

DIGITAL ENGAGEMENT AND SOCIAL IDENTITY OF SPORTS FANS: THE CASE OF PREMIER LEAGUE TEAMS ON FACEBOOK**Dagoberto Herrera, Gabriel Valerio y Lucía Rodríguez-Aceves****Tecnológico de Monterrey, México**

ABSTRACT: This article examines digital engagement of sports fans in digital social networks as an expression of their social identity. The observation is of Facebook fan pages of the Premier league teams, the professional English football league. Analysis of these fan pages showed that the number of fans varies significantly from one team to another. Such differences may be associated with a team's historical performance. Analysis of comments revealed significant differences in the magnitude, composition, and attitude of fans' digital engagement, depending on whether the matches resulted in victories, ties or losses. This differentiated reaction can be associated with concepts of social identity theory, such as basking in reflected glory (BIRGing) and cutting off reflected failure (CORFing), which suggests that the degree to which fans connect with their teams depends on the team's performance.

KEYWORDS: Sports fan engagement, social networking sites, social identity theory, Facebook, Premier League.

COMPROMISO DIGITAL E IDENTIDAD SOCIAL DE LOS FANS DEPORTIVOS: EL CASO DE LOS EQUIPOS DE LA PRIMERA LIGA EN FACEBOOK

ABSTRACT: El artículo examina el compromiso digital de los fanáticos deportivos en las redes sociales digitales, como expresión de su identidad social. El escenario de observación son las páginas de Facebook de los equipos de la Premier League, la liga profesional de fútbol inglés. El análisis de las páginas de Facebook mostró que el número de seguidores varía considerablemente de un equipo a otro. Diferencia que potencialmente puede asociarse al desempeño deportivo de los equipos. Mientras que la revisión de publicaciones reveló diferencias significativas en la magnitud, composición y actitud del compromiso digital del público, dependiendo de si el resultado del partido es una victoria, un empate o una derrota. Esta reacción diferenciada se puede asociar a conceptos de la teoría de identidad social como *basking in reflected glory* (BIRGing) y *cutting off reflected failure* (CORFing), que surgieron para explicar el grado en el que los seguidores se asocian a sí mismos a sus equipos según el desempeño.

PALABRAS CLAVE: *Engagement* de los fanáticos deportivos, redes sociales en línea, teoría de la identidad social, Facebook, Premier League.

ENGAGAMENTO DIGITAL E IDENTIDADE SOCIAL DE FÁBRICOS DE DESPORTO: O CASO DE EQUIPES PREMIER LIGA NO FACEBOOK

RESUMO: Este artigo aborda o envolvimento digital de fãs de desporto em redes sociais online como modo de expressão da sua identidade social. A observação teve por base páginas de fãs de equipas da *Premier League*, a liga profissional de futebol inglesa, no Facebook. A análise a estas páginas mostrou que o número de fãs varia significativamente de uma equipa para a outra. Essa diferença poderá dever-se ao historial de cada equipa em termos de performance. A análise aos comentários revelou uma diferença significativa em termos de magnitude, composição e atitude do envolvimento digital, dependendo se o resultado do jogo se trata de uma vitória, um empate ou uma derrota. Esta reação diferenciada pode ser associada a conceitos da teoria da identidade social, tais como *basking in reflected glory* (BIRGing) e *cutting off reflected failure* (CORFing), o que sugere que o grau de comprometimento entre os fãs e as suas equipas depende da performance da equipa.

PALAVRAS-CHAVE: Envolvimento de fãs desportivos, redes sociais online, teoria da identidade social, Facebook, Premier League.

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Dirección de contacto: Gabriel Valerio Ureña, Tecnológico de Monterrey, Avda. Garza Sada 2501 sur, col. Tecnológico. Monterrey, N. L. México; CP 64849.
Correo-e: gvalerio@itesm.mx

Engagement is a mental state of involvement and sustainable attention to the representation of an object or action (Laurel, 1993). The presence of engagement in scientific literature is broad and diverse since it is a relevant concept for the comprehension of the social and cultural phenomena. Existing research on engagement is related to work (Chughtai & Buckley, 2011), civic behavior (Richey, 2011), academic activities (Astin, 1984) and consumerism (Gummerus, Liljander, Weman, & Pihlström, 2012). As a crowd phenomenon, research on sports can complement the current body of knowledge.

The behavioral studies of modern sports fans have a broad history in academic literature. Nevertheless, the recent incorporation of millions of fans to the Social Networking Sites (SNS) environment implies a new and significant challenge. With the intention of contributing to such a relevant topic, this article studies the digital engagement of fans in SNS contexts. The official Facebook sites of the Premier League teams serve as a representative scenario in the digital universe of sports. On one hand, the Premier League is a popular English football league with more than twenty years of existence and an international scope. On the other hand, in the digital terrain, the Facebook sites of the twenty teams included approximately 150 million fans at the end of the 2013-2014 season.

The literature review shown in the following paragraphs is composed of three sections. The first examines the generic concept of sports fan engagement. The second section discusses the topic of digital engagement and some proposals to measure it. Finally, the third section presents some recent studies about the intersection of sports fan engagement and digital engagement.

Sports fan engagement and social identity

Sports fans are subjects who are interested in the topics of sports, teams and athletes (Wann, Melnick, Russell, & Pease, 2001). The intensity of the relationship is defined by fan engagement, which is a specific form of brand engagement in the sports context (Yoshida, Gordon, Nakazawa, & Biscaia, 2014). Fan engagement with sports teams manifests itself through a broad variety of transactional and non-transactional behaviors (de Ruyter & Wetzels, 2000; Fisher & Wakefield, 1998; Hunt, Bristol, & Bashaw, 1999 and James, Kolbe, & Trail, 2002). Typical activities of sports fans include attending events, watching games on television, buying sports-related collectibles, reading sports magazines and newspapers, talking to other people about the topic, among others (Funk & James, 2001). Activities with a high level of commitment involve the creation of communities to support the teams, and belonging to these kinds of communities commonly leads to collaborative event attendance, as well as positive word of mouth and knowledge interchange about the teams with other community members (Dietz-Uhler & Murrell, 1999; Swanson, Gwinner, Larson, & Janda, 2003).

The Social identity theory sustains that sports fans' behavior may be explained by the positive effect of the association and affiliation to individual self-esteem. In other words, people commonly relate with successful individuals and separate themselves from unsuccessful ones in order to influence the impression they cause in others (Cialdini & DeNicholas, 1989;

Cialdini, Finch, & DeNicholas, 1989 mentioned on Spinda, 2011). Regarding sports fans, researchers have used the terms BIRG (Basking in Reflected Glory) and CORF (Cutting off Reflected Failure) to illustrate the self-representation processes (Spinda, 2011). BIRG has been defined as "the public trumpeting of the association" that people have with others considered as successful (Cialdini et al., 1976, p. 366). In the same vein, CORF has been defined as the "severing of associations with others who have failed", so that a negative impression of self-identity is not projected to others (Snyder, Lassegard, & Ford, 1986, p. 383).

Digital engagement and social identity in SNS

Digital engagement is manifested in fan reactions depending on the characteristics and contents of shared material on the web (Cvijikj & Michahelles, 2013). In this sense, scholars have proposed mechanisms to measure fans' digital engagement on a Facebook page. In general, the proposals agree these actions include: (1) giving a like, (2) commenting and (3) sharing content, are direct manifestations of engagement (Bonsón & Ratkai, 2013; Cvijikj & Michahelles, 2013; Oviedo, Muñoz, Castellanos, & Sancho, 2014).

Bonsón and Ratkai (2013) refer to likes, comments and shares as indicators for measuring popularity, commitment, and virality associated with Social Network Sites (SNS) content. Clicking the like button indicates spontaneous approval of the message. Commenting on a post demonstrates active interest by discussing and arguing about the message. Finally, sharing a post implies the receptor's desire to show the message to a wider audience.

Likes, comments and shares are manifestations of engagement that may be viewed by the friends of the Facebook user, but also by third parties. This is especially relevant in shared posts because they appear in the Facebook personal profile, which is the location provided for users to write about themselves. Users configure their activities in social networks to create a representation of their own identity that is projected for themselves and others (Gonzales & Hancock, 2011).

Sports fan engagement in social networking sites (SNS)

The FIFA World Cup 2014 is a good example of the magnitude of sports fans' presence in social networking sites. In fact, the championship became the most commented event in the history of social networks. According to Twitter (2014) and Facebook (2014), more than 672 million tweets and 3 billion interactions in Facebook were registered. Other sport events such as the Super Bowl and the Olympic games also showed a high activity index.

The sports industry has immediately recognized the potential of social networking sites to promote their events and to interact with fans (Garcia del Barrio, 2016; Hambrick, 2012; Park & Dittmore, 2014). Therefore, since 2010 scholars have devoted their efforts to studying the phenomena of professional sports teams and social media (Filo, Lock, & Karg, 2015; Miranda, Chamorro, Rubio, & Rodríguez, 2014). Research to date provides sport management academics and practitioners with insight regarding how to optimize social media usage from strategic and operational standpoints (Pérez, 2013; Watanabe,

Yan, & Soebbing, 2015). Nevertheless, academic literature to explain sports fan engagement in SNS is still limited (Wang, 2013).

Sanderson (2011) suggested that the inherent social nature of sports explains fans' intense motivation to interact with teams, players and other users in SNS. Wang (2013) identified different functions that motivate a sports fan to use SNS while watching sports in the media. First, there is the utilitarian function that provides updated information such as the scores. Second, there is the self-esteem function, since it is an excuse to attract people's attention and increase popularity. Finally, there is the social identity function that allows fans to feel self-identified and identified with others, as part of the same group. In the same vein, Phua (2012) explained that the use of SNS expands and delimits the sports fan's social capital. The users may be connected to a community potentially composed of a large number of similar fans who publicly express their affiliation.

METHOD

This study aims to analyze the relationship between game scores and digital engagement. In order to accomplish the objective, four research questions were established. The first question explores the link between the long-term performance of teams and the size of their fanbase on Facebook. The rest of the questions explore the association between the scores of a particular game and the engagement reflected in related posts in Facebook. The research questions are the following:

- Is there evidence of a relationship between the historical performance of a team in the Premier League and the number of users on its Facebook fan page?
- Is there evidence of a relationship between a team's results in a game and the degree of digital engagement with the posting of such result on Facebook?
- Is there evidence of a relationship between a team's results in a game and the compositional structure of the digital engagement with the posting of such results on Facebook?
- Is there evidence of a relationship between a team's results in a game and the sentiment polarity of the comments associated with the posting of such results on Facebook?

This research analyzes the 20 teams participating in the Football Premier League during the 2013-2014 season in games played between August and May of those years. The first step consisted of identifying each team's official fan page on Facebook. All the fan pages had been working for at least two years and therefore were considered relatively well consolidated by the time of the data collection (see Table 1). Afterwards, every post related to the teams was extracted in order to create a database that pictured the whole season. For each post, three different data sets are available: date, number of interactions among the fans (likes, comments and shares) and the text of the public comments. The data extraction was executed with Facebook Query Language (FQL), a query that permits collecting public data from Facebook users.

Table 1

Descriptive of teams' performance in the Premier League

Ranking	Team	Played	Won	Drawn	Lost	GF	GA	GD	Points	Fan page creation	Facebook Fans
1	Manchester City (C)	38	27	5	6	102	37	65	86	July 7, 2009	12,920,837
2	Liverpool	38	26	6	6	102	50	52	84	March 17, 2009	20,061,318
3	Chelsea	38	25	7	6	71	28	43	82	May 28, 2009	30,380,961
4	Arsenal	38	24	7	7	68	41	27	79	January 9, 2009	24,820,816
5	Everton	38	21	9	8	61	39	22	72	February 12, 2009	1,163,819
6	Tottenham Hotspur	38	21	6	11	55	51	4	69	March 3, 2010	5,052,348
7	Manchester United	38	19	7	12	64	43	21	64	August 28, 2009	49,302,942
8	Southampton	38	15	11	12	54	46	8	56	May 11, 2011	420,812
9	Stoke City	38	13	11	14	45	52	-7	50	August 4, 2008	279,000
10	Newcastle United	38	15	4	19	43	59	-16	49	May 5, 2010	1,156,833
11	Crystal Palace	38	13	6	19	33	48	-15	45	November 2, 2009	279,280
12	Swansea City	38	11	9	18	54	54	0	42	January 25, 2011	600,952
13	West Ham United	38	11	7	20	40	51	-11	40	July 7, 2010	771,820
14	Sunderland	38	10	8	20	41	60	-19	38	April 14, 2010	391,870
15	Aston Villa	38	10	8	20	39	61	-22	38	April 26, 2010	1,904,306
16	Hull City	38	10	7	21	38	53	-15	37	January 13, 2010	706,479
17	West Bromwich Albion	38	7	15	16	43	59	-16	36	October 16, 2010	300,654
18	Norwich City (D)	38	8	9	21	28	62	-34	33	March 15, 2011	360,521
19	Fulham (D)	38	9	5	24	40	85	-45	32	June 16, 2010	594,561
20	Cardiff City (D)	38	7	9	22	32	74	-42	30	July 29, 2009	346,261

Source: Premier League official website *GF stands for Goals For ** GA stands for Goals Against ***GD stands for Goal difference
*GF Goals for; *GA Goals against; *GD Goals difference

Description of the posting panel

During the whole season, 36,956 posts were identified and extracted. Altogether, the posts received 303 million interactions; 93.8% of those were likes, 3.7% were comments, and 2.5% shares. The prevalence of likes over the other two types of interactions is a common characteristic of all of those

sites. The fan page with the lowest proportion of likes related to total interactions reported 78.8%.

Table 2 describes some of the characteristics associated with the fan pages and posting behaviors. The oldest fan page (Stoke city team) was five years old and the youngest 2.3 years old (Southampton team) before the beginning of the analyzed season. This confirms that although the fan pages were

relatively young, they had had enough time to define their corporate identity. Regarding posting frequency, it is significant that, on average, the teams posted content in the fan pages at least once every day. Finally, the volume of users in the fan pages and the average number of interactions of such fans with the team posts are variables that showed a high level of dispersion. In other words, there was a considerable distance or difference between the fan pages with the highest number of users (Manchester United team) and the ones with the lowest number (Stoke city team).

Table 2
Characteristics of the team fan pages in Facebook and their posting behavior

	20 Teams			SD
	Average	Max	Min	
Fan page age in years	3.6	5.0	2.3	0.7
Average frequency of posts per day	6.9	11.3	1.1	2.8
Number of fans at the beginning of the season	7,590,819	49,302,942	279,000	13,419,018
Average volume of interactions per post*	8,808	59,011	221	16,125

*Average of the sum of likes, comments and shares that a post received.

Sample description of final score posts

After extracting the total number of posts, two conditions were established in order to select the posts to be analyzed. First, only those that showed the final scores of the games were considered. Second, only the first posting of a final score, as long as it was entered during the same day of the event, was considered. During the season, 380 games took place. Each team participated in two matches against the other nineteen teams, one game as a visitor and one game as a local. Under such circumstances, there were 760 potential posts of scores, one for the local team and the other for the visitor in each game. A total of 718 posts complied with the established conditions. From those, 78% were entered during the first two hours after the games ended.

Table 3 shows the number of potential final score posts versus the ones that actually were identified. In all of the categories it was possible to find a high proportion of the potential final score posts, with a slightly greater tendency to post victories, followed by ties and losses.

Table 3
Potential final score posts vs. Identified final scores posts

	Win	Draw	Loss	Total
Number of potential posts	302	156	302	760
Number of identified posts	295	147	276	718
% of presence detected	97.7%	94.2%	91.4%	94.5%

RESULTS

This section presents the qualitative and quantitative results related with each of the research questions stated above.

a. Is there evidence of a relationship between the historical performance of a team in the Premier League and the number of users on its Facebook fan page?

This section explores the relationship between the teams' performance over a long-term and the size of their fan base on Facebook. The fan base is important because they are the primary readers of the posts on a fan page. The public is responsible for most of the interactions within the content. In order to measure team performance, value scores 21-*i* were assigned. *i* is the final position in the Premier League at the end of the season; consequently, the higher score corresponds to the team with the best performance.

In figure 1, four figures show the dispersion diagrams with the scores accumulated for the four periods on the horizontal axis. The periods are: a) from season 1992-1993 to the present (1992-1993 being the first date of the current Premier League, b) from season 2004-2005 to the present (last 10 years), c) from season 2009-2010 to the present (last five years), and d) scores from the 2013-2014 season. Each graph has a coefficient of determination adjusted to a logarithmic transformation of the number of fans.

In general, the models suggested a positive relationship between the scores and the number of fans. Comparing the four periods, it is evident that periods a, b and c have a higher correspondence. However, the distribution in season d shows a smaller adjustment due to a major dispersion in the observations with respect to the expected tendency line.

b. Is there evidence of a significant relationship between a team's results in a game and the degree of digital engagement with the posting of such result in Facebook?

Data was analyzed using a General Linear Model (GLM) to test for differences between independent and dependent variables. GLM is an ANOVA procedure that uses a least squares regression approach to describe the statistical relationship between one or more predictors and a response variable.

The purpose is to measure the effect of a team's results in a game (victory, tie, or loss) over the magnitude of digital engagement observed in the posting of such a final score. Digital engagement is expressed as the sum of interactions on Facebook (likes, comments and shares) per 1,000 fans. A normality test was performed on the digital engagement variable and a considerable positive bias was identified and corrected with a logarithmic transformation. For this reason, the variable used in the models is ln(engagement).

A team's results in a game is codified using two dummy variables. One variable represents the victory condition and the other the loss. The draw is the categorical reference. Therefore, the coefficients of the dummy variables are equivalent to the difference of the average values of victories and losses with respect to the ties. In the model, two other factors were added: the affiliation to the team that publishes the final score (20 possible teams) and the status of the team in the match (visitor as the reference category). Table 4 shows the model specification.

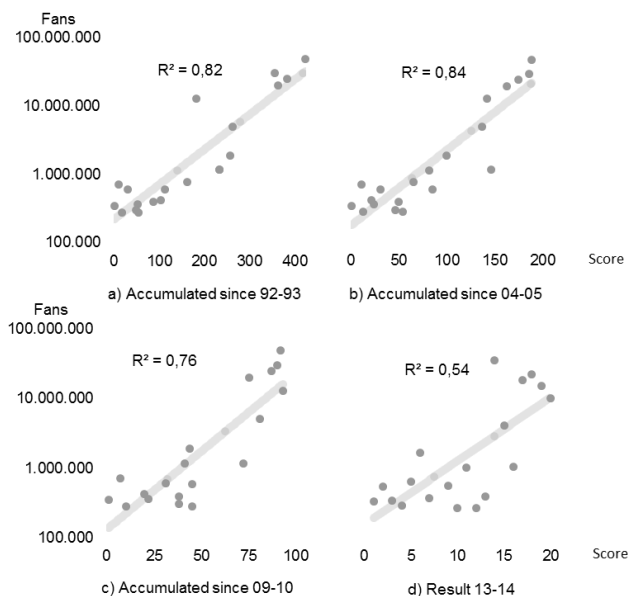


Figure 1. Team performance vs. Number of fans.

The vertical axis displays the number of users on the Facebook fan pages by the end of the last season (2013-2014) in a logarithmic scale. The horizontal axis corresponds to the accumulated score according to the period.

Table 4

GLM for the digital engagement magnitude

Factor Information			
Source		F	p
Status		0,70	,40
Team		45,13	,00
Result		494,21	,00
S	R-Sq	R-Sq (adj)	R-Sq (pred)
0,26	73,8%	73,0%	73,0%
Coefficients			
Result	Coef	T	p
Win	1,24	19,49	,00
Loss	-0,48	-7,56	,00

On the one hand, the *affiliation to the team that posts the final score* and the *team's result in a game* are associated to small *p*-values. Consequently, it is possible to confirm that these two predictors significantly affect the *degree of digital engagement related to the final score posts*. On the other hand, there is no evidence that *team status* is a factor affecting digital engagement. Finally, the model adjustment is relatively high, explaining 73% of the variance of the dependent variable.

The logarithmic transformation of the dependent variable prevents an intuitive interpretation of the results in terms of the original scale of measurement. Nevertheless, the values of the regression coefficients are high enough to suggest that the observed differences have a practical significance. The digital engagement associated with victories is higher than the one with ties. In the same vein, digital engagement tends to be smaller when a loss occurs.

Figure 2 graphically shows the models for the two significant factors. On the vertical axis, the average of $\ln(\text{engagement})$ and on the horizontal axis, the predetermined team affiliation. The three lines represent the possible results of a team in a game (victory, tie, and loss). Considerable variations in engagement level are observed according to the team. For one team, the average level of engagement associated with a tie is commonly higher than the one related to a loss. In contrast, the average level associated with a victory is consistently higher than the one associated with a tie or a loss.

For each posting of results, the percentile of engagement was calculated with for each posting of results, the percentile of engagement was calculated with respect to the other posts for the team during the corresponding season.

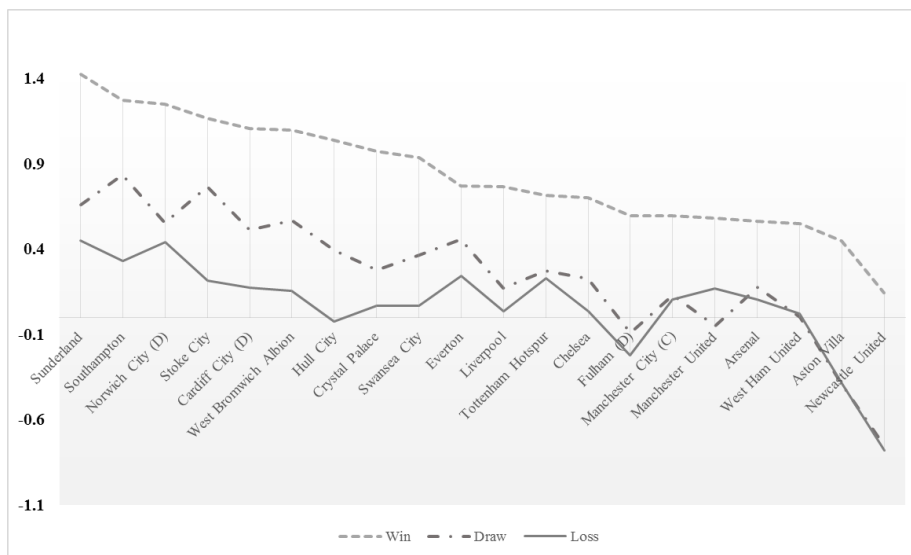


Figure 2. Engagement levels

Note: The vertical axis shows the engagement level and the horizontal axis shows each of the twenty teams. In order to facilitate pattern identification, the values are sorted in a descending order, according to the average level of engagement.

Aiming to gain a better understanding of the patterns in the variables, the percentile associated with the level of engagement of each final score post was calculated, with respect to the rest of posts during the season. The losses are located around percentile 61 ($SD = 0.07$), the ties around percentile 72 ($SD = 0.19$) and victories around percentile 94 ($SD = 0.07$). Consequently, these results show that final score posts of victories are associated with a higher degree of engagement when they are compared to the total amount of posts.

c. Is there evidence of a relationship between a team's results in a game and the compositional structure of the digital engagement with the posts of such results on Facebook?

The total amount of interactions of the fans is composed of three elements: likes, comments and shares. Descriptive statistics is not useful for compositional data. Instead of using arithmetic mean as a central tendency measurement for compositional geometry, geometric mean, or center, was used. Table 5 shows the center of each of the digital engagement components associated with the final score postings.

Table 5
Compositional structure of engagement.

	Victory	Tie	Loss
Likes	89.5%	75.7%	52.5%
Comments	4.9%	15.3%	36.8%
Shares	4.5%	1.7%	1.5%

Note: Geometric mean (center) of the proportion of likes comments and shares in the final scores postings.

The position of the centers in the likes and shares proportions decreases from victory to loss. Moreover, the comments proportions increase in the same way. As a caveat, the values should be interpreted taking into account that the elements of a compositional problem are not independent because of the

restriction of constant sum. The components compete against each other for the same space. The differences in proportion imply that when one component increases, the sum of the other components will decrease and vice versa.

An analysis of variance for each of the three types of posts (i.e. comments, likes and shares) was also calculated in order to identify if there were statistically significant differences among the results of the matches (win, tie or loss). Regarding likes, we found a statistically significant difference in the means of the groups; $F(2, 575) = 55.70, p < .001$, being the average of likes higher when the team wins ($M = 42998.03, SD = 58877.59$) and lower when the team loses ($M = 5809.56, SD = 14847.15$). In terms of comments, we also found a statistically significant difference in the means of the groups; $F(2, 547) = 4.17 p < .05$. In this case, the average of comments was also higher when the team wins ($M = 20666.97, SD = 3408.52$) but lower when the team ties ($M = 1113.25, SD = 2007.53$). Lastly, when analyzing the shares, we also found a statistically significant difference in the means of the groups; $F(2, 397) = 22.13, p < .001$. Similar to the comments, the average of shares was higher when the team wins ($M = 2740.04, SD = 4412.55$) and lower when the team ties ($M = 335.94, SD = 442.42$). In sum, the variances within each group (win, tie or loss) are statistically significant different at least to each other, for the three types of posts.

Figure 3 shows a series of ternary diagrams, which graphically represent the compositional structure of the digital engagement variable. Ternary diagrams are triangular geometries where the relative position of the points with respect to the axis is equivalent to the proportions of three variables that together sum up 100%. Each of the three axes complies with the condition that $0\% \leq \text{likes, comments, shares} \leq 100\%$, as is shown in the first ternary diagram a).

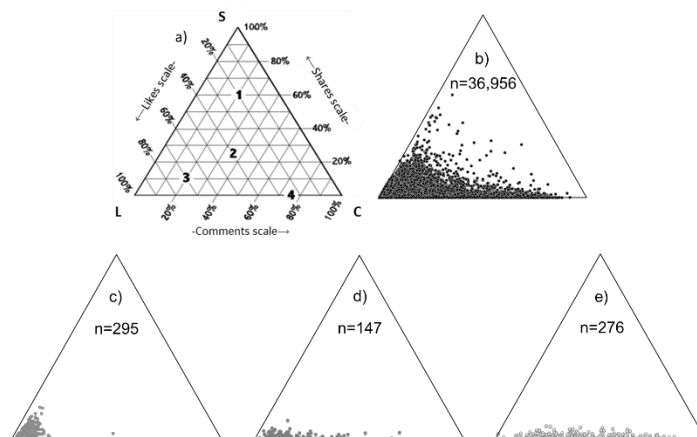


Figure 3. Ternary diagrams of the compositional structure of engagement a) Reading guide for the ternary diagram, b) total analyzed posts, c) victory posts, d) tie posts, e) loss posts.

Section b shows the points' distribution that corresponds to the total amount of analyzed posts, which is highly concentrated in the lower left vertex of the diagram. This is inter-related to the predominance of likes in the sum of total interactions.

Sections c, d and e, which show the compositional structure of the final score posts, have as a commonality a distribution of points located in the lower part of the diagram. This suggests that they have a relatively lower presence of shares with respect to the other elements. The point's concentration in the low vertex of section c suggests that victories are compositionally intensive in likes. In contrast, sections d and e suggest that in tie and loss posts, the composition is intensive in comments.

d. Is there evidence of a relationship between a team's results in a game and the polarity of the sentiments found in the comments associated with the posts of such results in Facebook?

In order to answer this research question, the text of the comments associated with the final score posts was analyzed. In total, 387,639 comments for victories, 98,148 for ties and 203,302 for loss were studied. Assuming a normal distribution with a 95% confidence interval and a 5% margin of error, a random sample of 385 commentaries for each group of posts was selected.

The sentiment analysis is the task of classifying the polarity of text in terms of positive (good), negative (bad), or neutral (Kaur & Gupta, 2013). This model was adopted for this analysis. For sentiment classification, comments in languages other than English or the ones with pictographic characters were eliminated. Afterwards, several reviewers classified the emotions transmitted by the sender through the text. Only one category per comment was assigned. When there were positive and negative sentiments in the same comment, the neutral category was assigned. In order to measure codification consistency, Krippendorff's alpha was calculated. The resulting coefficient was 0.81, which is a value that suggests an acceptable value among the codifiers (Krippendorff, 2004).

Finally, the reviewers evaluated the existing differences, providing the classification shown in table 6.

Table 6
Matrix of sentiments classification regarding comments on the final score posts

	Victor y	Tie	Loss
% of comments in English	89.9%	89.6%	90.9%
% Positive	87.6%	29.3%	14.0%
% Neutral/Unclear	3.4%	16.2%	7.7%
% Negative	9.0%	54.5%	78.3%

The classification showed important differences among the three groups. Victory posts typically generated comments primarily with a positive polarity. Loss posts were mostly associated with a negative polarity. Tie posts generated neutral comments but with a tendency towards negative polarity. In order to have more conclusive results, a test of homogeneity of variance for non-parametric data was conducted. In particular, the Kruskal Wallis test was performed. For such matter, the positive comments were coded as 2, the neutral or unclear as 1 and the negatives as 0. The test showed a statistically significant difference in the comments' sentiments polarity depending on the results of the match, $\chi^2 (2, N = 1040) = 415.83, p < .001$. In fact, 39% of the variability in the type of comment (sentiment polarity) was accounted by the results of the match.

A word cloud is a special visualization of text in which the most frequently used words are effectively highlighted by occupying more prominence in the representation. Word clouds can help users understand the major content of a document collection (Wu, Provan, Wei, Liu, & Ma, 2011). Figure 4 shows word clouds integrating the complete database of analyzed comments. Raw data consisted of the text of each comment related to final score posts and was processed using a data-mining tool that filtered the terms with typical positive and negative connotations. The tool uses a generic dictionary as

the comparison base. Afterwards, the frequency of the terms was calculated and a color was assigned to build the word clouds. For this analysis, the Subjectivity Lexicon created by Wilson, Wiebe, and Hoffmann (2005) was used. Wilson and his colleagues created and used the tool in research related to text

message polarity recognition and made the tool available for free use on the website associated with the University of Pittsburgh.



Figure 4. Word clouds of comments related with final score posts.

a) Comments related to victory posts, b) comments related to tie posts, c) comments related to loss posts. Green represents the terms with generally positive connotations. Red represents terms with negative connotations. The three sections use the same scale to represent the relative frequency of the terms.

It should be noted that word clouds as a visualization tool for analysis do present limitations. For example, the processing level is not compatible with informal styles of writing and does not take into account the effect of the negotiations related with message significance. Nevertheless, in contrast to the loss and tie posts, the word cloud of victory posts is clearly dominated by terms with a positive connotation such as *good, well, great, love, best*.

Finally, a text length comparison was performed, measuring in terms of the number of characters in the messages for the three groups of posts. The comments related to victory posts had an average length of 38.8 characters ($SD = 85.0$), the ones related to tie posts 82.5 characters ($SD = 143.8$), and the ones related to loss posts an average length of 83.6 ($SD = 161.3$).

DISCUSSION

Online SNS offer new environments to observe social phenomena that previously were studied in other contexts. In general, the results of this research allowed for the identification of several elements studied in social psychology, for example social identity theory and the concepts of BIRGing and CORFing. In fact, it was possible to detect manifestations of the BIRGing and CORFing phenomena, both in the observed teams' historical performance and in the engagement associated with final score posts.

A wide dispersion of the number of users affiliated to their team's fan pages and a potential positive association of those values with their team's historical performance suggests that fans differentiate a hierarchy by formalizing their support to a team in social networks. The posts revealed a number of significant and sequential differences in terms of magnitude, composition, and sentiments associated with the follower's engagement. The difference in volume of digital interactions coincides with the results of the study realized by Boen, Vanbeselaere and Feys (2002). In that particular study, the authors monitored the websites of soccer teams and found a

clear pattern, in which the number of visits increased after a team's victory in a game, in contrast to a loss.

The fans had a tendency to post the final score and share it with their own contacts and friends, especially when the team had a victory, rather than a loss or a tie. This provides evidence of the implications of the team's performance for the identity capital of the sports fans.

The fact that the relative proportion of comments with respect to the other two types of interactions increased considerably when a loss occurred, together with an increase in the average length of the text message in the comments, suggests that the particular manifestation of the engagement depends on the energy and the time associated with each interaction type. This conclusion does, in fact, coincide with previous studies' findings (Bonsón & Ratkai, 2013).

In addition, there is an implication of the sentiments and emotions associated with a post. Martin, Coyier, VanSistine and Schroeder (2013) observed that internet users via weblogs and SNSs experiment a state of calm and relaxation immediately after writing a comment to show their dislike, and also highlighted that in the long term such practices are associated with a higher unhappiness level and inadequate mechanisms to manifest anger.

In conclusion, fan behavior seems to respond to the game's final scores. Accordingly, if it is a victory, fans tend to enjoy themselves by connecting with other fans with the same affiliation, and in the case of a loss, they tend to distance themselves. This fan behavior concurs with the research of Cialdini et al. (1976), 40 years ago, when Facebook had not even been invented. These researchers found that university students tended to show their support to a university, for example wearing a jersey, after a victory of their team. The significant differences in the volume of users and the interactions among them may be associated with the tendency of fans of teams with a poorer performance to suppress their BIRGing manifestations when their teams win. The apparent reason is for fans to protect themselves from the damage

associated with the expectation of poor performance in the immediate future (Bernache-Assollant & Chantal, 2011).

The observation associated with sports fans social behavior may be highly useful for the teams, in the sense that their digital managers may anticipate and prepare for an expected behavior of their fans based on a particular game result. The desirability of maximizing and minimizing team brand exposure, according to game results, could be evaluated. In fact, managers could perhaps consider the feedback from their fans to guide some of their decisions.

Limitations

It is important to consider these results with respect to the limitations of the study. On the one hand, it is not possible to generalize the findings, since the analysis only includes the teams of a particular league, country, discipline, and season. On the other hand, there is an interesting potential for this same line of inquiry by replicating the study in other sports and cultures, to see if similar patterns arise. As an example, Table 7 shows the structure of engagement with posts of results in other sports and events, and at different dates. The table presents the final games of Super Bowl, World Series MLB, NBA Playoffs and the UEFA Champions League, all of which are considered representative events of their particular type of sports. The table compares the proportion of comments and shares associated with the posts of the final score, considering the winning team versus the defeated team.

Table 7

Engagement structure of the posts of final scores in other sports events

Sport	Final	Year	% Shares		% Comments	
			Winner	Loser	Winner	Loser
American Football	Super Bowl	2015	9%	9%	1%	12%
Baseball	World Series	2013	20%	5%	1%	6%
Basketball	NBA Playoffs	2012	30%	4%	6%	12%
Soccer	UEFA Champions	2014	19%	3%	3%	10%

Note: Posts of the winning team versus the defeated team in the final match of each sport event according to the year of occurrence: Percentage of comments and shares.

In such examples, with the exception of American Football, the percentage of shares associated with a team's victory clearly exceeds the shares related to a team's loss. However, the opposite occurs with the percentage of comments. In general, these values agree with the overall conclusions about the engagement structure as reported in this study. The evidence in these examples does not provide conclusive proof to generalize the findings of this study to other contexts, but still indicates the potential research that could be done by exploring other behaviors in different sport scenarios on digital SNS.

Future research lines

Besides the effects that match results can have on digital engagement, there are classical factors such as the day and time of the publication and the size and characteristics of the post (Cvijikj & Michahelles, 2013; Valerio, Herrera, Villanueva, Herrera, & Rodríguez-Martínez, 2015; Valerio, Herrera, & Rodríguez-Martínez, 2014). Moreover, other factors can affect

digital engagement too, such as the community manager's skills and competencies, the identity of the team (e.g. cohesive, great humor, aggressive), and of course, the presence of superstars in the team.

In this vein, three lines of inquiry were identified. The first one is related with the fact that matches with more goals are more attractive to fans because they are more entertaining (Blanco-Villaseñor & Oliva, 2010). Therefore, it would be interesting to study the impact that the number of goals in matches has in the digital engagement of fans. The second line of inquiry is based on the fact that the number of fans attending to the stadium may influence team's performance in a match (García-Rubio, Cañadas, & Antúnez, 2015), which raises an interesting research question; Does the increase in fan interactions on SNS also have an impact on a team's performance? Finally, another line of inquiry relates to players who perceive the use of coercive strategies by their coaches. Such players usually feel controlled and frustrated in their basic psychological needs, which according to some scholars, makes them more susceptible to burnout (Aguirre, Tristán, López-Walle, Tomás, & Zamarripa, 2016). Consequently, an interesting research question emerges; Can the intensity of fans' demand on SNS related to players' performance contribute to an increase in players' susceptibility to burnout?

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