Fulfilling the Fan Experience: A look inside the relationship between fan satisfaction and on-field performance

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Jamie Acks

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Objective

Identify relationship between attendees' game day experience satisfaction and teams' on-field performance.

Introduction and Methodology

Turnkey Intelligence conducted a research study during the summer of 2010 to examine the relationship between attendees' game day experience satisfaction and teams' on-field performance. The study analyzed fan feedback metrics to determine if a link exists between gameday experience satisfaction and winning percentage and, if so, measure the degree of correlation.

A secondary goal of the study was to determine other variables that may have an effect on gameday satisfaction.

The data being considered for this study was examined to determine appropriate respondent segments. The data was then sorted based on league, team, and respondent segment. Other factors taken into account when determining what data to consider in the study included exact survey question wording, total number of survey respondents, date of survey launch, and date of data collection completion. Data utilized in this study was procured from email, internet, and PDA surveys deployed by Turnkey Intelligence on behalf of MLS, MLB, NBA, NFL, and NHL teams. In all instances, these surveys were completed by season ticket holders (STH) and/or single game buyers (SGB).

Reported survey questions were segmented by respondent type and then grouped into two categories: Overall Gameday Satisfaction and Overall Season Ticket Holder Experience Satisfaction. Only questions with a minimum of 100 responses were included in the calculations, resulting in the following response count totals:

League	# Surveys	Total Responses	Ticket Experience SAT (STH)	Gameday SAT (STH)	Gameday SAT (SGB)
MLS	12	7,843	1,526	4,739	1,578
NBA	15	15,624	2,165	13,459 *	
NHL	26	32,384	6,967	11,529	19,738
MLB	59	84,230	16,867	43,392	23,971
NFL	11	108,373	71,709	70,654	21,235

Figure 1: League-Wide Response Breakdown
**Data unable to be segmented by respondent type*

For each league, season ticket experience and gameday satisfaction scores were converted to a 5-point likert scale (5-Extremely Satisfied, 4-Satisfied, 3-Neutral, 2-Dissatisfied, 1-Extremely Dissatisfied) to enable cross-comparisons.

In addition to compiling the above, Turnkey calculated and recorded individual team winning percentages for all years in which survey data was available *(Appendix A).* All percentages were calculated by dividing wins by total number of games played.

Turnkey calculated the margins of error for this study by estimating population as the average number of season ticket accounts and individual single game buyers per league, per year *(Appendix B)*. These figures were determined by estimating the average number of season ticket accounts per team and the average number of individual single game buyers per year in each league and then multiplying each league average by the number of teams in that league. Sample sizes for each segment can be found in *Figure 1*.

Key Findings

Winning has Sizeable Impact on Satisfaction

Winning percentage has a sizeable effect on total gameday satisfaction and season ticket holder experience satisfaction. However, across all leagues analyzed, the relationship between winning percentage and gameday satisfaction was lower than expected. Overall, winning percentage accounted for 29% of the variation in season ticket holder experience satisfaction, 18% of the variance in overall gameday satisfaction for general admission buyers, and just 4 percent of variation in overall gameday satisfaction among season ticket holders *(Figure 2).*

Gameday Satisfaction to Winning Percentage: Model R-Squared							
		NFL	MLB	NHL	NBA	MLS	ALL
Overall Ticket SAT	STH	0.33	0.31	0.46	N/A *	N/A *	0.29
Overall Gameday SAT	SGB	0.25	0.31	0.15	0.68	0.38	0.18
Overall Gameday SAT	STH	0.07	0.25	0.01	N/A *	N/A *	0.04

Figure 2: Satisfaction for Ticket Holder Type vs. Winning Percentage
**Insufficient data for analysis*

Across all leagues, as winning percentage increased, the data demonstrated that there is a positive relationship between both winning and season ticket holder experience satisfaction and winning and gameday experience satisfaction *(Figure 3).*

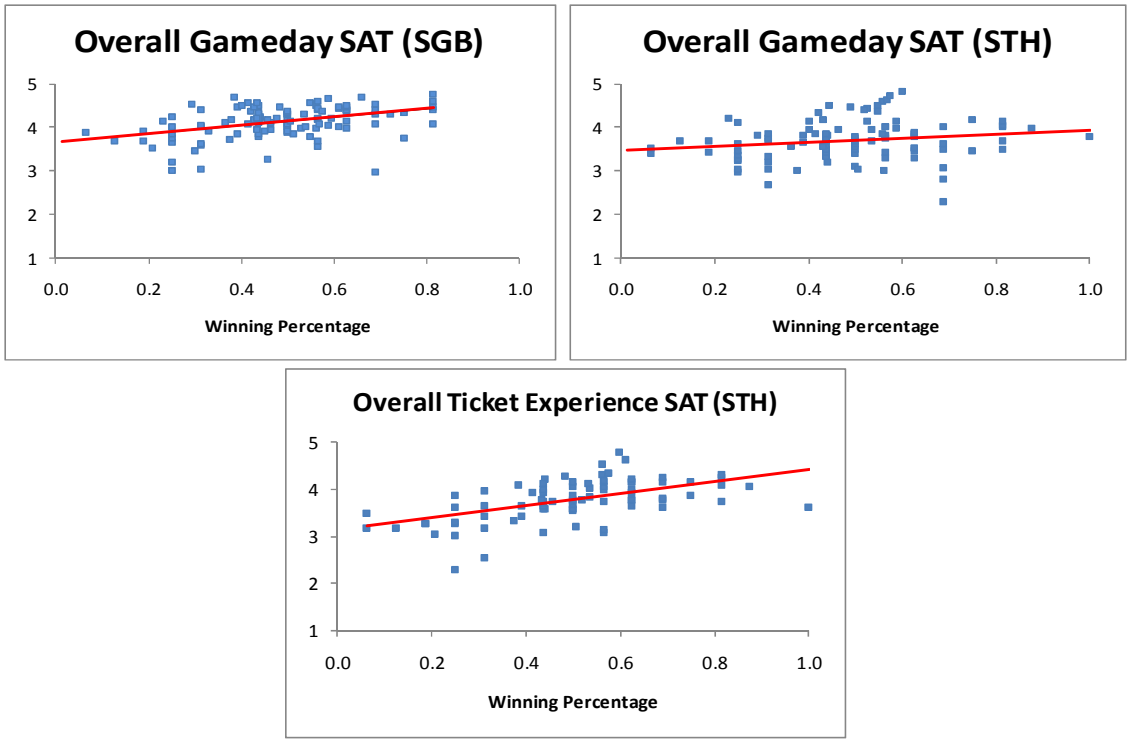

Figure 3: League-Wide Winning Percentage Satisfaction Correlation

Single Game Buyers: More Satisfied

Overall, single game buyers were more satisfied with the gameday experience than season ticket holders *(Figure 4).* This finding was reflected in the NFL, NHL, and MLB; only MLS did not follow this pattern.

	NFL	MLB	NHL	NBA	MLS	ALL
SGB	4.07	4.19	4.22	4.14	4.05	4.11
STH	3.54	4.16	3.73	N/A *	4.18	3.70

Figure 4: Overall Gameday Experience League Average Satisfaction (5-point Likert Scale)
**Insufficient data for analysis*

One possible explanation for this finding may be that single game buyers perceive the gameday experience to be unique and fresh, and, as such, are more likely to be impressed with teams' overall presentation.

Season ticket holders, on the other hand, experience the same gameday elements repetitively throughout a season, which may contribute to their decrease in overall satisfaction. In addition, season ticket holders contribute significant personal resources (time, money, etc.) to the team; as such, they likely have a higher expectation of value and a less-lenient satisfaction threshold.

The MLS data may have not followed this pattern for several reasons, one of which may be related to the fact that the longest tenured MLS season ticket holder has just 15 years of tenure. As such, MLS STH may not be as "jaded" as STH from other leagues that may have held ticket plans for 50 years or more. Also, MLS tickets are relatively affordable compared to other leagues; the average annual cost per season ticket is $543[1], compared to $2,166 in MLB, $2,028 in the NBA, $2,036 in the NHL, and $600 [without a seat license] in the NFL. Additionally, MLS season ticket holders may be more satisfied with the overall gameday experience because they are more likely to be "avid" fans of their sport (in this case, soccer) than season ticket holders in other leagues who may be more likely to purchase tickets for social or business purposes.

[1] MLS season ticket packages include approximately 19 games; some of which are International events or playoff games. The average price is determined from all options and various packages teams offer.

Fan Satisfaction: High Across the Board

Of the survey responses analyzed, the mean satisfaction score fell within the dissatisfied range less than 5 percent of the time (*Figure 5)*. The overall average satisfaction level for respondents was 3.92 on a 5-point likert scale. This tells us that most fans are leaving games either feeling either neutral or satisfied with their experiences.

Satisfaction Scale		Response	% of Respondents
5 - Extremely Satisfied		4.01-5.00	47%
4 - Satisfied		3.01-4.00	50%
3 - Neither Satisfied or dissatsfied		2.01-3.00	3%
2 - Dissatisfied		1.00-2.00	0%
1 - Extremely Dissatisfied			

Figure 5: League-Wide Fan Satisfaction Responses
(Data compiled from 213 Survey Satisfaction Averages)

Linear Relationship Between Wins and Satisfaction in NFL and MLB

Each leagues' data was sorted and analyzed to identify the extent to which teams' on-field play influenced attendees' gameday satisfaction and season ticket holder experience satisfaction.

The results showed that a linear relationship existed among the data in several cases. Among season ticket holders across each league, a positive relationship existed between STH experience satisfaction and on-field play, and both the season ticket holder and single game buyer data confirmed a positive linear relationship for overall gameday experience in the NFL *(Figure 6, Satisfaction)*.

League Satisfaction Linear Relationship				
League	**Segment**	**Satisfaction**	**R-Squared**	**Average Reported SAT**
NHL	STH Ticket SAT	SAT=2.99039x+2.608	0.45	3.95
	SGB Gameday	$SAT=8.9486x^2+8.886x+6.3478$	0.15	4.22
	STH Gameday	$SAT=3.3223x^2+3.1412x+4.4484$	0.01	3.73
MLB	STH Ticket SAT	SAT=3.5937x+2.2156	0.31	4.02
	SGB Gameday	$SAT= 34.326x^2-34.676x+12.834$	0.31	4.19
	STH Gameday	SAT=3.2417x+2.548	0.25	4.16
NFL	STH Ticket SAT	SAT=1.1752x+3.1182	0.33	3.70
	SGB Gameday	SAT=1.0319x+3.5681	0.24	4.07
	STH Gameday	SAT=0.4817x+3.4659	0.04	3.54
		X = winning percentage	Yellow = No linear relationship	

Figure 6: League Satisfaction Relationship

When a linear relationship between winning percentage and satisfaction level existed, that relationship was positive. As such, it holds that as NFL and MLB teams continue to win, fans become more satisfied. However, it is important to note other factors contribute to satisfaction; winning is not the only contributing factor *(Figure 6).*

The NHL and, in one case, MLB data showed a relationship in some categories that did not identify a linear trend.

NFL and MLB: Fan Satisfaction Seemingly Unrelated to Number of Games Played

In the league with the most games (MLB-162) and the league with the fewest number of games (NFL-16), data showed similar patterns with regard to winning's impact on satisfaction. Among NFL and MLB season ticket holders, winning percentage accounted for 33% and 31% of season ticket holder experience satisfaction. Additionally, data mined from single game buyers from both leagues indicated that winning percentage accounted for 25% and 31% of overall gameday satisfaction.

		NFL		MLB	
Overall Ticket SAT	STH	3.70	0.33	4.02	0.31
Overall Gameday SAT	SGB	4.07	0.25	4.19	0.31
	STH	3.54	0.07	4.16	0.25

Figure 7: NFL vs. MLB Satisfaction

Despite the difference in number of games played, season ticket holders from the NFL and MLB showed similar levels of gameday satisfaction relative to winning percentage.

In the NFL, a team increasing its record by one win would increase the satisfaction level of fans by 0.029, while in MLB one win increases satisfaction 0.020 *(Appendix C).* This indicates that MLB fans place less weight than NFL fans on the outcome of each game as it relates to overall satisfaction. Additionally, the ease of increase in satisfaction by number of wins is greater in MLB as a result of the number of games played.

Economy May Impact on Gameday Satisfaction

The data implied that the economy had an effect on the levels of gameday satisfaction of season ticket holders and single game buyers across all leagues. The economy began to decline in 2006, and data across all leagues pertaining to both season ticket and single game buyer gameday experience illustrated a parallel trend of steady decline in satisfaction beginning at the same time (Appendix D).

MLS & NBA: Insufficient Data

After completing the analysis of each league, it was determined that MLS and the NBA did not have enough individual league data to support results.

Conclusion

Based on the findings across all leagues, winning percentage is one of many factors that contribute to overall season ticket holder experience and/or gameday satisfaction. A relationship between team record and season ticket holder experience satisfaction and/or gameday satisfaction exists; however, other elements still must be taken into consideration as contributing factors. The economy, tenure of ticket holder, usage of tickets, team ownership, team history, players, opponents, facility, market type, weather, travel, stadium environment, concessions, and merchandise experience are just some of the other factors that may impact variance in satisfaction levels.

Appendix A

Turnkey Major League Client Team Records

NBA							
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Cleveland Cavs	0.427	0.512	0.610	0.610	0.549	0.805	0.744
Sacramento Kings	0.671	0.610	0.537	0.402	0.463	0.207	0.305
Portland Trailblazers	0.500	0.329	0.256	0.390	0.500	0.659	0.610
Oklahoma City Thunder	0.451	0.634	0.427	0.378	0.244	0.280	0.610
San Antonio Spurs	0.695	0.720	0.768	0.707	0.683	0.659	0.610
Philadelphia 76ers	0.402	0.524	0.463	0.427	0.488	0.500	0.329
Orlando Magic	0.256	0.439	0.439	0.488	0.634	0.720	0.720

MLS							
	2004	2005	2006	2007	2008	2009	2010
Colorado Rapids	0.333	0.406	0.343	0.300	0.366	0.330	0.429
FC Dallas		0.406	0.500	0.433	0.266	0.336	0.357
Kansas City Wizards	0.333	0.343	0.312	0.366	0.366	0.266	0.214
San Jose	0.300	0.562			0.206	0.233	0.429
LA Galaxy	0.366	0.406	0.343	0.300	0.206	0.400	0.687
Philadelphia Union							0.231
Seattle Sounders						0.400	0.250
*2010 Win % up until 7/13/10							

NHL							
			2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
LA Kings			0.512	0.329	0.390	0.414	0.560
Anaheim Ducks			0.524	0.585	0.573	0.512	0.475
Chicago Blackhawks			0.317	0.378	0.487	0.560	0.634
Dallas Stars			0.646	0.609	0.548	0.439	0.451
Colorado Avalanche			0.524	0.536	0.536	0.390	0.524
Ottawa Senators			0.634	0.585	0.524	0.439	0.536
Phoenix Coyotes			0.341	0.378	0.463	0.439	0.609
Tampa Bay Lightning			0.524	0.536	0.378	0.292	0.414

NFL							
					2007	2008	2009
Arizona Cardinals					0.500		0.625
Atlanta Falcons					0.250		0.563
Baltimore Ravens					0.313		0.563
Buffalo Bills					0.438		0.375
Carolina Panthers					0.438	0.750	0.500
Chicago Bears					0.438		0.438
Cincinnati Bengals					0.313		0.625
Cleveland Browns					0.625	0.250	0.313
Dallas Cowboys					0.813		0.688
Denver Broncos					0.438		0.500
Detroit Lions					0.438		0.125
Green Bay Packers					0.813		0.688
Houston Texans					0.500		0.563
Indianapolis Colts					0.813		0.875
Jacksonville Jaguars					0.688		0.438
Kansas City Chiefs					0.250		0.250
Miami Dolphins					0.063		0.438
Minnesota Vikings					0.500		0.750
New England Patriots					1.000		0.625
New Orleans Saints					0.438		0.813
New York Giants					0.625		0.500
New York Jets					0.250	0.688	0.563
Oakland Raiders					0.625	0.250	0.313
Philadelphia Eagles					0.500		0.688
Pittsburgh Steelers					0.625		0.563
San Diego Chargers					0.688		0.813
San Francisco 49ers					0.313		0.500
Seattle Seahawks					0.625	0.250	0.313
St. Louis Rams					0.188		0.063
Tampa Bay Buccaneers					0.563		0.188
Tennessee Titans					0.625		0.500
Washington Redskins					0.563		0.250

MLB							
			2005	2006	2007	2008	2009
Arizona Diamonbacks			0.475	0.469	0.556	0.506	0.432
Baltimore Orioles			0.457	0.432	0.426	0.422	0.395
Boston Red Sox			0.586	0.531	0.593	0.586	0.586
Chicago White Sox			0.611	0.556	0.444	0.546	0.488
Cincinnati Reds			0.454	0.494	0.444	0.457	0.481
Cleveland Indians			0.574	0.481	0.595	0.500	0.401
Detroit Tigers			0.438	0.586	0.543	0.457	0.528
Flordia Marlins			0.512	0.481	0.438	0.522	0.537
Houston Astros			0.552	0.506	0.451	0.534	0.457
Kansas City Royals			0.346	0.383	0.426	0.463	0.401
Los Angeles Dodgers			0.438	0.543	0.506	0.519	0.586
Milwaulkee Brewers			0.500	0.463	0.512	0.556	0.494
Minnesota Twins			0.512	0.593	0.488	0.540	0.534
New York Mets			0.512	0.599	0.543	0.549	0.432
Philadelphia Phillies			0.543	0.525	0.549	0.568	0.574
Pittsburgh Pirates			0.414	0.414	0.420	0.414	0.385
San Diego Padres			0.506	0.543	0.546	0.389	0.463
Seattle Mariners			0.426	0.481	0.540	0.377	0.525
St. Louis Cardinals			0.617	0.516	0.481	0.531	0.562
Tampa Bay Rays			0.414	0.377	0.407	0.599	0.519
Texas Rangers			0.488	0.494	0.463	0.488	0.537
Toronto Blue Jays			0.494	0.537	0.512	0.531	0.463
Washington Nationals			0.500	0.438	0.451	0.366	0.364

Appendix B

Margin of Error

Populations

STH	Number of Accounts	Number of Teams in League	Population
MLB	6,500	30	195,000
NHL	5,750	30	172,500
NFL	20,000	32	640,000
***NBA**	5,750	30	172,500
***MLS**	3,000	16	48,000
SGB	**Number of Accounts**	**Number of Teams in League**	**Population**
MLB	250,000	30	7,500,000
NHL	85,000	30	2,550,000
NFL	8,000	32	256,000
***NBA**	85,000	30	2,550,000
***MLS**	50,000	16	800,000
***Not included in report**			

Margin of Error for Populations

League	Buyer Group	Population	Sample Size	MOE
MLB	STH	195,000	16,867	0.72
	STH	195,000	43,392	0.41
	SGB	7,500,000	23,971	0.66
NHL	STH	172,500	6,967	1.15
	STH	172,500	11,529	0.88
	SGB	2,550,000	19,738	0.69
NFL	STH	640,000	71,709	0.34
	STH	640,000	70,654	0.35
	SGB	256,000	21,235	0.64
MLS	STH	48,000	1,526	2.47
	STH	48,000	4,739	1.35
	SGB	800,000	1,578	2.46

Appendix C

NFL & MLB Win Conversion

NFL Gameday SAT (STH)	=0.4698x+3.3111
MLB Gameday SAT (STH)	=3.2417x+2.548

Win %	NFL	NFL Gameday SAT (STH)			Win %	MLB	MLB Gameday SAT (STH)	
0.000	0	3.3111	0.02349		0.000	0	2.5480	0.162085
0.050	0.8	3.3346	0.02349		0.050	8.1	2.7101	0.162085
0.100	1.6	3.3581	0.02349		0.100	16.2	2.8722	0.162085
0.150	2.4	3.3816	0.02349		0.150	24.3	3.0343	0.162085
0.200	3.2	3.4051	0.02349		0.200	32.4	3.1963	0.162085
0.250	4	3.4286	0.02349		0.250	40.5	3.3584	0.162085
0.300	4.8	3.4520	0.02349		0.300	48.6	3.5205	0.162085
0.350	5.6	3.4755	0.02349		0.350	56.7	3.6826	0.162085
0.400	6.4	3.4990	0.02349		0.400	64.8	3.8447	0.162085
0.450	7.2	3.5225	0.02349		0.450	72.9	4.0068	0.162085
0.500	8	3.5460	0.02349		0.500	81	4.1689	0.162085
0.550	8.8	3.5695	0.02349		0.550	89.1	4.3309	0.162085
0.600	9.6	3.5930	0.02349		0.600	97.2	4.4930	0.162085
0.650	10.4	3.6165	0.02349		0.650	105.3	4.6551	0.162085
0.700	11.2	3.6400	0.02349		0.700	113.4	4.8172	0.162085
0.750	12	3.6635	0.02349		0.750	121.5	4.9793	0.162085
0.800	12.8	3.6869	0.02349		0.800	129.6	5.1414	0.162085
0.850	13.6	3.7104	0.02349		0.850	137.7	5.3034	0.162085
0.900	14.4	3.7339	0.02349		0.900	145.8	5.4655	0.162085
0.950	15.2	3.7574	0.02349		0.950	153.9	5.6276	0.162085
1.000	16	3.7809	0.02349		1.000	162	5.7897	0.162085
	0.8 wins=0.02 SAT	1 win				8.1 wins=0.16 SAT	1 win	
		0.02936					0.02001	
		increase in SAT					increase in SAT	

Appendix D

The Economy and Gameday Satisfaction