

Likes, Comments, and Shares: A Multivariate Multilevel Analysis of Facebook Engagement

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Abstract

This study investigated the impact of content type, number of Facebook fans, market size, and winning percentage on engagement with NBA teams' Facebook pages using a multivariate multilevel model. Posts were coded into five content categories including external commerce, fan interactivity, organizational promotion, player and personnel promotion, and team information and number of likes, comments, and shares were collected. Data were tested first for the need for multivariate and multilevel modeling and then two models were used to determine the impacts of predictors on engagement. Results indicated engagement data should be treated as multivariate and the effect of team should be accounted for when analyzing data. Player and personnel promotion content received the most number of likes and comments and fan interactivity received the most shares. The effects of number of Facebook fans, winning percentage, and market size were significant in a few cases, but were minimal overall.

Introduction

Social media has changed marketing communications as consumers become active producers of content instead of passive receivers of messages (Gurau, 2008; Malthouse, Haenlein, Skiera, Wege, & Zhang, 2013). The two-way nature of social media is altering the marketing function by giving organizations the opportunity to communicate directly with customers on a one-to-one basis. Specifically, social networking sites are a type of social media that business can use to share content, interact, and build community with customers (Smith, 2013).

The use of social media by sport teams is widespread and all United States (U.S.) professional sport teams have social media accounts (Kim, Trail, Woo, & Zhang, 2011). Critical examination of social media in sport has focused on their use as communication tools, with limited inquiry into how social media are utilized as marketing tools by professional sport teams (Hopkins, 2013; Pronschinske, Groza, & Walker, 2012). In fact, little is known about how to use social media effectively, what engages customers on these networks, or how social media impact business outcomes (Gummerus, Liljander, Weman, & Pihlstrom, 2012; Schultz & Peltier, 2013). To advance understanding and utility of social media channels, sport management researchers should empirically examine social media and move beyond descriptive studies to assess the effects of social media as marketing tools. Schultz and Peltier (2013) stated researchers and practitioners needed to know more about how social media nurture customer engagement to determine how engagement could be encouraged.

The purpose of this study is to advance social media research by using empirical methods to examine whether types of content posted by teams in the National Basketball Association (NBA) on Facebook impact the level of engagement with the content. Additionally, the influence of number of Facebook fans, market size, and winning percentage on engagement are examined.

Review of Literature

From a marketing perspective, social media can be valuable marketing communication channels because they are versatile and designed to encourage two-way communication and interaction. Social media allow marketers to disseminate information, communicate one-on-one with customers, improve branding, build loyalty, collect feedback, promote engagement, educate consumers (Dzamic, 2012), and build relationships with customers (Pronschinske et al., 2012). Additionally, Constantinides and Fountain (2008) recommended organizations use social media for public relations, listening to customers' wants and needs, and personalizing marketing. In fact, best practices for social media use including interacting with, engaging, and building relationships with consumers, instead of merely disseminating information (Rishika, Kumar, Janakiraman, & Bezawada, 2013).

Directing marketing activities toward building relationships with customers is known as relationship marketing, which was defined by Morgan and Hunt (1994), and further theoretically described by Berry (1995), Grönroos (2004), and Gummesson (1999). While researchers in the general business literature have been discussing relationship marketing for decades, its implementation and study in sport is less pervasive. While many researchers suggest relationship marketing as an ideal strategy for sport marketers (Bee & Kahle, 2006; Berry, 1995; Buhler & Nufer, 2010), little inquiry into its applications and effectiveness in sport exists.

Social media strategy is one aspect of marketing that can benefit from a relationship marketing approach. In fact, Abeza, O'Reilly, and Reid (2013) and Williams and Chinn (2010) suggested social media specifically meet relationship marketing goals when used to improve customer relationships and add value for consumers. Grönroos (2004) proposed a framework for relationship marketing where two-way communications, interactions, and added value serve to develop, enhance, and maintain customer relationships. He suggested that every interaction and communication between customers and an organization was important for building long-term relationships. Social media channels can be used for all three of these components if strategy is designed with a relationship-marketing orientation.

Use of Social Media in Sport

Research in sport has focused on how social media is used by professional athletes and sport organizations. More specifically, content analyses have been conducted on Facebook and Twitter, but are predominately found in the sport communication literature. Hambrick, Simmons, Greenhalgh, and Greenwell (2010) examined professional athletes' use of Twitter using six categories including interactivity, diversion, information sharing, content, fanship, and promotional. They found that most tweets fell into the interactivity and diversion categories, while the fewest number of Tweets were promotional or expressed fanship. Similarly, Pegoraro (2010) used seven content categories when coding professional athletes' tweets. Her categories included tweets relating to personal life, relating to business life, relating to another sport or athlete, relating to their sport, responding to fans, responding to other athletes, and relating to pop culture. Athletes most often tweeted response to fans.

Additionally, a few studies have examined sport organizations' use of Facebook. Wallace, Wilson, and Miloch (2011) categorized content on NCAA organizational and BIG XII athletic department pages by product-related and non-product related attributes. They determined that pages mostly were used to promote event details and not to encourage engagement. In a study of U.S. professional sport teams, Waters, Burke, Jackson, and Buning (2011) examined NFL

Facebook pages for relationship-building activity using reciprocity, responsibility, reporting, and relationship-nurturing as categories. They found teams attempted to build relationships with fans by using reciprocity and relationship-nurturing content. In another study of U.S. professional sport, Pronschinske et al. (2012) completed a content analysis of 114 Facebook pages of teams in the National Basketball Association, National Football League, National Hockey League, and Major League Baseball. They used authenticity, disclosure, engagement, and dissemination as factors to determine what led to more likes on a Facebook page. Official Facebook pages that encouraged engagement to create a dialogue with fans were more likely to lead to interaction from fans.

Studies in international markets also have used content analysis to examine social media. Argan, Argan, Köse, and Gökalp (2013) examined the Facebook content of Turkish soccer clubs using five codes including photos and videos about the team, news about games, fan events, promotion activities, and news about players. A study on Facebook in European and American sport leagues by Miranda, Chamorro, Rubio, and Rodriguez (2014) used a measure called the Facebook Assessment Index (FAI), which included content as a measure, to evaluate use of the channel. These authors coded content into marketing messages, product information, event information, surveys or polls, product offers, and games or contests. They found information about events and information on products were the most common types of content.

Recently, researchers have turned their attention to the use of Facebook by national governing bodies. In an examination of national governing bodies in the U.S., Eagleman (2013) determined that social media were being used to disseminate information instead of market to consumers. However, organizations were engaging customers through two-way dialogue. In their 2014 study, Abeza and O'Reilly (2014) examined whether Canadian national sport organizations were using Twitter and Facebook more for communication or interaction, finding that there was little evidence of two-way dialogue on pages. In a similar study on Facebook, Thompson, Martin, Gee, and Eagleman (2014) found that New Zealand national sporting organizations posing questions or using contests to encourage likes were effective in engaging fans. Also, behind-the-scenes content received a favorable response on organizational pages.

Importance of Content and Engagement

For businesses, having a Facebook page is a requirement, however, to build relationships, the quality of posted content is vital (Pronschinske et al., 2012; Rishika et al., 2013). While studies have described what is, little research exists into how content impacts business outcomes, even though researchers in many industries suggest that specific content is an important driver of engagement and relationship building (Pronschinske et al., 2012; Rishika et al., 2013). From a relationship marketing perspective, content needs to be of value to customers and needs to involve them in two-way communications if the goal is build relationships. In fact, content should be designed to encourage engagement, discussion, and conversation (Heinonen, 2011; Walsh, Clavio, Lovell, & Blaszk, 2013). Woodcock, Broomfield, Downer, and Starkey (2011) suggested content that consumers connect with can encourage conversations, which lead to sales. Additionally, Lipsman, Mud, Rich, and Bruich (2012) indicated that engaging content increased the likelihood of reaching more customers, especially as it was more likely to be shared by customers with their own network.

Organizations should post content that elicits the intended response whether it is to encourage purchases or increase curiosity (Smith, 2013). For example, a team may post an advertisement about the next home game with a link to purchase tickets, or it may post a few lines of an

interview with a coach along with a link to a video. In the first case, the desired response is for fans to purchase tickets; in the second, the desired response is for fans to click the link and watch the video to view the entire interview.

Malhotra, Malhotra, and See (2013) suggested organizations become cognizant of what encourages engagement. They suggested posting about current topics, new products, and brand success to increase likes. Additionally, a call to action was an effective way to increase the number of likes a post received and interaction was increased when organizations asked questions of customers.

Studies on the impacts of engaging content suggest it has positive effects on customer interaction. Pronschinske et al. (2012) found engaging content increased the number of Facebook fans, thus increasing the group of individuals the organization could communicate with. Additionally, Cvijikj and Michahelles (2013) discovered content designed to entertain Facebook fans was more likely to be liked, commented on, or shared. Increased engagement is important because, as Grönroos (2004) suggested, customer relationships are built through interaction.

Moreover, engagement is recognized as an important goal of social media use (Williams & Chinn, 2010). Kaplan and Haenlein (2010) highlighted that social media are built for interaction, which means content should encourage engagement between organizations and customers. These interactions and two-way dialogues build relationships between customers and organizations. In fact, Jahn and Kunz (2012) and Pronschinske et al. (2012) argued that it is because social media engage customers that it leads to strong relationships.

Engagement on social media is important because increased levels of engagement on social media channels have been found to improve customer relationships (Rishika et al., 2013). Additionally, customers who are more engaged on social media channels will share content more, which builds an organization's reach (Peters, Chen, Kaplan, Ognibeni, & Pauwels, 2013). Additional benefits of engaged customers include increased visibility and improved brand image (Goh, Heng, & Lin, 2013).

This study examines the use of Facebook by teams in the National Basketball Association (NBA). While there is a myriad of research on Twitter in sport using sport communication theories, less research has been conducted on Facebook. Facebook is still the largest and most popular social network and engagement on the site is growing (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). Additionally, Facebook is more versatile and interactive (Clavio & Walsh, 2013), which allows more functionality for marketers.

The NBA was chosen for inquiry because of its history in adoption of relationship marketing at the league level (Mawson & Coan, 1994). Additionally, Iannello and Cloud (2012) advocated that customer relationships be fostered by engaging fans during the 2011-2012 lockout to lessen its negative impacts on the league. Also, as a league, the NBA has rapidly adopted social media (Jessop, 2013).

Filo, Lock, and Karg (2015) suggested social media researchers move beyond descriptive data and content analyses and use more sophisticated analytical methods. This study chose to extend social media research by performing a content analysis and then using multivariate multilevel modeling to examine how content impacted engagement on NBA teams' Facebook pages. The following research questions will be examined: 1) Which types of content elicit the

most likes, comments and shares?; 2) Are there significant differences in the impact of different types of content on engagement?; and 3) Do market size, winning percentage, or number of Facebook fans have significant impacts on engagement?

Method

Data were collected from 28 NBA teams for the 2012-2013 season. A total of 5,786 posts were collected from team Facebook pages during the months of August 2012 and January 2013 as part of a larger study. Data were treated as nested; posts were nested within teams, and likes, comments, and shares were nested within posts.

The entire population of NBA team Facebook pages were examined for the 2012-2013 season. To attempt to accurately depict the yearlong use of the page by the team, one month in season and one month out of season were chosen for coding. The month of January was chosen in season because it was before the All-Star break to avoid league-wide posting on team pages, but far enough into the season for clear win-loss records to have emerged. The month of August was chosen because it was after the draft, again to avoid league-wide posting, but well before the season officially started. Out-of-season data has been omitted from previous social media research. Because data on engagement behaviors were likely to be highly correlated and individual posts were nested within the teams, a more complex statistical model was necessary.

Variables

The outcome variables in the model included the number of likes, comments, and shares on each post, collected directly from the teams' Facebook pages. Predictors in the model for measuring engagement on Facebook included content category, team winning percentage, number of Facebook fans, and size of the market where the team was located. The percentage of times each type of content was posted was included as a control.

Content category was coded as external commerce, fan interactivity, organizational promotion, player and personnel promotion, and team information, based on the coding scheme developed by Clavio and Metz (2014). Definitions for coding were operationalized based on Clavio and Metz's definitions and the coding of a sample of NBA teams' posts. A post was coded as external commerce if it included information on business partners or sponsors. Fan interactivity included contests, giveaways, polls, and posts asking for fan participation. This included posts requesting a share, like, or comment or asking fans to complete a survey, fill-in-the-blank, or respond to questions. Any promotion of games, products, mascots, cheerleaders, or arenas was coded as organizational promotion. Behind-the-scenes information, player promotion, and personnel promotion were coded as player/personnel promotion. Finally, game results or recaps, player injury or movement, and scheduling were included in team information.

Team level variables of winning percentage, number of Facebook fans, and market size were included in the model as controls as well as moderators. Additionally the percentage of times teams posted each type of content was included as a control at the

team level. Regular season winning percentage, gathered from ESPN.com, was included because the success of the team may increase their social media popularity. For analysis and interpretation, winning percentage was centered at .5. The number of Facebook fans was included in the model as a control variable and was gathered on the same date for each team in January 2014. Intuitively, it would seem that teams with more Facebook fans would also have more engagement on their page. It was also centered at its mean for analysis and interpretation. Market size, defined as the metropolitan area population and gathered from the United States Census Bureau and Statistics Canada, was centered at its mean for analysis. It was included in the models because a larger market might result in more interaction as a result of a larger number of people to draw from. Pronschinske et al. (2012) supported including measures of team success and market size when examining the use of Facebook by professional sport teams. Finally, for each team the number of times each type of content was posted was calculated. This number was then divided by the total number of posts the team had to determine the percentage of times each type of content was posted by that team. The variable was then centered at the mean percentage across all teams. Centering the variables made the reference point the number of likes on content coded as the external commerce category for teams who have won 50% of their games, have the mean number of Facebook fans, were in an area with the mean market size, and posted the content type the mean number of times.

Procedure

To operationalize coding categories and determine if the five category framework was sufficient, a sample of NBA teams' Facebook pages were analyzed. After codes were deemed appropriate, a coding sheet was created for full content analysis. Then, each NBA teams' Facebook page was visited and posts from August 2012 and January 2013 were saved. Two teams did not allow access to their complete timeline when data were collected and were dropped from the study. After all data were collected, each Facebook post was coded and the number of likes, comments, and shares were recorded. Team level data, number of Facebook fans, market size, and winning percentage were then collected and percentage of posts for each content type were calculated. Team-level and post-level data were then combined into one data file and stacked.

Analysis

SPSS Version 20 was used to calculate descriptive statistics. Multivariate multilevel modeling was used to model both fixed and random effects, so that the variance of team was accounted for in the model. Multivariate linear mixed modeling addresses the issue of correlated error by correctly modeling it (Garson, 2012). Multiple models were run using restricted maximum likelihood estimation to test that data needed to be treated as multivariate and that there was a team random effect. Restricted maximum likelihood estimation was used because it is less biased than maximum likelihood, resulting in more accurate estimates (Garson, 2012). Finally, parameter tests run using two multivariate multilevel models were used to answer the research questions. Because both models were very large and all effects and differences in effects were tested, only parameter estimates and significant effects and differences were reported.

Results

Descriptive statistics were run for team- and post-level variables. Tables 1 and 2 list means and standard deviations for all variables.

Table 1: Means and Standard Deviations for Team Level Variables

	<i>M</i>	<i>SD</i>
Number of Facebook fans	3,093,418	4,353,690
Winning percentage	.50	.16
Market size	5,701,059	5,069,546
Percentage of external commerce posts	.04	.02
Percentage of fan interactivity posts	.14	.14
Percentage of organizational promotion posts	.29	.13
Percentage of player/personnel posts	.22	.10
Percentage of team information posts	.32	.07

Table 2: Means and Standard Deviations for Post Level Variables

Content category (<i>n</i>)	Likes		Comments		Shares	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
External commerce (125)	822	2,460	21	46	35	108
Fan interactivity (1,092)	2,350	8,618	161	406	121	757
Organizational promotion (1,418)	1,502	6,963	56	280	77	754
Player/personnel promotion (1,305)	4,401	15,682	135	548	248	1,276
Team information (1,846)	2,861	8,796	165	460	142	813

Evaluation of Assumptions for Multilevel Modeling

In data analysis, independence of observations is an often-violated assumption. Because likes, comments, and shares were nested within each post, it was important to evaluate whether data were multivariate (i.e., test whether the three outcome variables were correlated). To test this, the empty model for interaction type was run, deviance (D) = -242,623.72, df = 4. Then, the effect of post was added and the model was run to determine if it was necessary to treat the data as multivariate, D = -208,886.73, df = 9. A significant likelihood ratio difference test indicated the data were multivariate ($(-208,886.73 - (-242,623.72)) = 33,736.99$, df = 5, $p < .001$), precipitating a need to use multivariate mixed modeling. Next, the unconditional model with the team random effect was run to determine if this effect was significant and if multilevel modeling was necessary, D = -204,808.62, df = 15. The likelihood ratio test ($-204,808.62 - (-208,886.73)$) resulted in a significant difference of 4,078.11 (df = 6, $p < .001$), signaling a significant team effect and confirming the need for multilevel modeling.

Also, multivariate data analysis requires approximately equal variances for the dependent variables. Because of the varying scales of likes, comments, and shares, the variable likes was divided by 100 and shares was divided by 10 for data analysis purposes.

Model Results

The first random intercepts model (model 1) included winning percentage, market size, number of Facebook fans, and mean percentage of posts in each category as controls at the team level, and category type as a predictor of the number of likes, comments, and shares at the post level. The deviance equaled 204,827.23 ($df = 29$). The variance of the team effect was 58.68 ($SE = 29.09$, $p = .05$). Estimates of fixed effects are reported in Table 3. The intercept was interpreted as the number of likes (scaled by 100) on a post coded as external commerce for a team with the mean number of Facebook fans, in the mean market size, that has won 50% of its games and posts external commerce the mean number of times.

Table 3: Estimates of Fixed Effects for Model 1

Fixed Effect	Estimate	SE	p
Intercept	9.12	9.00	.31
Comments	12.42	31.51	.69
Shares	-4.14	4.16	.32
Number of Facebook fans (centered)	.0000026	.0000005	<.001
Market size (centered)	-.0000002	.0000004	.54
Winning percentage (centered)	31.57	12.20	.02
Fan interactivity	17.80	9.43	.06
Organizational promotion	6.40	9.25	.49
Player/personnel promotion	32.98	9.29	<.001
Team information	18.01	9.17	.05
Mean fan interactivity posts for teams (centered)	68.02	14.29	.47
Mean organizational promotion posts for teams (centered)	89.77	14.58	.37
Mean player/personnel promotion posts for teams (centered)	92.24	99.74	.37
Mean team information posts for teams (centered)	71.03	94.57	.47
Comments*Fan interactivity	126.78	33.34	<.001
Comments*Organizational promotion	29.01	32.88	.38
Comments*Player/personnel promotion	78.80	32.99	.02
Comments*Team information	123.48	32.57	<.001
Shares*Fan interactivity	-7.51	4.40	.09
Shares*Organizational promotion	-3.17	4.34	.47
Shares*Player/personnel promotion	-15.23	4.36	<.001
Shares*Team information	-10.39	4.30	.02

To answer the first research question, estimates were generated for the number of likes, comments, and shares for each content category, while controlling for number of Facebook fans, market size, winning percentage, and percentage of posts in each content category. The estimates for likes, comments, and shares in each category are reported in Table 4. Content coded as player and personnel information received the most likes and shares when controlling for market size, number of Facebook fans, winning percentage, and number of times content was posted. Fan interactivity posts received the most comments.

Next, the specific total effects of each type of content on likes, comments, and shares when controlling for market size, number of Facebook fans, winning percentage, and percentage of times content type was posted were tested. Significant effects and differences in effects are reported in Table 5. The total effect of player and personnel content on likes was 33, meaning that this type of content resulted in an increase of 3,300 likes. Team information content also significantly increased the number of likes (1,800). Four types of content had a significant impact on comments including fan interactivity, organizational promotion, player and personnel

promotion, and team information. The greatest effect was that of fan interactivity, which resulted in 157 more comments.

Table 4: Estimates for the Number of Likes, Comments, and Shares for each Category Type in Model 1

Parameter	Estimate	SE	p
External commerce likes	9.12	9.00	.31
Fan interactivity likes	26.92	3.48	< .001
Organizational promotion likes	15.52	3.06	< .001
Player/personnel promotion likes	42.10	3.15	< .001
Team information likes	27.23	2.77	< .001
External commerce comments	21.54	38.52	.58
Fan interactivity comments	166.12	13.40	< .001
Organizational promotion comments	56.95	11.55	< .001
Player promotion comments	133.32	12.00	< .001
Team information comments	163.03	10.17	< .001
External commerce shares	4.98	8.11	.54
Fan interactivity shares	15.27	3.21	< .001
Organizational promotion shares	8.22	2.84	.005
Player/personnel promotion shares	22.73	2.91	< .001
Team information shares	12.60	2.58	< .001

Table 5: Significant Effects and Differences in Effects of Content Type on Likes, Comments and Shares

	Estimate	SE	p
Effects			
Player/personnel promotion on likes	32.98	9.29	< .001
Team information on likes	18.01	9.17	.05
Fan interactivity on comments	157.00	16.01	< .001
Organizational promotion on comments	47.83	14.48	.001
Player/personnel promotion on comments	124.20	14.85	< .001
Team information on comments	153.91	13.41	< .001
Differences in effects for likes			
External commerce and player/personnel promotion	-32.98	9.29	< .001
External commerce and team information	-18.01	9.27	.05
Fan interactivity and organizational promotion	11.40	4.15	.006
Fan interactivity and player/personnel promotion	-15.18	4.20	< .001
Organizational promotion and player/personnel promotion	-26.58	3.85	< .001
Organizational promotion and team information	-11.60	3.54	.001
Player/personnel promotion and team information	14.97	3.59	< .001
Differences in effects for comments			
External commerce and fan interactivity	-144.58	40.73	< .001
External commerce and player/personnel promotion	-111.78	40.29	.006
External commerce and team information	-141.49	39.78	< .001
Fan interactivity and organizational promotion	109.17	17.57	< .001
Organizational promotion and player/personnel promotion	-76.37	16.53	< .001
Organizational promotion and team information	-106.08	15.24	< .001
Differences in effects for shares			
External commerce and player/personnel promotion	-17.75	8.35	.03
Fan interactivity and player/personnel promotion	-7.47	3.79	.049
Organizational promotion and player/personnel promotion	-14.52	3.47	< .001
Player/personnel promotion and team information	10.13	3.23	.002

Testing differences in the impact of content on likes, comments, and shares helped identify the most effective types of content for increasing engagement. Player and personnel promotion resulted in significantly more likes than all other types of content, with this difference being greatest between player and personnel promotion and external commerce. Additionally, fan interactivity had a significantly greater impact on likes than organizational promotion. Team information received significantly more likes than external commerce and organizational promotion. For comments, fan interactivity had a significantly greater effect than external commerce and organizational promotion. Player and personnel promotion had a greater impact than external commerce and organizational promotion. Finally, team information had a greater effect than external commerce and organizational promotion. Differences in effects were least likely for shares, with only four significant differences. Player and personnel promotion had a significantly greater effect on shares than all other types of content, with the difference between player and personnel promotion and external commerce being the largest.

To examine the effects of number of Facebook fans, winning percentage, and market size, the interactions between these variables and content and interaction type were added to the model (model 2). The deviance for this model was 201,448.24 ($df = 79$). The variance of team was 82.34 ($SE = 36.53$, $p = .02$). Using model 2, the effects of number of Facebook fans, market size, and winning percentage were examined by running parameter tests. Significant effects are reported in Table 6.

Table 6: Significant Effects of Number of Facebook Fans, Winning Percentage, and Market Size

Effect	Estimate	SE	p
# of Facebook fans on likes for external commerce	.00001	.000004	.02
# of Facebook fans on likes for fan interactivity	.00002	.000001	< .001
# of Facebook fans on likes for organizational promotion	.00001	.000001	< .001
# of Facebook fans on likes for player/personnel promotion	.00002	.000001	< .001
# of Facebook fans on likes for team information	.00001	.000001	< .001
# of Facebook fans on comments for fan interactivity	.00009	.000005	< .001
# of Facebook fans on comments for organizational promotion	.00005	.000004	< .001
# of Facebook fans on comments for player/personnel promotion	.00007	.000003	< .001
# of Facebook fans on comments for team information	.00008	.000003	< .001
# of Facebook fans on shares for fan interactivity	.00001	.000001	< .001
# of Facebook fans on shares for organizational promotion	.00001	.000001	< .001
# of Facebook fans on shares for player/personnel promotion	.00002	.000001	< .001
# of Facebook fans on shares for team information	.00001	.000001	< .001
Winning percentage on likes for fan interactivity	64.15	23.73	.01
Winning percentage on likes for player/personnel promotion	67.88	21.17	.002
Winning percentage on likes for team information	81.55	19.04	< .001
Winning percentage on comments for team information	139.72	59.50	.02
Market size on likes for fan interactivity	-.000002	.000001	.02
Market size on comments for player/personnel promotion	-.000005	.000002	.01
Market size on comments for team information	-.000006	.000002	.002

The number of Facebook fans had a significant impact on likes, comments, and shares for all types of content except for comments and shares on external commerce. The effect was greatest on likes for player and personnel promotion and fan interactivity, where each additional Facebook fan resulted in .002 (.00002 x 100) more likes, meaning it would take 500 more fans to result in one more like on either of those types of content. The effect of Facebook fans on comments was greatest on fan interactivity, where each additional Facebook fan resulted in a

.00009 increase in comments. Finally, for shares, the effect was greatest for player and personnel promotion, where each additional Facebook fan would result in a .0002 (.00002 x 10) increase in shares. Winning percentage had a significant impact on likes for fan interactivity and player and personnel promotion and on likes and comments for team information. The effect was greatest for team information with an increase of approximately 140 comments and 8,200 likes for each additional percentage point. Finally, market size had a significant negative impact on likes for fan interactivity and comments for player and personnel information and team information. The effect was largest for comments with a .000006 decrease in comments for each additional person living in the team's market.

Discussion

Results from this study can help guide social media strategy as well as provide a baseline for future research on Facebook use by sport teams. One of the major implications of this study is the statistical support for treating engagement data of likes, comments, and shares as multivariate data. Often, researchers assume that data are not correlated, however, this assumption is frequently violated. Intuitively, the number of likes, comments, and shares a post receives would be related. Posts that receive more likes are also likely to receive more comments and shares. Statistical tests in this study support this fact. This is also likely to be true for other social media channels, such as Twitter, where Tweets receiving more retweets also would receive more favorites. If content is going to be examined for its impact on these engagement measures, multivariate statistical methods are advised.

Additionally, statistical tests suggest data are nested and multilevel modeling is necessary to account for the variance at the team level. Even when this variance is not of paramount interest to researchers, Garson (2012) suggests it must still be accounted for in the model to improve the accuracy of conclusions. The results of this study support this notion as team-level variance was significant in the model. Accounting for the effect of team on the number of likes, comments, and shares safeguards against drawing inaccurate conclusions.

Based on the results from the first model, content coded as player and personnel promotion received the most number of likes and shares. While it seems intuitive that in a star-laden league fans would be interested in content that promotes players and personnel, evidence of this is valuable for team marketers. Building relationships with customers can be facilitated by connecting them with players and coaches as humans instead of only athletes. Also, providing fans with content, such as behind-the-scenes information, that adds value to the relationship is important, as Grönroos (2004) suggests, because it gives fans additional information they do not receive from other media sources. Additionally, the findings of Thompson et al. (2014) support the importance of behind-the-scenes content because it is received favorably by consumers. Facilitating more personal and intimate connections to players and personnel could help sustain attendance when team performance is sub-par because fans will attend games simply to feel connected to their favorite players.

Content designed to encourage fan interactivity received the most comments. This may be due to teams explicitly requesting comments on content, which Malhotra et al. (2013) suggested was effective in increasing engagement on social media. Additionally, this could be tied to teams' use of questions, fill-in-the-blanks, and polls. It appears these types of content are successful in encouraging comments, which is what they are designed to do. Teams could utilize these types of posts to learn more about their customers' preferences, needs, and opinions. From a relationship-building perspective, this type of content encourages two-way communication,

which Grönroos (2004) suggests is an integral part of relationship marketing strategy. If teams are truly interested in building reciprocal relationships with customers, content designed to specifically encourage interaction is important to social media marketing strategy.

Content coded as team information and player and personnel promotion had significant effects on the number of likes posts received. In fact, the effect of player and personnel promotion on likes is significantly greater than all other types of content. If the goal of the team is to increase the number of likes their posts receive, then they should focus content on player and personnel promotion. This type of content also had significantly more shares than all other types of content. If a team's goal for using social media is to increase their reach using their current fans, content which encourages shares should be posted. Finally, all types of content except external commerce had a significant impact on comments. It seems that promotion of sponsors on Facebook is not interesting to fans. While social media channels offer additional avenues to promote sponsors, teams should consider whether this type of content connects with customers. Meeting the wants and needs of customers is essential in relationship marketing. If the goal of social media use is to build stronger relationships with customers, which Williams and Chinn (2010) would argue should be the case, then Facebook may not be the most appropriate channel for sponsor promotion. Potentially, teams could use contests or sponsored questions to encourage interaction without directly focusing on the promotion of a sponsor to keep both customers and sponsors satisfied.

The number of Facebook fans a team has had a significant, but not meaningful, impact on the number of likes, comments, and shares posts received. For example, for each additional Facebook fan, a player and personnel promotion post would receive .002 more likes. A team would need approximately 500 more fans to receive just one additional like. This suggests that it might not be the number, but the quality of Facebook fans that matters. Using the number of Facebook page likes is likely not a useful way to categorize and compare success on Facebook or engagement of Facebook followers. Teams should focus resources on building quality relationships with fans instead of trying to cultivate large fan bases that are loosely attached. This also supports the use of relationship marketing as a driver for social media strategy.

Similarly, market size had a significant impact on likes and comments for interactivity, player and personnel promotion, and team information. Interestingly, this impact was negative, although it was very small and likely not meaningful. It is necessary to note that the negative impact suggests that larger markets had less likes on fan interactivity and comments on player and personnel information and team information. Although this impact was negligible, the fact that larger markets do not have a positive impact on the level of engagement suggests teams cannot hide behind their market size as a reason for less engagement on their Facebook pages. Teams in any market size have the opportunity to build relationships with fans on social media and that, once again, it is the attachment of the fan base, and not the size, that matters. This finding might also speak the dispersion of fan bases because of the access to television and internet. For example, the Oklahoma City Thunder has the potential to capture a large market, including the Kansas City area. Even though their market size is small, their reach is potentially much larger.

Finally, winning percentage only had a positive impact on likes for fan interactivity, player and personnel promotion, and team information and comments for team information. The effect is greatest on team information content. It makes sense that when the team is more successful, content related to team scores and highlights would receive more likes, especially as it is difficult to like a negative post (such as a post that the team lost). Marketers have no control

over the performance of athletes on the court, so the more significant finding here for marketers is the lack of impact of winning percentage on shares for all types of content and on comments for all content but team information. It is important for less successful teams to be aware that Facebook is an important channel for keeping fans engaged and interested, since success has little impact on engagement for most types of content. This could be especially important for shares because shares effectively turn fans into marketers by promoting the team to their own network. Since results suggest shares are not impacted by team success, team marketers can leverage their dedicated fans by posting content that elicits shares.

Conclusion

Wants and needs of customers should be the most important driver of marketing strategy for teams who want to build relationships with customers. In this case, player and personnel information is desirable to NBA fans. Additionally, content strategy should be driven by organizational goals. Smith (2013) advocates that organizations design content to illicit their intended response from customers. If teams want to build reach through word-of-mouth marketing, then they should post content, specifically player and personnel information, designed to encourage shares. If a team wants to gauge fan sentiment, receive direct feedback, and encourage two-way communication with fans, then fan interactivity content, which encourages comments, should be posted. Instead of treating Facebook as another channel for selling tickets and pushing promotions out to customers, teams should design content aimed at building relationships with customers, such as player and personnel promotion or fan interactivity, because it is an effective way to increase engagement and interaction on Facebook. It is this increased engagement that serves to build and improve customer relationships (Jahn & Kunz, 2012; Pronschinske et al., 2012).

As with any study, there are limitations to this research. It is difficult to determine an adequate sample size for social media research. This study collected over 5,000 posts over two time periods, which is just a picture of all social media posts from teams. As understanding and statistical programs advance, greater sample sizes can be drawn. Also, a longitudinal analysis would allow for deeper understanding of content. While this study attempted to apply more advanced statistical methods to social media analysis, it did not attempt to connect levels of engagement with business outcomes. Future research should devise a method for measuring the effectiveness of types of content on connecting with fans and improving relationships with them.

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