

**GAME ANALYSIS OF LIVERPOOL FOOTBALL CLUB  
IN ENGLISH PREMIER LEAGUE  
SEASON 2019/2020**

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By

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**ABSTRACT**

Success is linked to the ability to keep the ball in their possession and make more passes during soccer games. Many people have been impressed by Liverpool FC's dominance in the English Premier League (EPL) in recent years especially season 2019/2020. **Objective:** The purpose of this study was to compare Liverpool FC's performance to that of their opponents, and found out the key indicator is that Liverpool FC won the EPL 19/20 season. **Methods:** In this study, the Performance Indicators (P.I) were total shots (TS), shot on target (SOT), percentage of ball possession (BP), total touches (TT), total passes (TP), and goal scored (GS). Twelve matches from the 2019/2020 English Premier League (EPL) season were chosen. The official website of the English Premier League (EPL) provided data for 12 matches. The data was organized in Microsoft Excel sheets based on the P.I. An independent T-test was used to analyze the differences between the teams, and Spearman's rho correlation test was performed to determine the correlation between the P.I. Between Liverpool FC and their opponents. **Results:** There was a significant difference in the total shoot ( $p=0.012$ ), shoot on target ( $p=0.022$ ), ball

possession, total touch, and total passes ( $p=0.000$ ). Except for the goal scored, all variables had positive correlations between them. **Conclusion:** This study found that a high number of total touches and passes, as well as a high percentage of ball possessions, influence a team's ability to win a soccer game in England.

**ANALISIS PERMAINAN BOLA SEPAK LIVERPOOL  
KELAB DI LIGA PERDANA INGGERIS (EPL)  
MUSIM 2019/2020**

**ABSTRAK**

Kejayaan dalam sesuatu perlawanan dikaitkan dengan kemampuan untuk menyimpan bola di pihak mereka dan membuat lebih banyak hantaran semasa permainan bola sepak. Ramai tertarik dengan dominasi Liverpool FC dalam Liga Perdana Inggeris (EPL) dalam beberapa tahun kebelakangan ini terutama musim 2019/2020. Objektif: Tujuan kajian ini adalah untuk membandingkan prestasi Liverpool FC dengan prestasi lawan mereka, dan mengetahui petunjuk utama Liverpool FC memenangi EPL 19/20 musim. Kaedah: Dalam kajian ini, Petunjuk Prestasi (PI) adalah jumlah tendangan (TS), tendangan ke sasaran (SOT), peratusan penguasaan bola (BP), jumlah sentuhan (TT), jumlah hantaran (TP), dan gol yang dijaringkan (GS). Dua belas perlawanan dari musim Liga Perdana Inggeris (EPL) 2019/2020 dipilih. Laman web rasmi Liga Perdana Inggeris (EPL) memberikan data untuk 12 perlawanan. Data disusun dalam lembaran Microsoft Excel berdasarkan P.I. Ujian-T bebas digunakan untuk menganalisis perbezaan antara pasukan, dan ujian korelasi Spearman rho dilakukan untuk menentukan korelasi antara P.I. Antara



Liverpool FC dan lawan mereka. Hasil: Terdapat perbezaan yang signifikan dalam jumlah tendangan ( $p = 0,012$ ), tendangan pada sasaran ( $p = 0,022$ ), penguasaan bola, jumlah sentuhan, dan total hantaran ( $p = 0,000$ ) Dengan pengecualian gol yang dijaringkan, semua pemboleh ubah mempunyai korelasi positif di antara sesame sendiri. **Rumusan** : Kajian ini mendapati bahawa jumlah sentuhan dan hantaran yang tinggi, serta peratusan penguasaan bola yang tinggi, mempengaruhi kemampuan pasukan untuk memenangi permainan bola sepak di England.

**CHAPTER 1**  
**INTRODUCTION**

**1.1. Background of the study**

Football is one of the big sport in the sports industry and it has many supporters worldwide. Football is a big industry and it can be analysed based on many aspects (Hughes, 2019). When it comes to research there are many things they can research football but this research just focuses on game analyses. Game analyses can analyze by using data of indicators of a sport (Hughes and M Bartlett, 2002). There are many types of indicators as well which are being applied to analyze a football match such as the total passes made by the players, percentage of ball possession, shoot on target and goal scored. Ball possession is one of the indicators that too focus by many researchers (Bate, 1988; Hughes & Franks, 2005; Pollard & Reep, 1997) and organization such as Opta sports and Squawka analyze all the other indicators also for every game. The analysis of match performance is commonly used to observe and assess player and team performance in professional soccer to help the coach to make coaching interventions more objective and effective the match performance (McGarry & Franks, 2003). Thus, every team opponent is responsible for the " unexpected " in a match, requiring constant adaptation to constraints due to the conflict between two teams (Elias & Dunning, 1966; Grehaigne, Bouthier, & David, 1997), a match-performance analysis must take into consideration the interactions between the two teams. In football analysis, possession has been one of the most studied indicators (Hughes and Bartlett, 2002; McGarry and Franks, 2003). This is because it can lead a team to take the offensive

game's initiative on how they won the match and can use it as a lesson to them in future. Due to the success of teams such as Barcelona and the Spanish national team who have retained hegemony in European and world football using a playstyle focused on possession and taking the lead by holding the ball, this variable has gained greater significance in recent years.

Some studies show that great control implies greater team performance and these are the research that supports this fact. Hook and Hughes (2001) announced that successful teams obtained longer possession time than the unsuccessful teams in the UEFA Champions League, FIFA World Cup, and UEFA Euro. Bloomfield et al. (2005) found that the top three teams gained longer possession time than their opponents in the English Premier League (Arsenal, Chelsea, and Manchester United) from 2003-2004. James et al. (2004) identified huge gaps in ball control between the English Premier League's successful and unsuccessful teams. In a research from the same league, but the 1996–1997 season, Carling et al. (2005) obtained the same findings. The 1998 FIFA World Cup and Hook and Hughes (2001) 2000 UEFA Champions League were analyzed by Grant et al. (1999), both studies found that possession is related to team performance. Not only ball possession can be analyzed to compare the difference between upper tier and lower tier teams of some leagues.

The other indicator is about goal scoring and this is the most critical part of a game because this will determine a team wins or not the game. The meaning of goal scoring is the player should ensure that the ball is above the line of the opponent's goal post. In scoring a goal, the number of the shoot on target plays a significant

role and this is related to the preservation of ball possession. Several studies (Lago-Peñas, C., 2010; Lago & Martín, 2007) have shown that good teams have greater total goals, goal shoot, crosses, possession of balls and home play. The other indicator that also this research can focus on is the total passes and it will change the gameplay too. In an organization such as World Cup which elite athletes participated, while successful teams had high rates of ball possession it can be said that having the ball in midfield and offensive region and passing attempt, successful passing scores, passing success per cent at a high level are the most basic principles that bring success (GÖRAL, 2015). This type of analysis will help the team and the coach to identify the weakness of the team and they can improve it for the future of the club. In this study, I focus on the upper tier and lower tier teams from the English Premier Leagues (EPL) season 2019-2020. The Upper and lower-tier refer to the top 3 teams and bottom 3 teams from the league table. The aim of the proposed study is to notational analyzed the game performance (e.g., ball possession, shoot, shoot on target, passes, passing accuracy and total saves) of the three (3) top and lowest teams in EPL, season 2019-2020.

## **1.2. Problem Statement**

The English Premier League is the highest level of the professional football league in England. Similarly, English Premier League is the most famous football league in the world and most followed by the entire world including Malaysia. In fact, during the 2019/2020 season, English Premier League has reached 4.7 billion viewers from around the world (Wikipedia). One of the best reasons that the people watching the English Premier League compared to the other football league is consists of a variety of strategies and so many powerful teams in a league. Moreover, English Premier League has become one of the most attractive to the world because most of the world-class players are played for the English club.

However, the main aim of this study is to compare the performance between Liverpool F.C. and their opponents in English Premier League 2019/2020 season. The problem of the study was to identify the main indicator which causes the Liverpool F.C. to become a successful team in the season. Additionally, this study also wants to identify the other factors that influence the team to become successful and unsuccessful.

### **1.3. Objective of study**

The main objective of this study is to compare the performance between Liverpool F.C. and their opponent in EPL season 2019-2020. The specific objectives of my study are as below :

1. To identify the main indicator which causes the Liverpool F.C. to become a successful team in the season.
2. To identify the other factors that influence the team to become successful and unsuccessful.

### **1.4. Hypothesis of study**

- Null hypothesis

$H_0$ : There is no significant difference in the performance between Liverpool F.C. and their opponent in EPL season 2019-2020.

$H_1$ : There is a significant difference in the performance between Liverpool F.C. and their opponent in EPL season 2019-2020.

### **1.5. Significance of the study**

This study intends to investigate that performance have influenced the success of a team or not. The result also will help the coach and player of the team to improve the team's weaknesses and to perform well in future. This study also will identify the main indicator that a football team have to consider to win a game. The indicators use as a factor are the percentage of ball possession, total shoot, shoot on target, total touches, total passes, and goal scored. These all indicators are the strategies and tactics of a team to perform in a game. From this study, the coaches also can improve their coaching style by understanding the main indicators. Players also will get more benefit from this study which can help them to increase their knowledge and understanding about tactical in football. This is also, knowledge that can be used in the future when they become a coach.

## **CHAPTER 2**

### **LITERATURE REVIEW**

Respond to team performance is critical, especially when it comes to the quantitative data acquired by coaches during games. The way the information is transmitted to the coach and the players, such as its simplicity and ease of sharing information, provides players with feedback about their performance to accelerate their development and achieve success, according to Rabi Muazu, Mohamad Razali, Ahmad Bisryi, Norlaila, Siti Musliha, Aleesha, Norzulaika, and Vijayamurugan (2017). In sports, match analysis or performance analysis is typically employed to bridge this gap by giving the necessary information (Castellano, Casamichana, & Lago, 2012). According to Hughes and Franks (2005), match analysis can assist coaches in recalling specific game events and in developing a stronger training programme for their teams to address their inadequacies. Match analysis can also be used to detect the opponent's weaknesses and exploit those shortcomings to win the game (Hughes & Franks, 2007).

The study about performance analysis will focus on the ways how data can be collected to analyze for improve future performance. There are many ways to analyze but the notational analysis is commonly being used by researchers and it is also more effective than other ways of analysis (Albin 2011; Casal, et al, 2017; Hughes, 2008). In the modern world, the advent of computerized technology has made it possible to further improve such as the computerized



version of the data collection method of Sanderson and Way (1977) was developed by Hughes (1985). This type of study will help to improve the way of technological development in performance analysis which will make the result more effective. The performance analysis can identify the indicators which can use to analyze as a factor in this research. Soccer is classified as an invasion game, which is a two-part game to push the ball down the field towards the opposing team's goal to score more goals than your opponent (Collet, 2013). Every sport has its own set of performance indicators (P.I. ), and ball possession is one of the most common indicators used in the tactical analysis in soccer. According to the previous study (Collet, 2013; Göral, 2015; Hughes & Franks, 2005; Jones, James, & Mellalieu, 2004; Kempe, Vogelbein, Memmert, & Nopp, 2014), successful teams pass more than unsuccessful teams. They also stated that teams with the capacity to hold possession for longer periods will have more chances to score goals. Ball possession (BP) occurs when a player has sufficient control of the ball to exert an intentional impact on its trajectory. When the ball is out of play, an opposition player touches it, or the referee blows the whistle for an infringement, possession is lost (Jones et al., 2004).

Instead of evaluating the success and failure of one team, comparing the combined data of two or more separate teams can provide general values that can be used as regulatory data to design and collectively assess soccer peak performance team activities and competitions (Lago-Peñas, Lago-Ballesteros and Rey, 2011). In research by Ruben Maneiro (2020) on game analysis, he said that the influence of match status on ball possession is will bring a result of

high-performance women's football. That research has a big similarity with the present research because one of the indicators of this study is ball possession which is one of the main things that can improve the gameplay of a team. On the other hand, several teams have had success by executing direct attacking plays and counterattacking their opponents. Hughes and Franks (2005) found that in the 1990 and 1994 FIFA World Cups, 84 percentage (1990 WC) and 80 percentage (1994 WC) of consecutive passes that result in a goal originate from four passes or less, with longer passing sequences having lower goal rates. The ability to attack plays to disrupt the opponent's defensive structure with a sense of surprise has been demonstrated. The defensive line can minimize the displacement of the defensive formation and take more time to prepare while the lengthier attacking build-up play. Longer possession, on the other hand, results in more shooting possibilities for the winning team, whereas fewer amounts of consecutive passes result in a higher possession per goal ratio (Hughes & Franks, 2005)

Based on Kiyoshi Naito in 2013 he said that it is seen as FC Barcelona in soccer, team ball retention is high as to leave good results, but the act itself that holds the ball is not mean that the score is provided with a direct factor of victory or defeat it can not be said that. From this can notice that a team with good ball possession not really will win a game and the winner will be confirmed by which team make high scoring. This shows that goal-scoring is also an indicator that can cause a win for a team if the team have high goal-scoring but without having good ball possession in the game a team is not easy

to score a goal. So, the most crucial component of the game is scoring goals. To score a goal, the player must pass the ball over the goal post line of the opponent. The number of shots on target is related to ball possession retention and plays a vital role in scoring a goal. Goal scoring may influence consequent performance and thus should be considered as determinate information for identifying the critical incidents of the game (Pratas, Volossovitch and Carita, 2017). It shows that every team will focus on goal scoring and win the game but the other factors will influence to score of a goal. It means by increasing in total shoot and shoot on target will increase the probability of goal scoring (Stenerud, 2015). According to several studies (Lago-Peas, Lago-Ballesteros, Dellal, & Gómez, 2010; Lago & Martn, 2007), successful teams had more total shots, shot on goal, crosses, ball control, and play at home. As a result, high ball possession leads to winning matches and has a substantial impact on soccer match failure and success. While many studies have been completed in major soccer countries addressing the association between performance indicators and winning games, it is important to determine whether the same concepts can be used in this study. Thus, by studying the selected P.I of Liverpool FC in the English Premier League (EPL) 2019/2020 season, this study was undertaken to analyse the main performance indicator of a successful soccer team.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Sample**

The sample comprised 12 matches played during the 19/20 season of the English Premier League (EPL). By winning the EPL 19/20 season, Liverpool FC was selected as the successful team. The opposition teams were chosen as opponent teams from two top table teams Manchester United and Manchester City F.C. , two middle table teams Burnley F.C. and Southampton F.C., and two lower table teams Watford F.C. and Norwich City. Data have been registered for home and away games. Home and away games will be evaluated.

#### **3.2 Data Collection Procedure**

From the twelfth match during the 19/20 season of the England Premier League the indicators will be the main variable for the data collection. The data was obtained from the website (<https://www.premierleague.com/>) and it will organize in Microsoft Excel sheets based on the P.I. An experienced researcher and coach (soccer coaching experience with professional players: 10 years; academic degree: graduated in sports science) will analyze the possession in twelfth chosen matches and compared to the achieved data with those from the website (<https://www.premierleague.com/>) for calculating the data reliability. The approximate duration to collect and key in the data for one match is 15 to 20 minutes.

### **3.3 Data Analysis**

All data will be obtained and distributed as important to Statistical Packages for Social Science (SPSS) with  $p < 0.05$ . An Independent T-Test will use to differential between the groups and Spearman's rho correlation test to detect a relationship between all P.I chosen between Liverpool F.C. and the opposite team because the data are non-parametric.

### **3.4 Reliability**

For the reliability testing technique, three matches were chosen. Intra-observer reliability was substantially connected when data was collected from other sources ( $r: 0.999$ ).

### **3.5 Performance Indicators**

The performance indicators (P.I) are the total shoot (TS), shoot on target (SOT), percentage of ball possession (BP), total touches (TT), total passes (TP) and goal scored (GS). These six performance metrics were used to analyze all of the games that were chosen.

### **3.5.1 Total shoot**

The total shoot is referred to the number of times a team hits the ball in an attempt to score a goal. It's commonly done using the hands or the head.

### **3.5.2 Shoot on target**

Any goal attempt that goes into the net regardless of intent is considered a shot on target. Is an obvious attempt to score that would have gone in the net if the goalie had not saved it or is stopped by a last-man player with the goalkeeper having no chance of stopping it.

### **3.5.3 Percentage of ball possession**

During a football game, ball possession refers to how long a team has control of the ball. Possession is commonly stated as a percentage, such as 65 percent for team A and 35 percent for team B.

### **3.5.4 Total touches**

A total of all incidents in which a player comes into contact with the ball, excluding items like Aerial lost or Challenge lost. Touches can be made by using any part of the body except the arm and hands for all players when in a match. The only goalkeeper can use all parts of the body to make a touch.

### **3.5.5 Total passes**

Any ball that is intentionally passed from one player to another. Open play passes, goal kicks, corners, and free-kicks played as passes are not included, nor crosses, keeper throws, or throw-ins.

### **3.5.6 Goal Scored**

A goal is scored when the entire ball passes over the goal line, between the goalposts, and under the crossbar, provided that the team scoring the goal has committed no offence. A goal kick is awarded when the goalie throws the ball directly into the opponents' goal.

## CHAPTER 4

### RESULTS

#### 4.1 Football Team's Indicators Result.

We saw a total of twelve soccer matches from seven different English first division teams. Two top-table teams (Manchester United and Manchester City F.C.), two teams from the middle-table (Burnley F.C. and Southampton F.C.), and two teams from the bottom-table (Watford F.C. and Norwich City) were selected as opponents. All of the games observed were from the 2019/2020 English Premier League season.

Even though the Successful side had a higher mean score than the Opponent team, there were no statistically significant differences in goal scored (GS). Total shoot (TS) ( $p=0.012$ ), shoot on target (SOT) ( $p=0.022$ ), ball possession (BP), total touch (TT), and total passes (TP) ( $p=0.000$ ) were all significantly different.



**Table 1:** Mean score and p -value of Selected Performance Analysis in soccer matches

Indicators	Successful team		Opponent team		p-value
	n	Means $\pm$ SD	n	Means $\pm$ SD	
Total shoot	12	14.92 <sup>^</sup> $\pm$ 4.10	12	10.42 $\pm$ 3.90	0.012
Shoot on target	12	5.50* $\pm$ 2.43	12	3.42 $\pm$ 1.62	0.022
Ball possession	12	62.42** $\pm$ 6.44	12	37.58 $\pm$ 6.44	0.000
Total touch	12	770.58** $\pm$ 73.68	12	546.08 $\pm$ 70.74	0.000
Total passes	12	582.33** $\pm$ 78.70	12	350.33 $\pm$ 70.43	0.000
Goal scored	12	1.92 $\pm$ 1.38	12	1.00 $\pm$ 1.28	0.105

<sup>^</sup>significant difference between successful team and opponent (p=0.012)

\*significant difference between successful team and opponent (p=0.022)

\*\*significant difference between successful team and opponent (p=0.000)

From table 1 the mean for the total shoot of the successful team was  $14.92 \pm 4.10$  and the opponent team was  $10.42 \pm 3.90$ . The mean for this indicator shows that the successful team got high means score than the opponent team. So, There was a significant difference between a successful team and an opponent team for the total shoot indicator (p = 0.012). The mean for the shoot on target of the successful team was  $5.50 \pm 2.43$  and the opponent team was  $3.42 \pm 1.62$  which shows that the mean score of a successful team is a bit higher than the opponent team. So, there was a significant difference between a successful team and an opponent team for the shoot on target indicator (p=0.022).

The mean score for a ball of a successful team was  $62.42 \pm 6.44$  and the opponent team was  $37.58 \pm 6.44$ . From this, we can see that there was a huge difference in the mean score which shows the successful team has the highest value of mean than the opponent team. The mean for the total touch of the successful team was  $770.58 \pm 73.68$  and the opponent team was  $546.08 \pm 70.74$ . The mean for this indicator shows that a successful team have a big mean score than the opponent team which show that there was a huge difference between the teams. The mean for total passes of the successful team was  $582.33 \pm 78.70$  and the opponent team was  $350.33 \pm 70.43$  which shows that the mean score of the successful team was higher than the opponent team. Ball possession, total touch and total passes have a huge difference in the mean score between successful and opponent teams. So, These indicators show that there was a significant difference between a successful team and an opponent team ( $p=0.000$ ).

The last indicator we analyze was a goal scored which are the mean score for a successful team was  $1.92 \pm 1.38$  and the opponent team was  $1.00 \pm 1.28$ . Even though the successful team has high mean score than the opponent team but there was no significant difference between these two teams for this indicator ( $p = 0.105$ ).

## 4.2 The correlation between Indicators.

**Table 2:** Spearman's rho correlation coefficient test of Selected Performance Analysis in soccer matches

	TS	SOT	BP	TT	TP	GS
* TS		0.000**	0.014*	0.017*	0.041*	0.007*
SOT	0.000**		0.009**	0.017*	0.028*	0.000**
BP	0.014*	0.009**		0.000**	0.000**	0.229
TT	0.017*	0.017*	0.000**		0.000**	0.288
TP	0.041*	0.028*	0.000**	0.000**		0.459
GS	0.007*	0.000**	0.229	0.288	0.459	
n	24	24	24	24	24	24

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

TS : Total Shoot, SOT : Shoot On Target, BP : Percentage Of Ball Possession, TT : Total Touches, TP : Total Passes, GS : Goal Scored

Spearman Correlations between parameters of the total shoot (TS) shoot on target (SOT), percentage of ball possession (BP), total touches (TT), total passes (TP) and goal scored (GS) are shown in Table 2. As shown in Table 2, there were significant correlations between total shoot (TS) and all of the performance indicators (P.I) which are there is a relationship between total shoot (TS) and all of the performance indicators (P.I). The same goes to shoot on target (SOT) which has significant correlations between all of the performance indicators (P.I) also. For the

ball possession (BP) parameter there is a significant correlation between all of the performance indicators (P.I) except goal scored (GS). There were only no significant correlations between total passes (TP) and all other performance indicators (P.I) which is a goal scored (GS) indicator.

There were significant correlations between goal scored (GS) and total shoot (TS) (Correlation is significant at the 0.05 level (2-tailed)) and shoot on target (SOT) ( Correlation is significant at the 0.01 level (2-tailed)). Interestingly, there was no significant correlation between Goal Scored and ball possession (BP), total passes (TP) and total touch (TT). So based on this correlation test we can see that most of the performance indicators (P.I) are have a relationship between them which show that every indicator a very important to team overall performance.

## **CHAPTER 5**

### **DISCUSSION**

The goal of this study was to identify the key indicators that contribute to Liverpool FC's success in the EPL 2019/2020 season. We looked at the total shoot (TS), shoot on target (SOT), percentage of ball possession (BP), total touches (TT), total passes (TP), and goal scored (GS). Except for the goal scored (GS) indication, all performance indicators (P.I) between the successful team and the opponent team were shown to be significantly different in this study.

In comparison to the Opponent (unsuccessful) Teams, the results show that Successful Teams (Liverpool FC) had higher rates of total passes (TP), total touch (TT), and ball possession (BP), as well as high reps of total passes and total touch each match. These findings are consistent with a study by Göral (2015) that found that the winning side in the 2014 FIFA World Cup had greater passing success rates, as well as the results for FIFA World Cup champion Germany, which had the most overall ball possession in the tournament. Success in an event like the FIFA World Cup differs from success in a league. Kempe et al. (2014) analyzed 676 official games from three competitions as a sample which are FIFA World Cup 2010, Bundesliga 2009/10 and 2010/11 seasons. They discovered that winning teams valued possession of the ball over direct play. Furthermore, teams with a high possession rate were more likely to occupy the opponent's half to create chances. The Borussia Dortmund team, which is coached by Jürgen Klopp, is an exception to this rule. This team was the only one that was successful because it favoured direct