-90th minutes. They found that these goals occurred mostly in the second half with a rate of 60,8% in the 1998 World Cup, 59% in the 2002 World Cup and 52,5% in the 2006 World Cup.

In the study in which the goals scored in the 2016 European Football Championship were analysed in 15-minute quarters, it was seen that the most goals were scored between 76-90 minutes with 28 goals. It was found that 21 goals were scored between 46-60 minutes, 20 goals between 31-45 minutes, 15 goals between 61-75 minutes and 13 goals between 0-15 minutes, respectively. The 2nd quarter, between 16-30 minutes, was found to be the quarter in which the least number of goals was scored with 9 goals (Tokul, 2017).

Gomes et al., (2011), according to the result of their analysis on the 2009 Serie A Brazilian Championship, stated that the highest number of goals occurred in the last 15 minutes of the match with a rate of 21,76%.

Silva (2007), in his study on the timing of goals scored in 8 National Professional Football Leagues, found that when the number of goals scored in the first and second half of 7599 goals scored in 2902 matches analysed was taken into account, 55,83% more goals were scored in the second half of the competition and 21,88% of these goals were scored between 76-90 minutes.

When the literature is examined, it is clearly seen that in the studies conducted in the past years on real football competitions, the most goals were scored between 76-90 minutes. When we compare the results of the studies in the literature with the results of the competitions of e-sports football teams, it is seen that the minutes with the most goals scored are similar.

It is stated that the goals scored in the second half of the competitions are due to decreased physical performance after physical fatigue (Barros et al., 2007; Rampinini et al., 2007).

In real football competitions, it is thought that physical performance can directly interfere with the technical, tactical and psychological performance of a team and that the highest probability of goal in the last 15 minutes of the competition is associated with a decrease in physical performance. These results clearly show us the importance of physical preparation of footballers in order for the footballer to reach the technical-tactical movements in the competition faster, to perform well throughout the competition without experiencing a performance decline, and for the team to perform well throughout the entire competition.

As a result of mental fatigue and decrease in concentration, athletes make mistakes and move away from the game tactics and the potential for scoring and conceding goals occurs. This result shows us the importance of mental toughness. The term mental toughness for performance improvement was first developed by sports psychology expert James Loehr (Clough, Strycharczyk, 2012).

Mental toughness is described as having natural or developed limits that allow us to cope with the demands of sport better than the opponent, allowing athletes to be more consistent and better than the opponent, who are determined, focussed, confident and able to stay under control when under pressure (Jones, 2002).

In this study, when the effect of the first goal scored on the result was analysed, it was found that 255 teams won the match with a rate of 73,2% (figure 9).

The winning percentage of the team that scored the first goal in the matches is quite high. Although the goal is seen as the most important factor in football competitions, it was found that there is a positive relationship between the first goal and winning at the end of the match.

Leite (2013), in his study on the 2012 European Football Championship, stated that the teams that scored the first goal won the match with a rate of 70,97%.

Armatas, Yiannakos (2010), analysing 64 matches in the 2006 World Cup, found that the team that scored the first goal won 73,21% of the matches analysed.

Michailidis et al., (2013), in their study analysing the goals of the 2012 European

Championship, stated that the teams that scored the first goal won the match with a rate of 70,97%.

Armatas et al., (2009) analysed 558 goals in 240 matches from the Greek Super League and reported that the team that scored the first goal won the match with a rate of 71,43%.

When the studies in the literature are analysed, it is seen that the results of real football competitions and e-sports football competitions are similar. These results show us that the first goal in a football competition is a strong parameter that affects the match scores and the team that scores the first goal wins the match. It can be said that the first goal in football competitions is usually the determinant of the result.

In this study, as a result of the analysis, it was found that 925 (91%) of the goals scored in the Turkey E-Sports Football League were scored as a result of an organised attack (Graph 3).

Leite (2013), in his study on the goal analysis of the 2012 European Football Championship, similar to our study, stated that more goals were scored as a result of organised attack (53,95%).

Mitrotasios, Armatas (2014), in their study, stated that 72,4% of the goals were scored by organised attack and 1/3 (27,6%) by set plays according to the type of game. With a similar result, James et al., (2005), Lago, Martin (2007) and Taylor et al., (2004) found that approximately 25-40% of all goals were scored with set plays.

Cerrah, Gürol (2011) examined 6.726 goals scored in 8 seasons in the Turkey Super League and found that 4.687 (69,68%) goals were scored as a result of organised attack and 2.028 (30,32%) goals were scored as a result of set plays.

Çobanoğlu, Terekli (2018), in their study on goal analysis of 2016 European Football Championship competitions, stated that 63 (53,3%) goals were scored as a result of organised attack.

The findings in the literature and the findings of our study are in parallel with each other. It can be concluded that both real football teams and E-Sports football teams need organised attacks to score goals. Just as in real football competitions, teams determine a goal scoring strategy with organised attacks, e-

sports football teams aim to score goals with the same strategy. It is seen that approximately 91% of the goals scored in Turkey E-Sports Football League are scored in the game flowing with organised attacks.

When the goals scored from set-piece goals were evaluated within themselves, it was revealed that a large proportion of the goals were from penalties. According to the findings of the study, 67 (73,6%) of the goals scored from set-pieces in the Turkey E-Sports Football League were scored from penalties. The least number of goals was scored from free kick. No goal was scored from a throw-in (figure 4). Even though goals scored from set-pieces are of critical importance in football competitions, it is seen that they have a low proportion in the total number of goals. In this study, when the goals scored from penalties and other set-pieces are taken into consideration, it is seen that the rate of penalties being converted into goals in e-sports competitions is quite high.

Durlik, Bieniek (2014) analysed 942 goals scored in England Premier League matches and reported that 103 goals (36,3%) were scored from corner kicks, 98 goals (34,5%) were scored directly and assisted from free kicks, 69 goals (24,3%) were scored from penalty kicks and 14 goals (4,9%) were assisted from throw-ins.

Acar et al., (2007), in their analysis of the 2006 FIFA World Football Cup, stated that out of 147 goals, 24 goals (16%) were scored from free kicks, 13 goals (9%) from penalty kicks, 12 goals (8%) from corner kicks and 6 goals (4%) from throw-in.

There is a difference between the findings in the literature and the findings of our study when analysed in terms of the area where the set-piece was kicked.

The reason for this difference can be said that the number of penalties won in real football competitions and e-sports football competitions is different.

In addition, in the literature, the excess of free kick and corner kick goals stands out. While the importance of goals scored from set-pieces increases in developing football, it can be said that corner kicks and set-pieces are important determinants in terms of tactical understanding.

In this study, as a result of the analysis, it was determined that 615 (60,5%) of the 1016

goals scored in the Turkey E-Sports Football League were scored with a single kick (Table 5).

Çobanoğlu, Terekli (2018), in their study analysing the goals of 2016 European Football Championship competitions, determined that 74 goals (68,5%) were scored with a single contact and 14 goals (13%) were scored with 3 or more contacts.

Durlik, Bieniek (2014) reported that 654 (69,3%) of the 942 goals in the English Premier League were scored with one contact, 168 (17,9%) goals were scored with two contacts and 120 (12,8%) goals were scored with control and dribbling or more than two contacts.

Mitrotasios, Armatas (2014) reported that in the Euro 2012 championship, 63,7% of the goals were scored with a single contact, 19,7% were scored with a kick after ball control, and finally 16,9% were scored after control and dribbling contacts.

The findings in the literature and the findings of our study are in parallel with each other. When we look at our study and past studies, it is seen that the number of goals scored decreases as the number of contacts increases.

In Turkey E-Sports Football League and in real football competitions, it is seen that the attacking zone players take position according to the passes that will come to them in the penalty area and the lower the number of contact with the ball, the higher the probability that the position will result in a goal.

In this study, as a result of the data obtained in terms of the way the goals were scored, it was determined that the rate of goals scored with the foot was much higher than the rate of goals scored with the head in the Turkey E-Sports Football League. According to the criteria of foot strike and head strike, it was found that 938 (92,3%) goals were scored with foot strike and 78 (7,6%) goals were scored with head strike (Graph 6).

Durlik, Bieniek (2014) analysed the data of 942 goals in the matches played in the English Premier League 08/09 football season and reported that 749 goals were scored with a foot strike, 167 goals were scored with a header and finally 26 goals were scored with a single contact.

Silva, Campos Júnior (2006) analysed the 2006 World Cup goals and found that 113 (76,87%) of the 147 goals scored were scored

with a foot strike, while 34 (23,13%) were scored with a header.

In another study, 108 (80,6%) goals scored in the 2010 World Cup were scored with the foot and 26 (19,4%) goals were scored with the head (Njororai, 2013).

The results of the studies in the literature and the results of our study are similar. Although it is normal for goals to be realised with a foot strike due to the way football is played and its characteristics, the value of head goals in competitions is also very high.

According to the results of the analysis of this study, it was observed that 984 (96,8%) of the goals scored in the Turkey E-Sports Football League were scored from inside the penalty area. The excess of goals scored from inside the penalty area draws attention.

When we look at the studies on competition analysis in the literature, it is seen that the regions where goals are scored is an important parameter and in many studies, goals scored inside and outside the penalty area are analysed.

In the second half of the German League Bundesliga 88/89 season, 88% of the goals scored were from inside the penalty area and 12% from outside the penalty area (Loy, 1990).

Michailidis et al., (2004) found that 64,4% of the goals scored in the UEFA Champions League 2002-03 were scored from inside the penalty area and 36,5% from outside the penalty area.

It was stated that 83% of the 873 goals scored in the Spor Toto Super League Süleyman Seba Season in Turkey were scored from inside the penalty area, while 17% were scored from outside the penalty area (Akgül, 2017).

Silva, Campos Júnior (2006) analysed the 2006 World Cup goals and found that a total of 147 goals were scored and 121 (83,31%) of these goals were scored from inside the penalty area and 26 (17,69%) goals were scored from outside the penalty area.

In another study analysing the goals scored in the UEFA Champions League in the 2009-2010 season, it was found that 73,75% of the goals scored were scored from inside the penalty area (Charalampos et al., 2013).

It is clearly seen in the studies conducted in the past years that the rate of goals scored inside the penalty area is

considerably higher than the goals scored outside the penalty area. In this study, when the results were compared with the literature, the goals scored inside and outside the penalty area were similar to the literature.

There is a parallelism in the results of all the studies analysed and the region where goals are scored in E-Sports football competitions. In the light of these results, it is thought that E-Sports football coaches need to develop excellent tactics and strategies to neutralise the defence in this area of the field of play, taking into account that goal attempts from inside the penalty area may have a higher success rate and the high rate of attacks resulting in goals inside the penalty area.

According to the findings obtained in this study, it was observed that the most goals were scored from the 3rd zone inside the penalty area with 693 goals in the Turkey E-Sports Football League.

Hughes (1996), in his study, stated that 4 out of every 5 balls from the middle were hit from this area.

Carling et al., (2007), in their study on the 2002 World Cup, reported that 37% of goals were scored from the same area.

Çobanoğlu, Terekli (2018), in their study on the 2016 European Football Championship, stated that the most goals were scored from the same region as our study.

Mitrotasios, Armatas (2014) reported that 90% of the goals scored in the Euro 2012 championship were scored from inside the penalty area and 42,1% of these goals were scored between the penalty spot and the goal area.

Çobanoğlu (2019), in his study analyzing the goals scored in the 2018 Russia World Cup, determined that 95 goals were scored from the 3rd zone, which is the goal zone in our study.

Yiannakos, Armatas (2006), in their study on the goals scored in Euro 2004 European Football Championship, stated that 32,2% of the goals were scored from inside the goal area, 44,4% from inside the penalty area and 20,4% from outside the penalty area, and with similar results, it was stated that the teams that won the competitions in some important tournaments scored more goals from inside the penalty area.

The results of the studies in the literature and the results of our study are similar.

In the football game, which has developed from past to present, football teams want to win the competition by developing various variations to reach the goal. In competitions, the excess of balls crossing the goal line is the most basic factor that determines the winner. It shows that the closest area to the goal in football is the inside of the penalty area that sees the goal from the opposite side and it is important for football teams to bring their offensive organisations to the inside of the penalty area and to perform the goal organisation from this area. The results of the past studies and this study also support this. Real football team coaches and e-sports coaches should focus on improving their teams' tactical attacking organisation up to the penalty area in order to score goals.

According to the results of the analysis of this study, it was found that the most assists before the goal kick in the Turkey E-Sports Football League were made from the number 9 zone with 201 (24,3%) assists. Zone 3 inside the penalty area was found to be the second most assisted zone with 126 assists. These results show that the most assists were made from the centre and inside the opponent's penalty area.

Çobanoğlu (2019), in his study on the Analysis of Goals Scored in the 2018 Russia World Cup, it is seen that the highest number of assists is similar to our study with 13 (11,92%) goals from the number 9 zone.

In a study conducted by Hughes et al., (1986) World Cup matches, it was stated that the successful teams used the central area more instead of the wings (Cited in Işıkdemir, 2016).

CONCLUSIONS

As a result of the data we obtained in terms of the assisted areas criterion; it was determined that the offences that resulted in goals in TEFL were realised with more assists in the opponent area.

The results of the previous and our study also support this. It shows the importance of assists for goals in real football competitions and E-Sports football competitions.

It is thought that it would be useful for coaches to indicate that the assist zone in the game should be realised in the opponent's field and in the opponent's penalty area in the

trainings to be applied to E-Sports players and to have training on these regions.

In football competitions in TEFL, each footballer on the screen is managed by a separate player. As a result of this game mode, the competitions played in TEFL are played as 11 v 11, just like in real football competitions. For this reason, the results of our analysis are similar to real football.

Researchers can make comparisons on different variables by adding to the existing parameters. They can make comparisons with TEFL by conducting studies on E-Sports football tournaments such as FIFAE World Cup, FIFAE Nations Cup and FIFAE Club World Cup where an E-Sports player manages the football players on the screen.

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