A Study on Interface Design for Sports Broadcasting Used by Smart Phone

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Abstract: Sports industry is one of the most important industries in this society. Sports broadcasting through various media devices, is playing a huge role in getting popularity with people. Specially, developing of smartphone changed from sports broadcasting limited in TV or radio to new content without time and space. World-famous leagues like Major League Baseball or NBA-National Basketball Association- league in U.S. already generates revenue and obtains opportunities from the multimedia market by smartphone, and they sell their contents in the world. They keep making new market in the world except impossible places to serve mobile streaming network. Sports broadcasting and specifications of mobile device are interrelated in network environment. Basically, the real time streaming service needs large amounts of data transmission. Sport broadcasting is the field that moving images and information is communicated at the same time. So, interface design considered information design is important in this field. This Study, among the sports broadcasting services to have the mobile environment, analyzes about interface design and the figure in the 'At Bat 13' application of the Major League, U.S. and Naver.com-portal site in South Korea- application of Korean Professional Baseball League. Sports broadcasting market with mobile device will be expanded gradually. I think that we need to analyze about mobile interface design because mobile device and technology of network is developing steadily. Interface of mobile device in the smartphone generates new user-interface field that is different from web-interface design on environment of personal computer.

Key words : Interface design, Information design, Mobile device, Smart phone, Sports broadcasting

1. Introduction

We live in sports media age. In this time, we can watch sports game in famous league, other country by smart phone. People used one-way device like television and newspaper in the past. However, development of Internet is making various ways possible. For example, most important thing of sports is simultaneity. It's almost nothing in other entertainment industries like music or movie. People can't respect the result or story of sports game because sports don't make synopsis. [1] So, the sports broadcasting on real time is closely connected with network. The sports game that cannot predict a result is gaining great popularity, and sports media business is developing so quickly with mobile device like smart phone. Many country that progressed the spread of wireless Internet are gathering many fans by mobile sports broadcasting service, are making new market in the sports business. This study analyzes the pros and cons of sports broadcasting services that used by mobile device in the Major League,

U.S. and Korean Baseball League. In addition, mobile application case of Korea and United States research focused on interface design and information design.

2. Sports and media

2.1 Relationship with sports and media

Prior to discussing the sports media in detail, it is important to clarify what is meant by the terms sports and media. The Sports is best understood as having three core dimensions. First, it has a physical dimension. Second, it is competitive. Third and finally, it must be structured and rule bound.[2] The sports having those characteristics exists from amateur soccer near our park to professional baseball in the stadium, this study just treat professional sports based on elite players. Since the advent of modern sports in England, professional sports were declared whether they earn money or not. But, contemporary professional sports aren't only situation in game but also various contents are mainly composed of one business include game. The sports industry creates new profit through various media.

2.2 Sports broadcasting

In the late 19th century, professional sports league was made and become popular. So, sports industry thinks how to make profit and draw audiences. After sport broadcasting by radio was first started in 1911, US, professional sports league like the Major League used broadcasting system actively.[3] Sports broadcasting could give enjoyment about sports game to people if they couldn't go to stadium. Table 1 shows comparison between people to going to the stadium and people to watch the game by various media device in Korean Baseball League of 2012 Season. Viewer ratings and number of viewer calculated through the National Statistical Office in Korea. This table will give you the fact that the number of people to watching the sports game by media devices are more than fifty times on the number of people to got to the stadium. Like this, the sports broadcasting is the very important part in sports business. [3]

Device	Viewer ratings	Number of viewers / day	Source
TV	1.42	2,430,000	Korea Cable Television & Telecommunications Association
WEB	0.81	410,000	Naver.com
IPTV	0.53	400,000	AGB Nielsen Research
DMB	0.06	20,000	TNms Media
Total		2,860,000	1day = 4 games
Total number of viewer / year		381,510,000	133day, 532games

Table 1. The Number of viewers on Korean Baseball League [4]

3. Development of mobile device

3.1 Penetration of smart phone

Personal network devices as smart phones developed steadily from the beginning of 21th Century. But, the penetration rate weakened in the initial stage because the wireless Internet was so late and technology of devices wasn't enough developed. In 2008, Apple Inc. launches the IPhone 3GS used 3G network, after that many mobile-phone companies participate in the exploitation competition.[5] So, penetration rate grew in arithmetical progression. For example, penetration rate of United State is 49.7% in all cellular phone users according to Nielsen Research's 2012 reports, and the rate is increasing even now. The rate means that people can get information about sports game and league stats if they cannot sit their desk. [6]

3.2 Sports media and smart phone

Sports industry paid attention to the penetration rate of smart phone. The Major League that started online streaming service on Internet website from 2002, provided the smart phone application for mobile broadcasting from 2008. They give their application by free, but people have to pay the money if they want to watch the baseball game on real time. So, the League brings salaries by this fee-based policy and the sales are on the rise in the mobile market.

4. Case study

4.1 At bat '13 in the Major League, U.S.

The reason this study selected the Major League as a study case is as in the following. First, a number of games in season are a greater extent than in any other country league. So, they have to deal with a lot of data. Second, they play the baseball games almost everyday and 10~15 game on each day at that. They research how to design interface system for many games on time. Third, they started mobile streaming server since 2009 and update new version every year.

4.2 Naver.com in Korean Baseball League, Korea

In Korea, since 2008, the Korean Baseball League provides various Internet service through Naver.com-portal site in Korea by NHN corp.. In addition, they made a contract with Naver.com for the mobile streaming service in 2009. So, they provide 3 or 4 games a day in the baseball season.

4.3 Interface analysis

In the 'At bat 13' Application case, this provide almost same information as website on computer. But, it has more important information simply in environment of mobile devices. There are some reasons as mobile interface. First, user is difficult to watch a lot of information on small size screen. Second, there are many situations like delay to connect on network or memory on device. For such reasons, 'At bat 13' case has form as simple website.

There is one more point before it analysis, mobile streaming service seems like watching the game on real time, it has actually delay time more than several second because It receives some data for streaming in memory. This data contradistinguish from situation like bad network.[7] For the reason, almost streaming service on website have loading times for service. If user who uses the streaming service want to move other page for some

information, he definitely turn off the streaming service that he watching. So, streaming service, especially like sports broadcasting, has to serve the layered information window on their own streaming screen because the sports game always products many stats on real time.
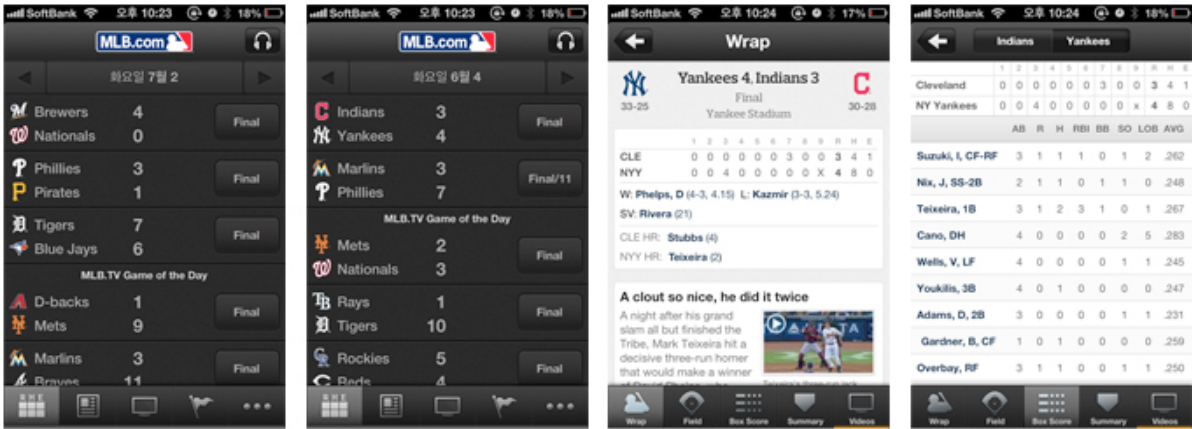

Figure.1 Interface design in At bat 13

It's information almost same with web site on computer.

'At bat 13' uses layered design on streaming screen and game lists arrange top of the screen. User can watch information searching that they use the tap-button. In case of game stats, layered window covers almost screen because there are too much information on game. However, it will be considered more that now because it give to disrupt to user watching the game.
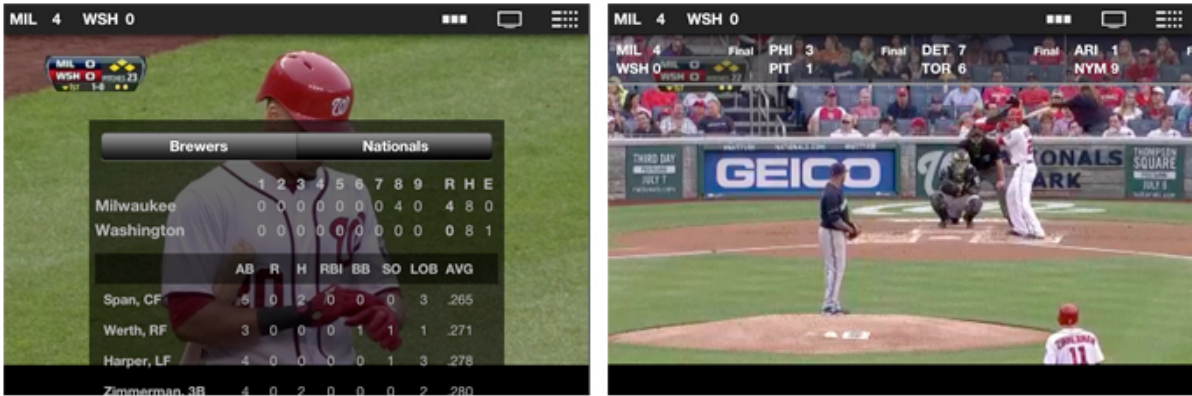

Figure.2 Layered translucent windows in 'At bat 13'

It's shown that almost information designed by layered translucent windows.

But, the Naver.com application doesn't deal with lots of stats like 'At bat 13' because the scale and market of Korea Baseball League are more smaller than the Major League. Korean League doesn't need much data traffic. However, basically, to show much information when the streaming service play is difficult technology. So, Major League application typically use video coding technology developed in Major League-affiliated Company. Such things are possible because the Major League have big market enough.

Figure.3 Naver.com Streaming Service

It has just streaming control function because it's free application.

Most application that has a lot of function demand fee to user or user must watch some advertise.

4.4 Interface analysis

The penetration of smart phone brings to expanding market for sports media. People gain information about game and league through smart phone. The mobile sports broadcasting service is the attractive sector that has possibility to develop steadily and the business item can have a potential fandom that cannot go to the stadium. But, the smart phone is a media device to consider about technology of device like a screen size and data speed through network. The interfaces design of smart phone need a concise structure. Specially, the relationship with interface design and information design is most important part because the sports media have many stats. The next table is the feature comparison of two cases.

Item	At bat 13	NAVER sports
Information to provide	Game list, stats, player information, ballpark information, streaming service	Game list, stats, player information, ballpark information, streaming service
Information depth	Analysis about team, player and game, news	Short information analysis
User participation	Impossible	Possible
Information visualization	Used various layered window, table as various stats	No information table in streaming service

Table 2. Feature comparison

5. Conclusions

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References

[1] Hyomin Kang (2001) *Sports media and media sports*, Daehan Media, KOR

[2] Matthew Nicholson (2006) *Sports and the media (Sport Management)*, Routhedge, UK.

[3] Sarah St.John (2011) *100 years ago: Football fans enjoy mechanized reproduction of KU-MU game,* LJworld.com, U.S. < http://www2.ljworld.com/news/2011/nov/27/100-years-ago-football-fans-enjoy-mechanized-repro/>

[4] Korea Baseball Organization-affiliated Baseball development council (2012) *Sports2012 Professional Baseball Rating Report,* KBO-Korea Baseball Organization-, KOR.

[5] Sangwoo Lee (2008) *Iphone 3rd Generation release, Apple Inc.*, KOTRA-Korea Trade-investment Promotion Agency-, KOR

[6] Phil Goldstein (2012) *Nielsen : Half of all American subscribers now own a smartphone.*, Fierce Wireless, U.S., < http://www.fiercewireless.com/story/nielsen-half-all-americans-now-own-smartphone/2012-03-29>

[7] Soon Choi, Haesun Byun, Mijung Lee (2008) *P2P-based divisional data transmission system for live media streaming service*, Korea Information Processing Society, KOR