

Data analysis through FIFA World Cup 2010-2014

-Comparison between Korea-Japan team and World leading teams-

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Objective

In the biggest football competition FIFA World Cup 2014, no Asian teams, included Korea and Japan, could win at their group league. Both German and Netherland stayed Best 4, and both Brazil and Argentina promoted Best 8 to 4. Our objective is to find out how different those leading teams with Korea and Japan by analyzing data. Another objective is to suggest the next action for Korea and Japan to be part of leading teams in the world.

Key words :Data Analysis·Style·Shot pattern·Tempo

Conclusion

By comparing with two recent World Cup, 2010 and 2014, we found that a football trend in 2010 was so "possession style". With high passing skill, Spain team, the most successful possession style team, tried to keep a ball as long as possible to take initiative a game. In 2014, many teams, such as Netherland, Brazil, Columbia, Costa Rica, Chili, changed to "counter attack style". Only German adopted "hybrid style". From data, we realized that style of Korean and Japan in 2010 was "counter attack style".

With relatively good result, Best 16, both Korea and Japan had changed their style to "possession style" to promote higher level. However their change to possession style was opposite direction with other strong teams, which try to change to counter attack style to beat previous Champion.

By analyzing data of pass and shot with various angle, we found that "tempo" for shots is one of the most important elements to recognize difference between leading teams and Korea/Japan. At the last moment to get a goal, "shot from short distance", and "one touch shot" were very effective. To make a shot by one touch from short distance, "tempo" is the key concept. Without quicker tempo, it was not easy to break opponent strong defense line.

Strong teams, which try to be champion for World Cup, set a bench mark for next4 years by analyzing the most recent world Cup. However Korea and Japan always try to learn the style of "current Champion team" at the recent World Cup. Those learning process always caused Korea and Japan 4 years "behind GAP" with leading teams, such as German, Netherland, Brazil, and Argentina. To aim Best 4 in the World Cup, Korea and Japan team should be changed their attitude from just "learning" to "analyzing" and "finding" future trend of football by ourselves.

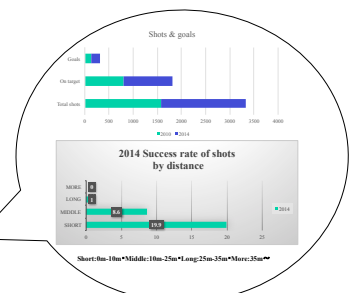
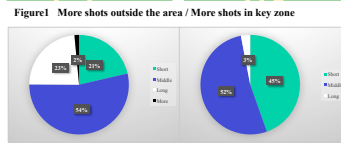
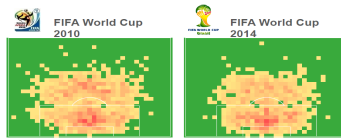
Technical Performance (Basic skill)	Number of shots	Shot success rate
	Number of passes	Pass success rate

Analysis for individual skills by each team

By data of FIFA World Cup 2010 and 2014, compared number of shots and passes (calculated to one game/90minutes), success rate for each play and number of goals with Best 4 teams and Korea/Japan(Table1). Could not see any big differences of number and success rate of pass between two groups. Only big difference was success rate of shot or goal(Figure2).

Table1 Goals and Passes for Success rate of FIFA World CUP 2010 and 2014

	Shots for 90min	Goals	Success rate	Passes for 90min	Success rate
2010	29.5	1.43	7.6%	445	75%
Spain	17	8	6.1%	627	83.6%
Netherland	12	11	11.5%	473	77.2%
German	15	16	14.2%	534	83.6%
Uruguay	13	11	10.6%	379	67.3%
Korea	15	0	9.4%	432	73.2%
Japan	13	4	9.1%	331	67.3%
2014	27.4	1.66	9.5%	449	77.5%
German	13	18	17.1%	610	83.2%
Argentina	14	7	6.0%	486	80.5%
Netherland	11	15	16.1%	460	77.5%
Brazil	14	11	9.8%	437	78.1%
Korea	13	3	7.9%	463	79.0%
Japan	17	2	3.9%	492	80.8%



Tactical trend (Skill development)	Shot/goal pattern	Pass efficiency at A3
	Shot/goal by distance	Time/Players to shot

Analysis for tactical trend by each team

A football trend in 2010 was so called "possession style", represented by Spain team. With high passing skill, Spain team tried to keep a ball as long as possible to take initiative a game. However, many teams, such as Netherland, Brazil, Columbia, Costa Rica, Chili, adopted "counter attack style" in 2014. Only German, played "hybrid style", which is the combination possession and counter attack, and used each style depends on situation.

Method

1. Subjects for analysis

Data of FIFA World Cup 2010 in South Africa and 2014 in Brazil.

2. How to analyze

Data were created from video of all 128 matches in two World Cup. Data were included WHO/WHEN/WHERE/WHAT/HOW. We used data, which were created by PROZONE, Data Striker, and FIFA official page.

3. Process of data analysis

Analyzed tendency of all teams for two world Cup, and then focused on Best 4 teams and Korea/Japan to find out differences Korea/Japan and leading teams.

4. Focused data

Shot and pass. 80% of play data of football are pass and the most influential play to win and lose is shot. We analyzed both data from various angle.

Table2 Goals and Shots of Distance in the 2014 FIFA World Cup

2014 Goals	Short	Middle	Long	more
German	11	7	0	0
Spain	2	2	0	0
Netherland	6	7	1	0
Brazil	18	9	0	0
Argentina	2	4	0	0
Korea	1	0	0	0
Japan	1	1	0	0
Best4/Ave	6	7	1	0

2014 Shots	Short	Middle	Long	more
German	33	60	12	0
Spain	11	23	0	0
Netherland	18	60	15	0
Brazil	20	99	23	1
Argentina	27	93	19	2
Korea	10	18	10	0
Japan	4	23	14	0
Best4/Ave	25	64	17	1

2014 Success rate	Short	Middle	Long	more
German	33.3%	11.7%	0.0%	0.0%
Spain	18.2%	9.7%	0.0%	0.0%
Netherland	33.3%	13.3%	6.7%	0.0%
Brazil	15.0%	10.3%	4.3%	0.0%
Argentina	7.4%	5.3%	5.3%	0.0%
Korea	10.0%	11.1%	0.0%	0.0%
Japan	11.1%	3.0%	0.0%	0.0%
Best4/Ave	22.3%	10.3%	4.1%	0.0%

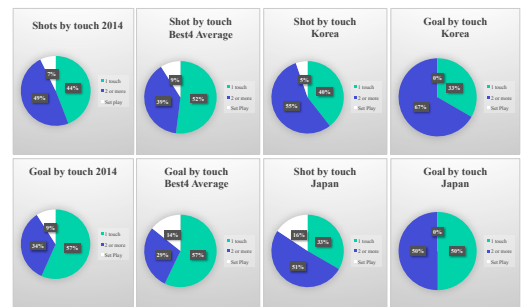


Figure3 The pattern of shots and goal in the W-Cup2014

Result

1. Shots distance and pattern goal in the 2014 FIFA World Cup

Shooting Distance(Table2)

German team, who won World Cup 2014, got more than 60% of goals by short range, and rest of goals were middle range. It must be important to see success rate for shots. Success rate of shots by both German and Netherland was 33.3%, or a third of shots in short range would make a goal. Average success rate of short range shots was twice as much as middle range shots. However, success rate of short range shots by Korea was 10%, and 11% by Japan. These numbers were half of Best 4 teams data.

Shooting pattern(Figure3)

In average, 44% of shots were made by one touch, 49% were more than two touch, and 7% were by Set Play. For goals, 57% of goals were by one touch with 12.1% of success rate, 34% of goals were more than two touch with 6.6% of success rate, and 9% of goals were by Set Play with 10.1% of success rate. One of characteristic of Best 4 teams is high ratio of one touch shots. Especially, 15 among 18 goals were made by one touch by German team (83.3% of goals were made by one touch) while 40% of shots were made by one touch by Korea, and 33% were by Japan.

2. Pass

Area(Figuer4)

In average, 21% of passes were made at Attacking 3rd (A3), 53% were Middle 3rd (M3), and 26% were Defensive 3rd (D3). In average of Best 4 teams, 22% of shots were made at A3, 54% were M3, and 24% were D3. In the case of Korea and Japan, no big difference the ratio at M3, but ratio of A3 were higher, 25% for Korea and 28% for Japan.

Tempo to attack (Table4)

In two World Cup, we realized that each player of Best 8 teams tended to have shorter time for shot after gaining opponent ball. To shorten time, speedy judgement, skill, number of players who involved an attack should be required. We define this process as "High tempo" for attacking. However, Korea/Japan could not show high tempo for an effective attack. Even though basic skill of Korea/Japan is similar, we saw difference in tempo.

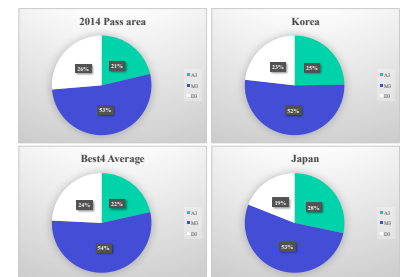


Figure4 The Pass Area in the W-Cup2014

Table4 W-cup2010 and the comparison of the time W-cup2014 of tempo

	2010	2014
Best8	2.75	2.79
Lost Group League	2.89	2.91
Korea	2.82	3.14
Japan	2.95	3.15