GameViews: Understanding and Supporting Data-driven Sports Storytelling

Qiyu Zhi, Suwen Lin, Poorna Talkad Sukumar, Ronald Metoyer
University of Notre Dame
South Bend, IN, USA
“Life needs sports”

–ESPN Brand Campaign
PORTLAND, Ore. — Damian Lillard hit a 37-footer at the buzzer and finished with a career-playoff-high 50 points to help the Portland Trail Blazers eliminate the Oklahoma City Thunder from the playoffs in five games with a 118-115 victory on Tuesday night.

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50 points.. 118-115 victory

10 3 pointers

108 - 90.. 3-2 lead

29 points, 11 rebounds and 14 assists

34 points.. 61 - 60 lead

90 - 88... 3 pointer.
“Sports fans are obsessed with game statistics”

– Aspray and Hayes, 2011

Research Question

How can we design and present sports data to better support their respective storytelling practices?

Sportswriters  Fans
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## Pelicans

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**DNP-COACH’S DECISION**

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48.2% | 44.4% | 84.2%
How do sportswriters use sports data to construct their stories?

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GameViews-Writers: Understanding users’ needs
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What statistical information do sportswriters typically use in the stories?
GameViews-Writers: Understanding users’ needs

40 Basketball Game Recaps

Covering multiple basketball teams
- 24 NBA teams
- 5 College teams

Covering articles from multiple resource
- 35 ESPN website articles
- 5 Local news articles

Covering games with various outcomes
- 15 games <= 5 points
- 10 games <= 10 points
- 15 games > 10 points
What do fans care about when they are watching a game?
GameViews-Fans: Understanding users’ needs

1500 “live game” comments from Reddit during the NBA finals
Similarities
Findings: Similarity between sportswriters and fans

highlight player & team stats

Writers: “Russell Westbrook had 29 points and 11 rebounds”

Fans: “35 for Kevin Durant!”
Findings: Similarity between sportswriters and fans

**Writers**: “I will always try to dig into the numbers”

**Fans**: “Kevin Durant has at least 10 points in the first three quarters, MVP = stable”
Differences
Findings: Differences between sportswriters and fans

<table>
<thead>
<tr>
<th>Sportswriters</th>
<th>Sports Fans</th>
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<td>inspecting why or how</td>
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<td>video interaction</td>
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highlight player & team stats

distill stats insights

inspecting why or how
Harden scores 38 as Rockets even series with Warriors
James Harden scored 38 points and the Houston Rockets held on for an 112-108 win over the Golden State Warriors on Monday night to even their Western Conference semifinals series at 2-2.

Harden, Rockets hold off Warriors to tie series

Watch Live Now
Watch Live Coverage!
video interaction
distill stats insights

particular plays
highlight player & team stats

social experience
User Needs

Visual Interface

User Studies
GameViews-Writers user study

4 professional basketball writers (2 males + 2 females)
GameViews-Fans user study

8 avid basketball fans

watch the entire 3rd quarter and think aloud

<table>
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<tr>
<th>Number</th>
<th>Role</th>
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<td>Research Scientists</td>
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<td>2</td>
<td>Software Developer</td>
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<tr>
<td>1</td>
<td>Product Manager</td>
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</table>
GameViews-Writers: findings

sportswriters prefer an all-in-one tool

“I like it because I can find almost everything I need in a single page, unlike ESPN”
GameViews-Writers: findings

help sportswriters find the needed information more quickly

“I can get most of what I need in the first glance...”
help sportswriters extract more insights that never occurred to them before

“I noticed he scored all the four corner three-pointers, but missed most of the jump shots from the top of the circle”
GameViews-Fans: findings

- Enjoyed using system: 4
- Easy to learn: 4.2
- Feel engaged with conversation: 3.5
- Visual stats are useful: 3.7
- Replay function is useful: 4.1
- Comments labels are useful: 3.9
GameViews-Fans: findings

glanced at the statistical table after every play
browsing a player’s statistical information immediately after he scored or fouled
GameViews-Fans: findings

make labelled comments after an impressive play
GameViews-Fans: findings

video replay: during commercials and timeout, or replay missed plays
“I like the way you integrate all the stats in the graph, it’s very straightforward and helpful”
“I think you can totally remove the visual part and make the video bigger”
Future work ideas

our findings can be adapted to other sports
Future work ideas

curate data representations on visualization design
Future work ideas

support

generating

multimedia data stories

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GameViews-Writers Demo:
https://gameviews-writers.herokuapp.com/

Paper, slides, supplemental materials:
zhiqiyu.com/gameviews.html

Qiyu Zhi

@nickyzhi123  qzhi@nd.edu

www.zhiqiyu.com