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Abstract

Shooting action was a very crucial action in one football match as it influences the outcome. Analysing shooting action during prominent competition was very important because a new trends and tactical play always been implemented in this level of competition. Due to this, the purpose of present study was to analyse the shooting action between the successful and unsuccessful team during the group stage matches of FIFA World Cup 2018. Purposive sampling was used, 24-matches ($n = 24$) from group stage been selected, with 12 matches ($n = 12$) from successful team and other 12 matches ($n = 12$) from unsuccessful teams. Successful teams been selected from top four teams that reach semi-final, while unsuccessful teams were from bottom four teams based on ranking during group stage of competition. Each team played three matches during group stage. Indicator selected, shooting action had been divided into two categories, which were the location of shooting action (inside penalty box and outside penalty box) and the area of shooting action (centre, right centre, left centre, right wing and left wing are). This study also analyses the total number of shooting actions produced by both groups. Data had been collected through a notational process ($r = 0.97$). Based on the finding (Independent sample t-test), there were significant differences between the successful team and unsuccessful team, when performing shooting action from inside penalty box ($t = -2.216$, $p = 0.037$), outside penalty box ($t = -2.116$, $p = 0.046$), and in total number of shooting action ($t = -3.001$, $p = 0.007$). The other indicators showed not significant differences ($p > 0.05$) for this study. The finding concluded that having more shooting actions during match could be beneficial for team in determining the outcome. This been proven when team produced more shooting actions during match, the outcome was a success one. This study also found that successful teams had an ability to create chances more than unsuccessful teams, either from inside penalty box or outside penalty box.

Keywords: *Shooting actions, notational process.*

INTRODUCTION

In final of EURO Championship 2016 between the host, France versus Portugal, there was only one goal scored that separated between the winner and loser. Portugal player, Eder scored the winning goal after made a shooting from outside of the penalty box, an unexpected action that shocked the France's player and fans. During that match, the statistics showed that France had more shooting actions compared to Portugal. However, they were unable to convert the shooting actions into goal scored, thus cost them to lose the trophy. As the result, Portugal been crowned as European champion, first ever major trophy in international level, even though struggle during the match.

That match explained that having more shooting actions did not secured the winning if failed to score a goal, the most important element in differentiating between successful teams and unsuccessful teams were goal scored. Successful teams gain an advantage towards opponent when then able to score a more goal during match, thus resulted won the match. This been supported by study from Jones, James and Mellalieu (2004), that stated goal scoring can differentiate between a successful and unsuccessful team.

Another important of scoring a goal was it also explained the process a goal being scored and determined the playing pattern in terms of attacking and defending (Leite, 2013). The process in producing a goal score end up with shooting action. Due to this process, successful team always implemented tactical that gave them an advantage in creating a space for shooting actions during match. This been proven by previous study which found, successful teams had an ability to convert possession into shooting actions compared to unsuccessful teams (Hughes & Franks, 2005). Previous study also stated that producing a lot of shooting actions during match could increased chances to score and win the match (Lago-Peñas, Lago-Ballesteros, Dellal, & Gómez, 2010). This explain why every coach usually used tactical that focusing more on attacking pattern, in order to create chances for shooting action.

The most important element in performing shooting action was the positioning and timing

of player. Football players have an instinct in deciding where and when they wanted to shot the ball. Player must be at a right place and the right time to ensure that the player was in good positioning for shooting action (Dufour, Phillips, & Ernwein, 2017). Player can be either inside penalty box or outside penalty box when they decided to perform shooting actions, if they found a space and opportunity to exploit the situation. Performing shooting actions from inside penalty box gave players short distance from target, and this causes difficulty for opponent's goalkeeper to save the ball due to short time for react with the situation (Yiannakos & Armatas, 2006).

However, anything can happen in football. The match between France and Portugal showed that shooting action from outside penalty box also can produce a goal, thus affected the result of match. When the players found that it was difficult to break through the opponent's defender to enter the penalty box, other solution to score a goal was through performing shooting action from outside the penalty box. Shooting action from outside penalty box can become one of unexpected action in a match. So, it was hard for the goalkeeper to save the ball when they were not in ready position for the situation. Shooting action from outside the penalty box required high ability with good technique, and it was one of the crucial moments that can change the environment of the match.

Shooting action also related to the area of the pitch where the action been taken. Area of the pitch had been separated to the centre and side of the pitch. In football, players took every chance to perform shooting action from any area depends on their positioning and timing. Previous study had stated that centre area of the pitch was a good position for players to create space for shooting action due to wide angle available from that area (Horn, Williams, & Ensum, 2002). However, side area of pitch also can be exploited by player because shooting action from that area also can produced a goal scored. Player has narrow angle availability from that side, with the near position of goal post already been covered by goalkeeper. Thus, team required a player with high-level of technique and ability to perform shooting action from side area.

Due to this, present study was conducted to analyse the shooting actions between successful teams and unsuccessful teams during group stage matches in FIFA World Cup 2018.

METHODOLOGY

Samples

This study involved the successful and unsuccessful teams at FIFA World Cup 2018. The successful teams were chosen from top four teams that qualified to the semi-final, whereas, the unsuccessful team were selected from the bottom four teams based on ranks during group stages. Each team played three matches during the group stage. Total 24 matches (n=24) been analysed during data collection process.

Procedures

This study started by identifying the successful teams and unsuccessful teams. Performance indicator for this study was shooting actions. The match involved selected teams been analysed based on indicator. Shooting actions been separated into location of pitch (inside penalty box and outside penalty box) and area of pitch (centre, right centre, left centre, right wing, and left wing). Figure 1 showed the process to collect the data. How football pitch been separated for this study been showed in Figure 2 and Figure 3, and the explanation in Figure 4. Comparison between successful teams and unsuccessful teams used the data gained through notational process.



Figure 1. Data collection process

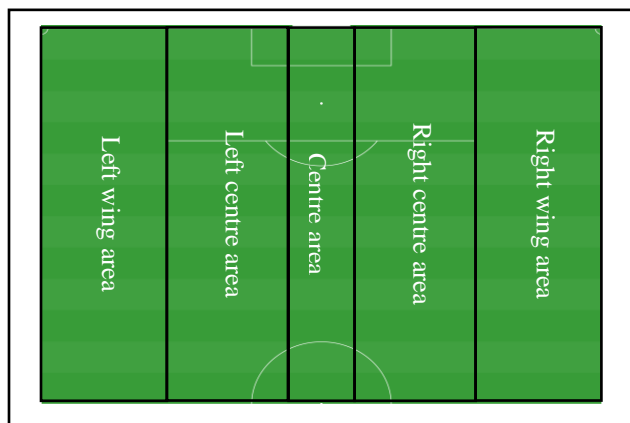


Figure 2. Area of pitch

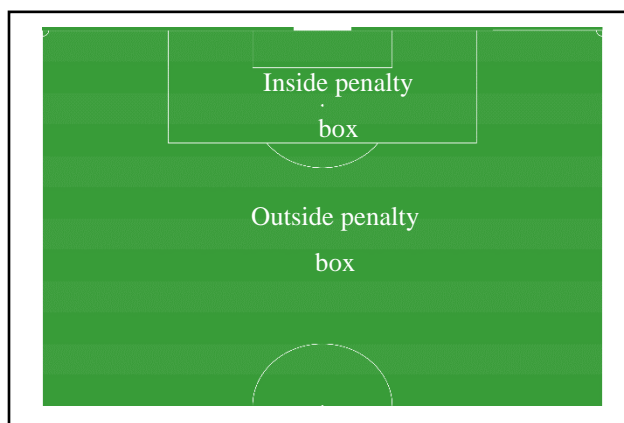


Figure 3. Location of pitch

The explanation for these separations been stated in Figure 4 below based on the previous study (Mara, Wheeler, & Lyons, 2012):

- i. Inside penalty box – Area inside rectangular box shape that extends to 18 yards (16.5 meters) to each side of the goal and 18 yards (16.5 meters) in front of the goal.
- ii. Outside penalty box – Area of pitch that outside the 18 yards box.
- iii. Left Wing – Measured from the left sideline to the left side marking of the 18-yard box.
- iv. Left Centre – Measured from the left side marking of the 18-yard box to the left goal post.
- v. Centre – Measured from the left goal post to the right goal post.
- vi. Right Centre – Measured from the right goal post to the right side marking of the 18- yard box.
- vii. Right Wing – Measured from the right side marking of the 18-yard box to the right sideline.

Figure 4. Explanation for Separation of Pitch

The intra-reliability testing has been used where only one researcher watched all the matches twice with a few days gap between first and second analysed, to get accurate data. Kappa test statistics demonstrated good levels for both intra-tester ($r = 0.95$) (Choi, O'Donoghue, & Hughes, 2007).

Statistical Analysis

The data been analysed and interpret used IBM SPSS Statistics 22 software. Descriptive analysis been used to find the mean of data for the number of shooting actions produced by the successful and unsuccessful teams during group stage match. Before using parametric statistical test procedures, the assumptions of normality were verified through Shapiro-Wilk analysis ($p > 0.05$). Independent t-test analysis been ran to find the differences between both groups in location and area of the pitch for shooting action. The significant for the analysis was consistent at ($p < 0.05$).

RESULTS

The result explained all indicators for each group been presented by a bar graph. Figure 5 presented the result for number of shooting actions from location of pitch produced by successful and unsuccessful teams. Based on the graph, for location of pitch, successful teams produced 95 shooting actions from inside penalty box, while unsuccessful teams with 61. Successful teams also performing 70 shooting actions from outside penalty box, and unsuccessful teams able to have 52 shooting action. This result indicated that players from successful teams able to produce more shooting actions and the ability and skill to create space and chances that gave them opportunity to perform the actions during matches.

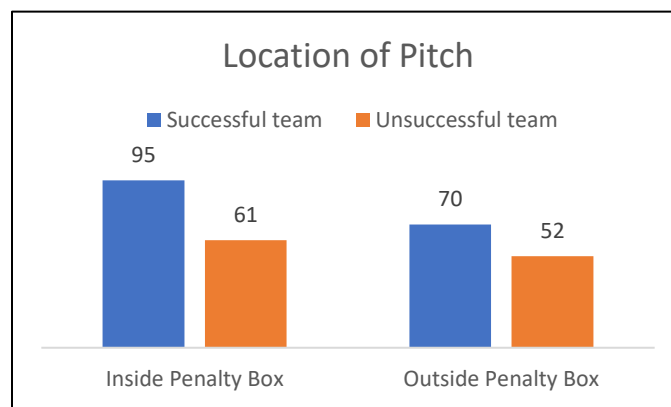


Figure 5. Data for Location of Pitch

Data in Figure 6 explained the result for comparison between both team in area of pitch. Result showed that the shooting actions more focused on centre area, right centre area, and left centre area of pitch, with successful teams produce more shots in this area. Result also stated that less shooting actions been produced for right wing area and left-wing area. Based on the result, data indicated that players tend to perform shooting actions from area that provide them with wide angle of goalpost, rather that shots from area with narrow angle.

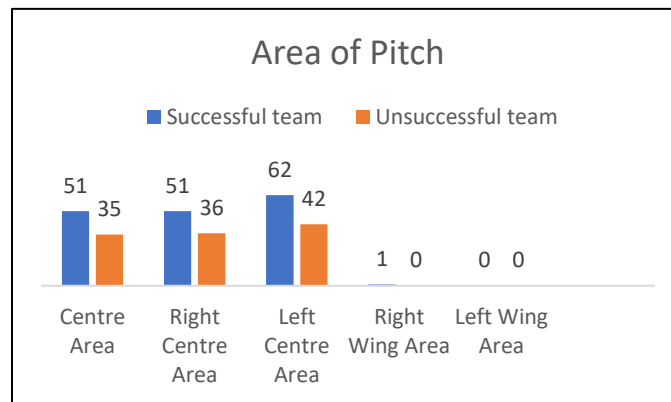


Figure 6. Data for Area of Pitch

Data for total number of shooting action for successful team and unsuccessful team been presented in Figure.7, which noted that, successful team produced 165 shooting action during all matches in group stages, higher than unsuccessful team that only able to produce 113 shooting action. This indicated that shooting action influence the performance of teams during competition and differentiate between successful team and unsuccessful team.

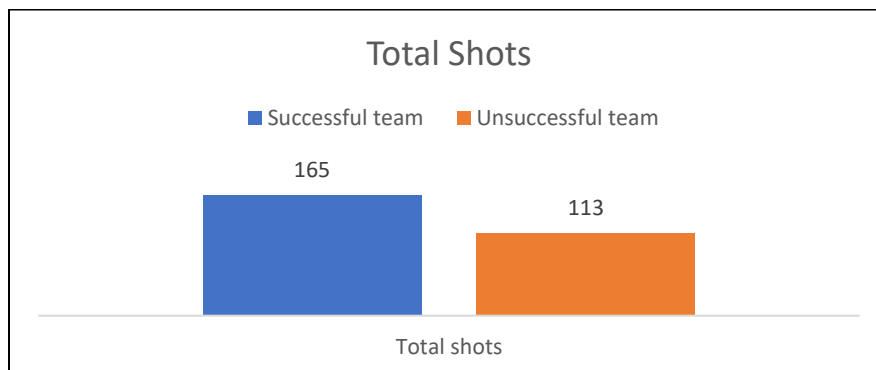


Figure 7. Data Comparison Total Shots

The result for Independent t-test analysis presented in Table 1, to seek the differences between successful teams and unsuccessful teams. The significant value stated for the analysis was consistent at $p < 0.05$.

Table 1: Descriptive table

Indicators	Groups	N	M	SD	t	Df	p
Inside penalty box	unsuccessful	12	5.08	2.429	-2.216	22	0.037*
	successful	12	7.92	3.704			
Outside penalty box	unsuccessful	12	4.33	1.303	-2.116	22	0.046*
	successful	12	5.83	2.082			
Centre area	unsuccessful	12	2.92	1.676	-1.523	22	0.142
	successful	12	4.25	2.527			
Right Centre Area	unsuccessful	12	3.00	1.651	-1.850	22	0.078
	successful	12	4.25	1.658			
Left Centre Area	unsuccessful	12	3.50	2.067	-1.572	22	0.130
	successful	12	5.08	2.811			
Right Wing Area	unsuccessful	12	.00	.000	-1.000	11.000	0.339
	successful	12	.08	.289			
Left Wing Area	unsuccessful	12	.00	.000 ^a			
	successful	12	.00	.000 ^a			
Total Shot	unsuccessful	12	9.42	3.476	-3.001	22	0.007*
	successful	12	13.75	3.596			

* The test is significant at the .05 level.

Based on result of Table 1, there was significant difference in number of shooting actions from inside penalty box for unsuccessful teams (5.08 ± 2.429) and successful teams (7.92 ± 3.704 ; $t(22) = -2.216$, $p = 0.037$). Table 1 also showed that there was significant difference in number of shooting actions from outside penalty box for unsuccessful teams (4.33 ± 1.303) and successful team (5.83 ± 2.082 ; $t(22) = -2.116$, $p = 0.046$). Result also stated that there was significant difference in total number of shooting actions for unsuccessful teams (9.42 ± 3.476) and successful teams (13.75 ± 3.596 ; $t(22) = -3.001$, $p = 0.007$). The other indicators did not show any significant differences with $p > 0.05$ as far as this study concerned.

DISCUSSION

Shooting actions already been proven to affect the outcomes of match in football. Shooting actions can be performed at any positions in the pitch where players found the space and opportunity. The present study found that there was significant difference between successful teams and

unsuccessful teams in the number of shooting actions from inside penalty the box. Successful teams had produced more shooting actions from inside the penalty box compared to the unsuccessful teams, thus proved that shooting actions from inside the penalty box was much more beneficial. This situation explained that successful teams able to supply more ball into penalty box of the opponent and had the ability to exploit the space inside the box. Entries inside penalty box mean that team create chance nearer to the goalpost, that give players large angle to be exploited, and decrease the chances of the goalkeeper to save the shots due to it been made outside of the goalkeeper's scope (Michailidis, Michailidis, Papaïakovou, & Papaïakovou, 2004).

The fact that inside penalty box also known as 'prime target area', which consisted of the six-yard box from the penalty spot to within two yards inside the six-yard box (Hughes & Franks, 2004). This explained why performing shooting actions inside the box was far more efficient to score a goal. The explanation correlate with the previous study during World Cup 2006 where performing shooting actions from inside the penalty box were more efficient compared from outside the penalty box (Acar, Yapicioglu, Arıkan, Yalcin, Ates, & Ergun, 2008).

In addition, the ability to exploit the space inside the penalty box also related to the performance of a team. Successful team always able to play very well and control the match. Previous study also stated that successful team able to create more entries into the opponent's penalty box when perform better compared to the unsuccessful team (Ruiz-Ruiz, Fradua, Fernández-García, & Zubillaga, 2013). Another study also mentioned that entries into penalty box should become an indicator for team performance because it required a good tactical and technical to break through the opponent's defender. Thus, the ability to do that indicated the team was having an advantage over the opponent (Tenga, Ronglan, & Bahr, 2010). Successful teams able to produce more shooting actions from inside the penalty box because they had the ability to control the match and gain advantage over the unsuccessful team.

This study found that performing shooting action from outside the penalty box also can influence the result of the match. Based on the result, it showed that successful teams produced more shooting action from outside the penalty box compared to unsuccessful team. During match, player took any chances and opportunity in a pitch to score a goal. Sometimes player found it was hard to break through into the opponent's penalty box, thus they struggle to perform shooting

actions from inside the penalty box. Another option was by creating space and opportunity from outside the penalty box because shooting action from this position can end up with goal scored. Shooting action from outside the penalty box can threaten the opponent's goalpost thus this action was unexpected for the goalkeeper, which caused them, failed to react with the situation. Previous study also found that some professional teams were more willing to find a goal from outside the penalty box, which was opposed with try supply the ball into the inside penalty box area, where goal scoring areas were closer to the goal (Wright, Atkins, Polman, Jones, & Sargeson, 2011).

Player tends to perform shooting actions from outside penalty box when they were at the position with enough space and time. Space and time were two important elements that affecting the shooting actions. Previous study stated that approaching to the scoring area, searching for enough shooting space and avoiding opponents' defensive pressure may have been the key elements which lead to winning the match (Liu, Gomez, Lago-Peñas, & Sampaio, 2015). In addition, players needed to evaluate the surrounding such as shooting distance, goalkeeper's position, opponent's defensive pressure, and shooting technique, before producing shooting action (Gonzalez-Rodenas, Lopez-Bondia, Calabuig, James, & Aranda, 2015). Successful teams having more shooting actions from outside the penalty box because they had player with an ability in terms technical and tactical, that can perform the action efficiently.

Statistics proved that team became success when they able to score more goal than the opponent. The goal came from shooting action produced by player. This current study found that there was significant difference in total number of shooting actions, where successful teams produced more shooting actions compared to unsuccessful teams. Chances to score a goal increased when teams had an ability to create chances and space for shooting actions. Teams with more shooting action able to increase the attempt towards the opponent's goalpost, thus increase the probability to score a goal (Lago-Peñas et al., 2010). Previous study by Castellano, Casamichana, and Lago, (2012), mentioned that in international matches, goal scoring-related variables, such as shooting actions, were associated with the team's success. This finding was similar with previous study in World Cup 2002, 2006, 2010, which showed shooting actions can differentiate between a successful and unsuccessful teams (Castellano et al., 2012). Successful team was a team that have right tactical and good player because, the combination of these two elements were important in determine the flow of team during match, especially in creating a space

for shooting action. Enough space and time allowed player to find the target and used right technique to perform shooting action that can resulted in goal score

CONCLUSION

Findings from this study concluded that shooting action was very important in influencing the outcome of the match. Successful team was a team that play better than unsuccessful team in terms of shooting actions. Teams with right tactical allowed players to control the match, and then gave them opportunity to exploit every space in pitch. Besides that, high ability and quality players also beneficial for team because they have a good technique in performing shooting action. This kind of players gave the team more option in attacking pattern and help them in process of scoring a goal. Team that able to create space for shooting action and able to exploit the opportunity has higher chances to score a goal and gain an advantage over opponent. This situation affects the outcome of match and leads them to success. Thus, these actions indicated and make the differentiate between successful teams and unsuccessful teams.

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