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KEEP THE BALL ROLLING:

A SOCIAL NETWORK ANALYSIS OF FOOTBALL CLUBS' MEDIATED PUBLIC RELATIONS ON TWITTER

Susan Vermeer

11109688

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Supervisor: dhr. dr. T.B. (Theo) Araujo

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ABSTRACT

Using a sample of over 4,5 million tweets, this study investigated how different types of social mediators influence the information diffusion process on Twitter. Social mediators were used to describe key users who connect organizations with their publics. Tweets were collected from users who tweeted about Dutch top-division (i.e., *Eredivisie*) and first-division (i.e., *Jupiler League*) football clubs. Social network analysis was applied to identify and characterize various types of social mediators, namely (a) organizational social mediators (e.g., teams or players), (b) industry social mediators (e.g., competitors or sports associations), (c) media social mediators (e.g., journalists), (d) individual social mediators (e.g., fans or supporters' groups), and (e) celebrity social mediators. The results indicate that media social mediators, the most traditional PR mediators, were rarely found as social mediators and demonstrated a negative effect on fan engagement on Twitter. In contrast, relationships between football clubs and publics were primarily mediated by individual social mediators. A closer examination revealed that the types of social mediators vary between top-division and first-division clubs. The proportion of organizational and industry social mediators was significantly greater for first-division clubs, whilst media, individual and celebrity social mediators played a key role in connecting publics of top-division clubs. Notably, individual and celebrity social mediators are strong predictors of fan engagement on Twitter. Taken together, PR scholars and practitioners should recognize the potential impact of social mediators; given that even individuals can function as powerful users in the information diffusion process.

Keywords: mediated public relations, social mediators, sports organizations, social media, Twitter, social network analysis.

A SOCIAL NETWORKS APPROACH TO MEDIATED PUBLIC RELATIONS ON TWITTER

Over the last decades there have been many changes to football that have affected the interaction between clubs and publics (e.g., fans and sponsors; Cleland, 2010). These include the rise in fanzines and supporters' groups, the increasing number of overseas investors, the ever-growing players' transfer values and, more generally, the rise of social media. With nearly 330 million active monthly users worldwide (Twitter, 2017), Twitter has rapidly become a permanent part of the football industry since it was first introduced in 2006 (Frederick, Lim, Clavio, Pedersen, & Burch, 2014). Twitter offers high-profile football clubs like Real Madrid C.F. (29 million followers) and Manchester United (17 million followers) the ability to communicate instantaneously with fans, sponsors and other observers (Hutchins, 2011). Although football clubs typically reach out to their fans and followers via Twitter to share information about games, ticket sales and product sales, these messages are often short-lived and items may be overlooked on fans' news feeds (Waters, Burke, Jackson, & Buning, 2011). In order to use Twitter effectively as a tool to build relationships with publics, football clubs need to fully understand its features and the potential to interact with their publics (Hambrick, Simmons, Greenhalgh, & Greenwell, 2010).

For decades, mass media played a key role in interacting between sports organizations and their publics (Sallot & Johnson, 2006). Fans' access to their favourite teams was limited to what they could retrieve from sports talk radio, television or print media (Kassing & Sanderson, 2010). However, the emergence of social media has transformed the very nature of relationship management as sports organizations no longer need to rely on mass media to get the word out about their activities to publics. Control over information has been made more diverse (Westerman, Spence & Van Der Heide, 2014). Social media brought forward essential new actors who have an extraordinary amount of influence in shaping organization-public engagement. According to Himelboim, Golan, Moon, and Suto (2014) such actors can be conceptualized as social mediators: "the entities which mediate the relations between an organization and its publics through social media" (p. 361). Social mediators connect an organization with its publics and, thus, play a key role in creating and disseminating information (Himelboim et al., 2014). Building on this work, Himelboim, Reber, and Jin (2016) argue that social mediators are identifiable and distinct, and, therefore, developed a classification of various types of social mediators (e.g., organizational, media, and celebrity social mediators). Taken together, it can be argued that organization-public engagement on social media is mediated rather than a direct process as the relationship is reliant on different types of social mediators whose participation in information diffusion is essential to engagement efforts (Himelboim et al., 2014).

Yet, it remains unclear whether and, if so, how various types of social mediators influence organization-public engagement. Although previous studies suggest that social mediators are not an amorphous whole (e.g., Himelboim et al., 2016), they do not clarify how various types of social mediators vary in their influence of distributing organization-related information. Furthermore, as previous studies used specific case studies to examine social mediators (e.g., Himelboim et al., 2014), research on differences between types of organizations (e.g., larger and smaller organizations) is still scarce. Therefore, this study aims to extend mediated PR research that focuses on: “communicative relationships and interactions with key social mediators that influence the relationship between an organization and its publics.” (Himelboim et al., 2014, p. 361). Exploring this topic fills a gap in the understanding of how the organization-public relationship has changed by social media and, more specifically, by different types of social mediators. It can help advance a broader perspective of the role of PR in a post-mass media society (Kent, 2013).

Football clubs offer a complex and interesting perspective for PR research. Fan loyalty to a football club is far stronger than the loyalty that customers give to any other brand (Waters et al., 2011), including increased levels of emotional attachment (Abosag, Roper, & Hind, 2012) and fan identification (Watkins, 2017). Identifying social influence in sports-related networks is critical to understanding how opinions (e.g., with little emotive regard for feelings of rebutters or opposing fans) and behaviours (e.g., hooliganism and violence) spread across publics (Christoff, Hansen, & Proietti, 2016; Gibbons & Dixon, 2010). The expansion of fan bases far beyond traditional geographic boundaries requires sports organizations to strategically identify and empower social mediators to connect publics and spread organizational-related content (Himelboim et al., 2014). Understanding this process sheds light on relationship-building and PR processes (Garcia, 2011; Waters et al., 2011), relationship marketing (Blaszka, Burch, Frederick, Clavio, & Walsh, 2012; Bruns, Weller, & Harrington, 2014), and brand management (Wallace, Wilson, & Miloch, 2011).

By applying social network analysis, this study evaluates how key mediators influence information diffusion among any individual, group and organization, particularly through eWOM, within social networks. This study captured tweets (in the form of mentions, replies and retweets) of any user who publicly tweeted about a football club in the Dutch top-division (i.e., *Eredivisie*) or first-division (i.e., *Jupiler League*) during the 2016-17 season. The data will be used to identify and categorize social mediators, who in turn maximize the spread of organization-related content (Himelboim et al., 2016). To this end, social network analysis will be integrated with several types of (automated) content analyses to answer the following research question:

RQ: How influential are various types of social mediators in forming links between publics and spreading information within sports-related networks on Twitter?

THEORETICAL BACKGROUND

INFORMATION DIFFUSION ON SOCIAL MEDIA

The emergence of social media has tremendously changed the creation, consumption as well as the dissemination of information. Social media have enabled users to connect with others by exchanging information, opinions and thoughts about anything, including organizations (Muntinga, Moorman, & Smit, 2011). This facilitated the development of electronic word-of-mouth (eWOM). eWOM is defined as “any positive or negative statement made by potential, actual or former customers about a product or organization, which is made available to multitude of people and institutions via the Internet” (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004, p. 39).

Social media represent an ideal tool for eWOM, as users freely create and spread organization-related information in their established social networks of family, friends and acquaintances (Vollmer & Precourt, 2008). Research on eWOM already established that online, user-generated messages are perceived as more trustworthy and credible than organization-directed persuasive messages (Charron, Favier, & Ii, 2006). As users are depending more and more on each other than on organizations for information (Westerman et al. 2014), users are becoming increasingly influential with respect to the organizations they are interacting about (Cova & Dalli, 2009). As such, social media offer an important source of organization-related content for users, and tremendously facilitate and accelerate the dissemination of eWOM information (Sohn, 2014). Following, sharing and retweeting are just a few types of practices of engagement with users and content that define how information flows on social media. The extent to which users are interrelated and the patterns of these connections indicate the intensity and limits of information flow (Himelboim, Smith, Rainie, Shneiderman, & Espina, 2017).

SOCIAL MEDIA USE IN SPORTS PUBLIC RELATIONS

The role of social media in the diffusion and consumption of information has also been significant in the sports industry (Pedersen, 2014). Social media enabled fans to actively participate in the exchange of information with other fans and sports teams, making sports the third most popular topic on social media (Schultz & Sheffer, 2008). The increase of sports-related eWOM has forced sports organizations to grasp the importance of using social media to connect with fans (Williams, Chin, & Suleiman, 2014). While social media are valuable resources to implement a variety of marketing communication elements such as news updates, ticket sales and advertising (Kotler, Kartajaya, & Setiawan, 2010), they predominantly appear to be ideal tools that allow organizations to establish and cultivate valuable organizational-public relationships (OPRs; Hambrick & Svensson, 2015). Ledingham and Bruning (1998) defined the OPR as “the state which exists between an organization and its key publics that provides economic, social, political and/or cultural well-being to all parties involved and is characterized by mutual positive regard” (p. 62).

MEDIATED PUBLIC RELATIONS. The continued growth of social media changed sports organizations' control of OPRs. For decades, mass media, were highly influential in shaping relationships between sports organizations and publics (Wenner, 1989). For example, sports fans attended live sporting events, consumed a variety of sporting events on television, or consumed sports highlights on news shows (Wenner, 1989). On the one hand, organizations communicated information – through mass media – about the organization to their publics. On the other hand, organizations relied on these mass media channels to learn about their environment and publics' interests (Yang & Taylor, 2015).

Social media have changed the very nature of relationship management as PR practitioners no longer have to rely on their relationships with mass media and the information subsidy to get the word out about organizational activities to publics (Kent, 2013). Social media have enabled users to be more active and take control of the communication about, and the interaction with, organizations (Kent, 2013). Sports fans can create, express, and share photos, videos, and content without approval on their own social media profiles or comment on content posted on their favourite sports' team profile. Indeed, a sports fan can now be completely attuned to what is happening in the world of sports without ever watching an actual game or event. Taken together, social media have placed sports organizations into complex OPRs not only with the media, but also with fans and other publics (e.g., sponsors; Frandsen, 2016).

The emerging complexity of a post-mass media society has challenged various scholars to study complex and mediated OPRs (Yang & Taylor, 2015). Taking a cluster approach to examining social media interactions on Twitter, Himelboim et al. (2014) used social mediators to describe: "the entities that mediate the relations between an organization and its publics through social media" (p. 361). Any user can serve as a mediator interrelating/interacting between an organization and their publics (Worley, 2007). Social mediators can play a significant PR role and could be considered not only as key publics to be targeted, but also as collaborators for dialogic relationships with publics. Social mediators may participate in PR through social media even if they are non-PR practitioners (Smith, 2010). Building on this work, Himelboim et al. (2016) revealed that the success of organizational engagement with publics largely depends on the strategic use of social mediators to spread information, as social mediators often embed organizations in diverse networks. Consequently, organizations are more likely to better monitor the environment, have access to various resources, and retrieve additional information (Yang & Taylor, 2015). This might be of particular importance when an organization is faced with unexpected challenges or opportunities (Himelboim et al., 2016).

THE ROLE OF ORGANIZATIONAL RESOURCES

According to Yang and Taylor (2015), PR strategies, like the use of social mediators, are dependent on organizational resources. Resource dependency theory states that organizational survival depends on organizational capabilities to acquire and maintain resources essential to the organization (e.g., social relationships, support and capital; Pfeffer & Salancik, 1978). Although both larger and smaller organizations need to connect with publics, in general, large organizations tend to have more available resources and broader goals, whilst small organizations may have fewer available resources and more specific goals (Yang & Taylor, 2015). More specifically, for small organizations struggling with limited resources, where to invest PR efforts is a strategic choice and it may not be possible to develop relationships with every public (Yang & Taylor, 2015). Therefore, small organizations, in particular, can benefit from identifying social mediators that provide doorways to new publics (Yang & Taylor, 2015).

ORGANIZATIONAL RESOURCES OF FOOTBALL CLUBS. Differences between larger and smaller organizations can be understood from the perspective of football clubs. Football is one of the world's major businesses (Boyle & Haynes, 2006), and clubs have to deal with complex and strategic resource management in order to reach aspirations (Kartakoullis, Vrontis, Thrassou, & Kriemadis, 2013). The amount of available resources differs among football clubs and divisions. First, and foremost, the available amount of financial resources is considerably higher for top-level clubs compared to lower-level clubs (Cetin & Tribou, 2017). Besides recruiting the best players and having the ability to outbid on the transfer market, financial resources enable top-level clubs to focus on effective PR strategies (Cleland, 2010). Furthermore, top-level football clubs are characterized by larger fan sizes and supporters' groups compared to lower-level clubs (Cleland, 2010). For instance, in the Netherlands, top-division clubs represent a higher average of football stadium utilization (87%, KNVB Expertise, 2016a) in comparison to the first-division clubs (52%, KNVB Expertise, 2016b). The number of Twitter followers of top-division clubs (1,667,000, KVNB Expertise, 2016a) is also higher compared to first-division clubs (144.557, KNVB Expertise, 2016b). Both the top-division and the first-division are well-established football divisions in the Netherlands but have different available resources. Top-division clubs have access to diverse resources, whilst first-division clubs are struggling with limited organizational resources (Dejonghe, 2007). To retrieve a further understanding of differences in mediated PR among larger and smaller organizations, this study will compare top-division (i.e., *Eredivisie*) clubs and first-division (i.e., *Jupiler League*) clubs in the Netherlands:

Top-division: Eredivisie. The Eredivisie, or top-division, is the highest league of professional football in the Netherlands (Eredivisie, 2017). The division was founded in 1956, merely a few years after the beginning of professional football in the Netherlands. The Eredivisie consists of eighteen clubs. Each club meets every other club twice during the season, once at home and once away. At the end of each season, the club at the bottom is automatically relegated to the first-division of the Dutch league system: the Jupiler League.

First-division: Jupiler league. The first-division, also known as the Jupiler League, is the second-highest league of professional football in the Netherlands (Jupiler League, 2017). The Jupiler League consists of twenty clubs, with each club playing other clubs in home and away games. It is linked with the Eredivisie and the third-level division via promotion and relegation systems.

Information diffusion and the role of social mediators

Recent research into Twitter has shown that social mediators can be of particular importance in spreading organization-related content (e.g., Himelboim et al., 2014). Himelboim et al. (2016) identified social mediators in airline-related tweets. The results revealed that the number of passengers determines differences in the number of social mediators. More specifically, Twitter networks of larger organizations are dependent on a higher number of social mediators compared to smaller organizations. Nonetheless, the number of passengers is unable to completely relate to the number of social mediators as this is based on offline data. Instead, the number of Twitter followers is an essential property in understanding Twitter networks, including the strength of relationships and underlying cluster structures (Martha, Zhao, & Xu, 2013). Therefore, this study proposes that the number of social mediators is related to the number of Twitter followers of a club, resulting in the following hypothesis:

H1: The number of social mediators of a football club is related to the number of Twitter followers of a football club.

According to Himelboim et al. (2016), social mediators can be classified into five distinct categories, namely (1) organizational social mediators, (2) industry social mediators, (3) media social mediators, (4) individual social mediators and (5) celebrity social mediators.

ORGANIZATIONAL SOCIAL MEDIATORS. Organizational social mediators are accounts and affiliated accounts of the organization of conversation (Himelboim et al., 2014). Himelboim et al. (2016) indicated that nearly all social mediators of small organizations were organizational social mediators. In the context of this study, organizational social mediators include the football club itself or actors affiliated with the football club of conversation (e.g., youth academies, foundations, football players and trainers). Bruns et al. (2014) found that minor clubs generate and maintain more tweets around their accounts, thereby positioning fans as part of an "inner circle" linking them to other fans and encouraging them to attend live sporting events or continue to support the club in other ways. High-profile football clubs used Twitter almost exclusively as a means to spread information, not to engage with fans through replies or to retweet their messages. Based on the findings of Bruns et al. (2014) it is expected that first-division clubs are relying more on organizational social mediators compared to top-division clubs, resulting in the following hypothesis:

H2a: The proportion[1] of organizational social mediators is higher for first-division football clubs compared to top-division football clubs.

Industry social mediators. Other than organizational social mediators, Himelboim et al. (2016) argue that larger organizations are dependent on more and diverse social mediators. Industry social mediators are actors within the same industry as the organization of conversation (Himelboim et al., 2014). The results revealed that the proportion of industry social mediators is higher for larger organization in comparison to smaller organizations (Himelboim et al., 2016). In the context of this study, industry social mediators are organizations or institutions within the sports industry (e.g., sports associations and competitors). Sports associations are especially interdependent with top-division clubs. Top-division clubs closely cooperate with the KNVB[2], the FBO[3] and the EPFL[4] (Eredivisie, 2017). For example, players of top-division clubs are often called up to their national teams. Besides, strong rivalry, particularly, exists across supporters' groups of top-division clubs (Giulianotti, 2002). This rivalry can also be identified from football fans' Twitter activities, as users frequently mention high-profile opponents in their tweets (Pacheco, Pinheiro, Lima-Neto, Ribeiro, & Menezes, 2016). Eventually, it can be argued that top-division clubs are associated by a higher number of industry social mediators compared to first-division clubs, resulting in the following hypothesis:

H2b: The proportion of industry social mediators is higher for top-division football clubs compared to first-division football clubs.

[1] The number considered in comparative relation to all social mediators.
[2] The Royal Dutch Football Association
[3] The Dutch Federation for Professional Football Clubs
[4] The Association of European Professional Football Leagues

MEDIA SOCIAL MEDIATORS. Himelboim et al. (2016) also revealed that the proportion of media social mediators, such as journalists and broadcasters, is higher for larger organizations in comparison to smaller organizations. Media social mediators hold a societal role as information providers (Himelboim et al., 2014). According to Galtung and Ruge (1965) news values indicate whether events tend to become news. In the context of this study, Sanderson and Hambrick (2012) highlighted the role of journalists in the sports industry. They examined how sports journalists used Twitter to share information about and discuss the Penn State football scandal[5]. The study revealed that information spread quickly among the journalists once the initial news broke out. Sports news has its own hierarchy, which is based on three criteria: objectivity, interest and tradition (Knoppers & Elling, 2004). Sports journalists acknowledge that their own preference also plays a role in the selection of sports news. In the Netherlands, sports news particularly focuses on top-division football clubs as these meet the criteria (Knoppers & Elling, 2004). For example, news media do not cover poor matches in the first-division but do so for the top-division as these attract large audiences (Knoppers & Elling, 2004). Therefore, it is expected that top-division clubs are relying more on media social mediators compared to first-division clubs, resulting in the following hypothesis:

H2c: The proportion of media social mediators is higher for top-division football clubs compared to first-division football clubs.

INDIVIDUAL SOCIAL MEDIATORS. Additionally, Himelboim et al. (2016) found that the proportion of individual social mediators is higher for larger organizations compared to smaller organizations. Individual social mediators are individuals who are not associated with the organization (Himelboim et al., 2014). In the context of this study, individual social mediators are individuals, mainly football fans, or (small) groups of individuals (e.g.,

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[5] Former Penn State University assistant football coach Jerry Sandusky sexually abusing young boys.

supporters' groups). As fans have an inherent interest in protecting the reputation of their favorite club (Brown & Billings, 2013), football clubs should not underestimate them as key mediators for relationship cultivation. When examining the postal code of season tickets holders, fans of top-division clubs are scattered throughout one or multiple provinces, whereas fans of first-division clubs are located in municipalities nearby (Tubantia, 2014). As top-division clubs are presented by a larger (and more spread out) fan base in comparison to first-division clubs the following hypothesis is proposed:

H2d: The proportion of individual social mediators is higher for top-division football clubs compared to first-division football clubs.

Celebrity social mediators. Himelboim et al. (2016) argue that the proportion of celebrity social mediators is higher for larger organizations in comparison to smaller organizations. In the football industry, lists of celebrity fans have become a feature of club websites. Particularly, top-level football clubs have a reputation as celebrity clubs (Lyons & Ronay, 2005). For instance, King Willem-Alexander, Martin Garrix (DJ) and Matthijs van Nieuwkerk (TV presenter) are famous Ajax fans (Ajax, 2017). It is expected that the proportion of celebrity social mediators (other than football players of the club of conversation) is higher for top-division clubs in comparison to first-division clubs, resulting in the following hypothesis:

H2e: The proportion of celebrity social mediators is higher for top-division football clubs compared to first-division football clubs.

Information diffusion and the role of sentiment

eWOM can be positive or negative in tone (Petrescu & Korgaonkar, 2011). Empirical research examined the effect of eWOM sentiment on information diffusion in social media (e.g., Ferrara & Yang, 2015). In the context of this study, Hambrick and Pegoraro (2014) reviewed tweets containing three particular hashtags (i.e., #WeAreWinter, #SochiProblems, and #CheersToSochiand) during the Sochi Winter Olympic Games in 2014. The findings indicate that fans and other social media users were more inclined to share positive eWOM about sporting performances. Negative eWOM, on the other hand, emerged as a way to express criticism towards sports entities. Additionally, the results pointed to a faster spread of positive eWOM.

As key Twitter users can affect user perceptions and behaviours (Clavio, Burch, & Frederick, 2012), it is essential to identify their sentiment value (Himelboim et al., 2016). Besides, organizations can benefit from mediators who spread particularly positive eWOM, and thereby (positively) extend the reach of the organization (Himelboim et al., 2016). Sports organizations can utilize positive social mediators to spread information to their publics in a way that they intended. The criticism of negative social mediators, on the other hand, needs to be monitored by sports organizations to minimize information asymmetry. This prevents users in other clusters from perceiving information in the opposite way of what was actually intended (Zhang, Moe, & Schweidel, 2017). Himelboim et al., (2016), among others, did not examine whether social mediators convey positive or negative sentiment. Yet, it is unclear how sentiment value varies among various types of social mediators, resulting in the following research question:

RQ1: How do various types of social mediators convey sentiment within sports-related networks on Twitter?

INFORMATION DIFFUSION AND THE ROLE OF PARASOCIAL RELATIONSHIPS

Empirical research into social media has suggested that a small number of users are highly influential in stimulating several others to spread information (e.g., Cha, Haddadi, Benevenuto, & Gummadi, 2010; Kwak, Lee, Park, & Moon, 2010). The question then becomes what particular type of social mediator has above average influence to stimulate information diffusion through, for example, retweeting. Earlier research on information diffusion indicates that influential users are often public figures (Cha et al., 2010). Individuals can be parasocially attached to such figures. Parasocial interactions are one-sided relationships where one actor knows a great deal about the other, but the other does not (Rubin & McHugh, 1987). Social media have opened the doors for sports figures, including football players, teams and clubs, to reveal personal and, at times, intimate information about their daily lives. Many have their own Twitter account and often respond to fans, affording an experience of pseudo-engagement with players and teams (Gantz & Lewis, 2014). Furthermore, they select links or content that they recommend to their followers “to provide value to their fan base and to emphasize commonalities between the practitioners and his or her followers” (Marwick & Boyd, 2011, p. 147).

A recent study of Araujo, Neijens and Vliegenthart (2017) revealed that public figures are able to stimulate others to spread organizational content on Twitter. This was found for all types of content, including replies and original tweets. In the context of this study, Boehmer and Tandoc (2015) explored factors influencing intentions to share sports-related content on Twitter. Findings indicate that several factors interplay, including the characteristics of the source as well as the receiver and the message itself. Perceiving the content as interesting serves as the main motivation for a user to retweet sports-related content. Taken together, Twitter users are sharing content that not only has been provided by an influential source, but also meets their specific interests. Since fans have an increased level of interest in messages of their favourite sports teams or players (Frederick, Lim, Clavio & Walsh, 2012), the role of organizational social mediators can be of particular importance for the spread of organization-related content on Twitter. Drawing from these earlier findings, organizational social mediators are expected to receive a greater number of mentions, replies and retweets compared to other types of social mediators. This results in the following hypothesis:

H3a: Organizational social mediators (e.g., teams and players) receive more mentions, replies and retweets compared to other types of social mediators (industry social mediators, media social mediators, individual social mediators and celebrity social mediators) in sports-related networks.

On this basis, Bruns et al. (2014) have compared the interactions between football clubs and their fans in Australia, Germany and England. They captured tweets *from* and *to* (in the form of @replies or retweets) official football clubs' Twitter accounts. The findings revealed significant differences in how various leagues and clubs approached Twitter as a medium for communication with their fans. Regional clubs, or even globally recognised clubs, receive the most mentions and retweets. By contrast, the accounts of minor clubs based in smaller cities receive comparatively less fan interaction. Therefore, top-division clubs are expected to receive substantially more fan responses compared to first-division clubs, resulting in the following hypothesis:

H3b: The above hypothesized result for organizational social mediators and mentions, replies and retweets is stronger for top-division football clubs compared to first-division football clubs.

FAN ENGAGEMENT IN SPORTS-RELATED NETWORKS ON TWITTER

Creating or sharing sports-related information determines levels of fan engagement (Hu, Farnham, & Talamadupula, 2015). For example, Twitter can bring large numbers of fans together in interactive and engaging environments. Such platforms could help fans feel as though they are part of a larger group through their relationships in social networks (Hambrick & Kang, 2015). The question, however, becomes what factors contribute to fan engagement. Bruns et al. (2014) argue that three factors are likely to determine fan engagement on Twitter, namely: (1) sporting performances on the field (2) the size of established fan bases, and (3) social media performance by the club. Nichols, Mahmud, and

Drews (2012) found that tweet volume increases during positive key events, such as goals and penalties, whilst tweet volume decreases during negative key events, such as yellow cards or disallowed goals. Furthermore, clubs enjoying the largest audiences, both during games in the stadium and on Twitter, receive the most fan responses through mentions and retweets (Bruns et al., 2014). Until now, however, empirical research has not explored how various types of social mediators influence fan engagement. Considering the lack of earlier literature, the following research question is proposed to explore this topic:

RQ2: What type of social mediators, and other factors (e.g., the number of Twitter followers of a football club and sporting performance on the field), contribute (most) to fan engagement (the number of mentions, replies and retweets) on Twitter?

METHOD

DATA

As shown in Table I, 38 football clubs have been selected for this study. The first step of the data collection was to determine which football clubs were actually present on Twitter. Since Jong Ajax, Jong FC Utrecht and Jong PSV are the reserve teams of the top-division football clubs: Ajax, FC Utrecht and PSV, and do not manage a separate Twitter account, these clubs were removed from the sample, resulting in a total of 35 football clubs for further analyses.

Table I

Football clubs of the Eredivisie and Jupiler League during the 2016-17 season

Football Club	Followers[1]	Sample	Nodes	Edges	R^2	AGD[3]	Clusters[4]
Top-division (Eredivisie)							
1. Feyenoord	442,402	1,282,663	126,719	384,705	.05	5.38	4,301
2. AFC Ajax	924,002	1,357,707	155,460	404,969	.07	5.56	8,981
3. PSV Eindhoven	410,150	750,368	84,994	225,856	.07	4.79	3,844
4. FC Utrecht	66,067	82,814	10,096	16,565	.03	5.53	578

5. SBV Vitesse	63,228	207,506	22,257	64,616	.11	4.24	1,026
6. AZ Alkmaar	63,668	22,398	5,031	9,184	.03	3.88	298
7. FC Twente	122,685	119,092	11,395	20,396	.03	5.53	583
8. FC Groningen	76,248	74,136	8,993	17,720	.05	4.65	556
9. SC Heerenveen	78,737	45,683	6,340	10,339	.03	4.16	320
10. Heracles Almelo	25,184	27,280	3,289	4,616	.03	4.27	215
11. ADO Den Haag	59,972	51,471	6,090	9,616	.03	5.64	406
12. SBV Excelsior	19,494	8,014	2,433	3,459	.03	2.67	192
13. Willem II Tilburg	30,410	72,074	10,395	16,736	.04	6.10	680
14. PEC Zwolle	63,460	63,005	8,469	15,080	.03	5.05	434
15. Sparta Rotterdam	20,878	16,385	3,417	5,308	.03	5.12	252
16. NEC	42,220	129,323	14,600	35,358	.09	5.15	703
17. Roda JC Kerkrade	47,806	57,869	8,108	13,811	.02	6.42	462
18. Go Ahead Eagles	25,558	31,672	5,623	9,247	.02	6.85	322
First-division (Jupiler League)							
1. VVV Venlo	23,123	16,432	2,053	3,682	.06	4.20	180
2. Jong Ajax	.	.	.	.	.	.	.
3. SC Cambuur	44,625	15,789	2,979	4,661	.02	3.02	169
4. Jong PSV	.	.	.	.	.	.	.
5. NAC Breda	42,755	37,753	6,868	22,419	.09	3.64	216
6. FC Volendam	8,557	13,147	1,985	2,617	.03	4.11	173
7. MVV Maastricht	13,023	8,430	2,511	6,202	.06	4.68	86
8. Almere City FC	17,351	17,607	3,422	7,832	.09	3.85	211
9. FC Emmen	9,703	23,346	3,751	10,583	.13	3.44	177
10. RKC Waalwijk	18,397	8,772	1,293	1,689	.05	3.56	147
11. FC Eindhoven	11,933	22,501	3,432	7,798	.10	3.63	190
12. De Graafschap	34,637	46,882	7,553	14,013	.06	5.28	554
13. Helmond Sport	13,370	20,464	3,057	6,703	.09	4.41	183
14. FC Den Bosch	9,645	16,061	3,013	7,344	.11	3.27	177
15. FC Oss	17,547	17,839	3,469	7,182	.09	3.67	227
16. SC Telstar	11,864	15,789	4,926	14,151	.12	3.04	119
17. Fortuna Sittard	29,916	9,661	1,811	2,693	.04	3.34	163
18. Jong FC Utrecht	.	.	.	.	.	.	.
19. FC Dordrecht	24,200	18,664	3,733	8,409	.10	3.50	164
20. RKSV Achilles ’29	7,602	15,039	2,310	4,225	.05	3.99	152

Note. The football clubs have been ranked by the final 2016-17 season league standings. [1] The number of followers has been retrieved on 1 January 2018; [2] R = Reciprocity; [3] AGD = Average geodesic distance; [4] The number of clusters also includes clusters smaller than the size of four.

By using Coosto (2017), social media management software, usernames and tweets were collected from users who tweeted about one of the selected football clubs. Data was collected for each football club in the period from 5 July 2016 to 28 June 2017 (i.e., exactly one month before and after the 2016-17 season: 5 August 2016 – 28 May 2017). This sampling strategy, across two divisions over one football season, was adopted to increase the validity of the results. For each football club, the search query included the club's name (e.g., “ajax”) and main Twitter handle (e.g., “AFCAjax”). Twitter users unrelated to the conversation have been removed (*n* = 598)[6], resulting in a total of 335,267 unique users being responsible for 4,690,899 tweets.

SOCIAL NETWORK ANALYSIS

A social network can be defined as “a set of nodes (e.g., individuals or organizations) linked by a set of social relationships (e.g., friendship or overlapping membership) of a specified type” (Laumann, Galaskiewicz, & Marsden, 1978). In this study, nodes are Twitter users who publicly tweeted about a top-division or first-division club, whilst social ties were created when users replied, mentioned or retweeted one another. Mapping the network nodes and their relationships revealed which members play central roles in the information-sharing process and how the network's formation facilitated this process (Wasserman & Faust, 1994). A Python script was developed to iterate through each of the 4,690,899 tweets and create edges for each interaction – mention, reply and retweet – between two users (e.g., User X - User Y). It should be noted that mentions, replies and retweets, rather than follows, were used as links because they indicate stronger attention giving and information flow – the goals of Twitter participation (Golan & Himelboim, 2016).

The interactions between users have been saved for each football club and imported in R. The package *igraph* within R was used to conduct network analysis, because it is capable of handling large graphs efficiently (Csardi & Nepusz, 2006). The ties within these

[6] Tweets related to Ajax a brand of cleaning agent products (e.g., containing “schoonmaakmiddel”) and to Web development techniques (e.g., containing “programming”, “java”, “XML” and “SQL”).

networks formed a directed graph, as edges in the graph have an associated direction (e.g., if User X mentions User Y, User Y does not necessarily mention User X). A network is created for each football club consisting of nodes and directed ties (mentions, replies, and retweets). Multiple edges and/or loops have been removed from the network. The simplified version of each topic-network was employed for further analyses.

Various structural metrics were calculated to retrieve insights in the basic network structures of each football club. Firstly, the average geodesic distance is measured by calculating the average shortest paths between all pairs of nodes in a given cluster (Kwak et al., 2010). This provides an indication of the efficiency of information flow throughout networks (i.e., short average geodesic distance means quick transfers). Secondly, reciprocity is calculated as the portion of reciprocal relationships (e.g., user X retweeted user Y, and user Y also retweeted user X) of all existing relationships within a given cluster (Granovetter, 1973). The results are summarized in Table I.

IDENTIFYING SOCIAL MEDIATORS. The next step was to identify social mediators. A user is considered to be a social mediator if a user: (a) follows the football club on Twitter, (b) bridges two clusters and (c) attracts large audiences (Himelboim et al., 2014). Firstly, social mediators have to be subscribed to updates from the football club on Twitter. The Twitter Application Programming Interface (API) is used to collect the followers of each football club. The procedure checked whether users were following the football club. Secondly, mediators take a unique structural position in the network, as they enable information to flow across clusters (Wasserman & Faust, 1999). The clusters in each network were identified through the Clauset-Newman-Moore algorithm (Clauset, Newman, & Moore, 2004). This algorithm, as many others, typically results in a few large clusters and many small ones. Since small clusters consisting out of two or three members cannot provide strong team or community feelings (n = 19149), social mediators have only been identified in clusters of at least four members (Wagenseller III & Wang, 2017). If connected nodes are located in different clusters this indicates a mediated relationship (see Figure I).

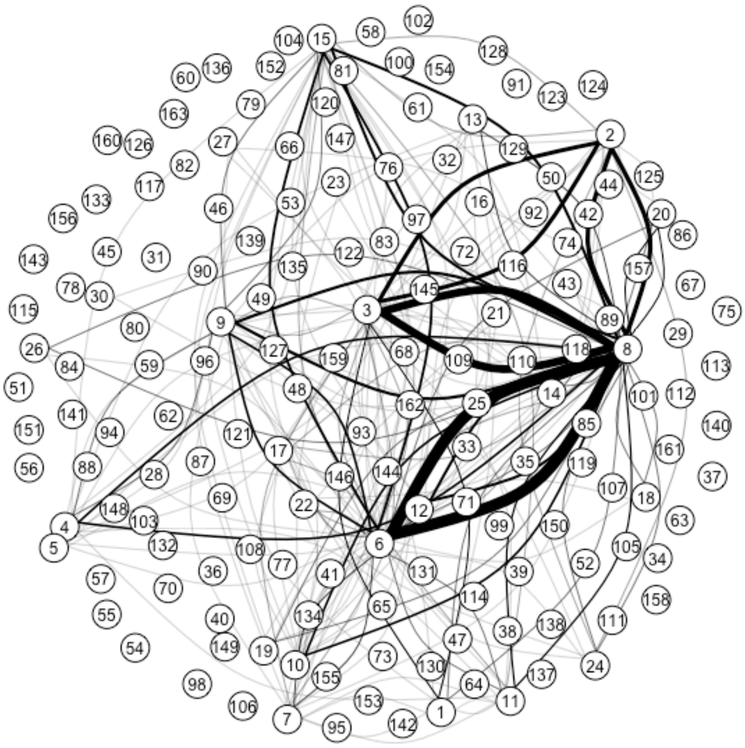

Figure I. Interactions among Fortuna Sittard clusters during the 2016-17 season (i.e., the weight of an edge is related to the number of ties between two clusters).

Lastly, as directors of information flow among publics in a social network, social mediators should not only connect, but also attract large audiences (Himelboim et al., 2014). The third aspect of the operationalization of social mediators therefore concerns a high in-degree. The in-degree is measured as the number of ties directed to a user within the network, that is the number of mentions, replies and retweets a user has received. High in-degree Twitter accounts for a significant amount of information flow through Twitter networks (Raban & Rabin, 2007). For every possible mediated relationship between two clusters, the node with the highest in-degree has been operationalized as a social mediator. In total, 6,366 social mediators were identified. The steps of collecting and handling data are summarized in Figure II.

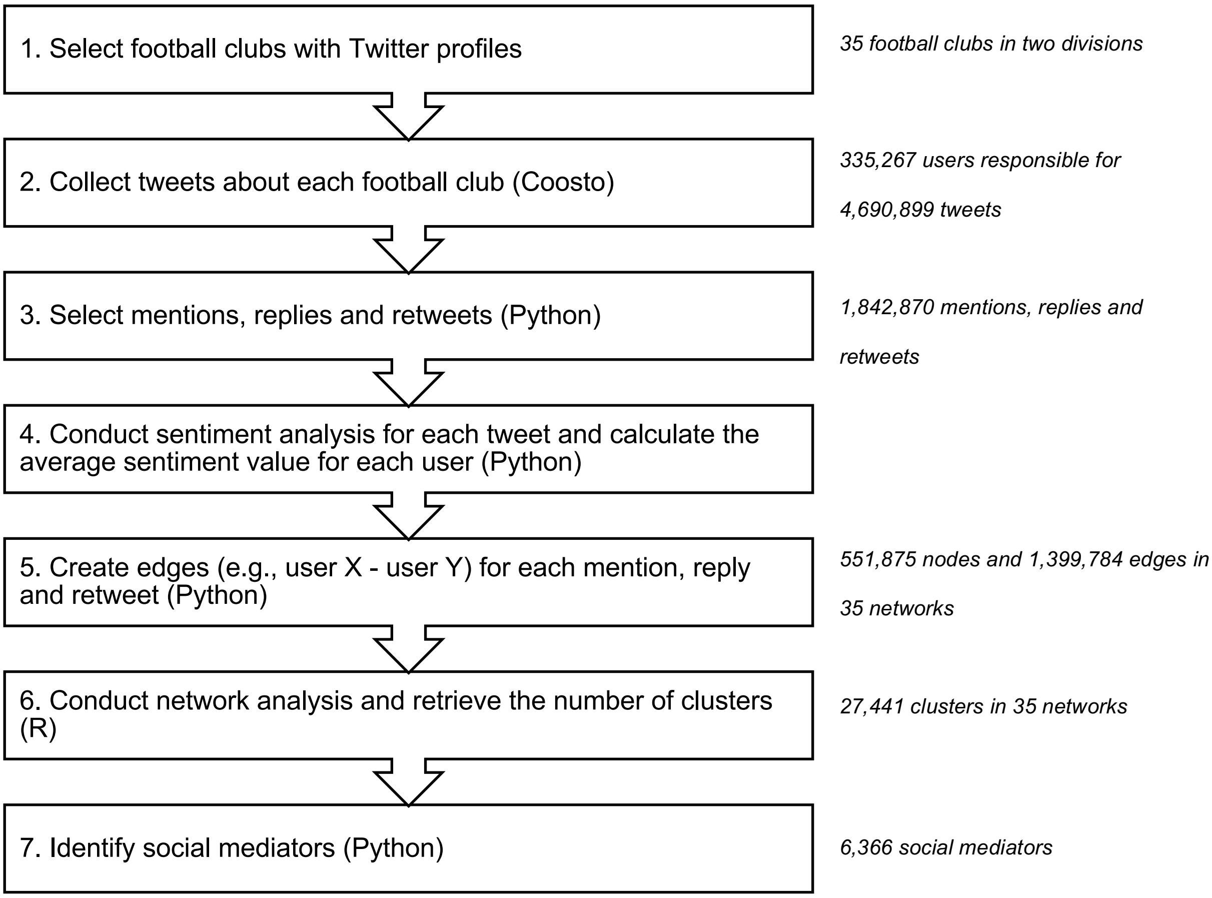

Figure II. Process of collecting and handling data.

CONTENT ANALYSIS

Next, two types of content analysis were conducted, namely (1) automated content analysis to detect sentiment values for each tweet and (2) manual content analysis of social mediators' self-descriptions on Twitter. Both types of content analysis are discussed in more detail in the next paragraphs.

SENTIMENT ANALYSIS. Pattern, a web mining package for Python which contains a fast part-of-speech tagger for Dutch messages, is used to conduct sentiment analyses for each tweet (De Smedt & Daelemans, 2012). The pattern module bundles a lexicon of adjectives that appear regularly in product reviews, annotated with scores for sentiment subjectivity (objective ↔ subjective) and polarity (positive ↔ negative). The sentiment function returned an averaged (polarity, subjectivity)-tuple for every given tweet. This study merely used the polarity value, varying between -1.0 and +1.0, to retrieve the sentiment scores for tweets within the sample. For each user in the sample, the average sentiment value of their posted tweets has been calculated.

INTERCODER RELIABILITY. All 4,690,899 tweets were coded using the sentiment function of the Dutch Pattern module. To determine the reliability of the automated procedures, the first author manually coded a random subsample of 2,000 tweets. To assess the intercoder reliability in a feasible way, the sentiment value was rounded to the nearest multiple of .33. The first author assessed the rounded sentiment value of the selected tweets. First, intercoder reliability was calculated using the kappa statistic to determine the reliability of the coding (Fleiss, Levin, & Paik, 2003). After the manual categorization, the messages for which there was intercoder agreement were compared to the outcome of the automated content analysis to determine its level of accuracy. The intercoder reliability resulted in $\kappa = .80$; this agreement can be considered acceptable. The original sentiment values (i.e., non-rounded numbers) have been used for further analyses.

USERS' SELF-DESCRIPTIONS. A manual content analysis of social mediators' self-descriptions was conducted. In line with earlier research, social mediators can be classified into five distinct categories (Himelboim et al., 2016). A codebook was developed to categorize social mediators based on their Twitter self-description (see Appendix A). The categories have been summarized in Table II.

Table II

Categorization and examples of social mediators

Category	Definition (@*examples* from AFC Ajax)
Organizational social mediators	The football club itself or actors affiliated with the football club of conversation (e.g., @*AFCAjax*), including the stadium (e.g., @*AmsterdamArenA*), the business club (e.g., @*AjaxBusiness*), foundations (e.g., @*AjaxFoundation*) or the youth academy. This category also includes staff members, such as football players (@*Dolbergofficial*), trainers (@*PBosz*), stewards, physiotherapists, and other supporting staff.

Industry social mediators	Organizations or institutions within the sports industry other than the football club of conversation, including competitors (e.g., @*Feyenoord*), leagues (e.g., @*eredivisie*), and associations (e.g., @*KNVB*). This category also includes official referees of the KNVB.
Media social mediators	Actors related to media outlets, such as news media (e.g., @*RTL_Nieuws* or @*NOSSport*), talk shows (e.g., @*VI_nl*), and journalists (e.g., @*primadeluxe*)
Individual social mediators	Individuals, mainly football fans, or (small) groups of individuals (e.g., supporters' groups: @*AjaxFanzoneNL*)
Celebrity social mediators	Famous actors especially in entertainment or sports: other than the football club of conversation (e.g., @*barbarabarend* or @*VanGaalOfficial*).
Other social mediators	Other users, such as sponsors (e.g., @*ZiggoCompany*), governmental organizations (e.g., @*AmsterdamNL*), political parties (e.g., @*CDABrabant*), and other types of organizations not included in the classification above.

INTERCODER RELIABILITY. To determine the reliability of the coding procedures, one independent coder and the first author manually coded a random subsample of 672 social mediators (approximately 10% of the sample). Each coder reviewed all 672 social mediators in the subsample. The intercoder reliability was calculated using the kappa statistic to determine the reliability of the coding (Fleiss, Levin, & Paik, 2003). Cohen's Kappa was .96; this agreement can be considered acceptable. On this basis, the first author categorized the additional 5,694 social mediators. Social mediators indicating fake, suspended, private or deleted Twitter accounts have been removed from the sample (n = 402), resulting in a total of 5,964 social mediators.

ANALYTICAL STRATEGY

Lastly, the prepared datasets have been imported in Stata. To test the hypotheses and answer the research question of this study, numerous statistical analyses have been conducted at club-level as well at mediator-level.

CLUB-LEVEL. In order to test H1, a hierarchical multiple regression analysis was performed to test the effect of adding categorical as well as interval variables. To answer

RQ2, numerous stepwise (forward) multiple regression analyses were performed to examine the combination of independent variable(s) that predict the dependent variable (fan engagement). The reliability of regression analyses depends on several assumptions. The assumptions have been checked for using Stata, such as the existence of a linear relationship (i.e., regression plots), multivariate normality, and homoscedasticity. Regression analyses have been carried out when the assumptions were not violated.

Mediator-level. The unit of analysis for H2, H3 and RQ1 was the type of social mediator. In order to test H2a – H2e, a chi-square test and various two-sample z-tests for proportions were performed. Two-sample z-tests for proportions were able to calculate whether two groups (top-division vs. first-division) differ significantly on some single categorical characteristic (type of social mediator). In order to test H3a and H3b and answer RQ1, one-way and two-way ANOVAs were conducted. The reliability of ANOVAs depends on some assumptions. The assumptions, such as the existence of outliers, the homogeneity of variances (i.e., Levene's test for homogeneity of variances) and the distribution of the dependent variable (i.e., Shapiro-Wilk test of normality), have been checked by using Stata. ANOVAs have been carried out when the assumptions were not violated.

Results

Social mediators

Number. First, to test H1, a two-stage hierarchical multiple regression was conducted with the number of identified social mediators as the dependent variable (see Table III). Division was entered as a control variable at stage one of the regression (see Table III, Model I)[7]. The number of Twitter followers was entered at stage two of the regression (see Table III, Model II). At stage one, the results of the hierarchical multiple regression revealed that division contributed to the model, $F(1, 33) = 18.17$, $p < .001$, explaining 35.51% of the

[7] Violation of assumptions: A linear regression established that final league standings of the 2016-17 season were not related to the number of social mediators, $F(19, 15) = 1.13$, $p = .41$, $R^2 = .58$, and was thus not included as an independent variable in the regression model.

variance (R^2 = .36). Introducing the number of Twitter followers into the model explained an additional 47.01% of the variance ($F(2, 32) = 75.53$, $p < .001$), and this change was significant ($p < .001$). When predicting the number of social mediators, the results revealed that the number of Twitter followers (b^* = .0005, t = 9.28, $p < .001$, 95% CI [.0004, .0007]) as well as division (b^* = -85.36, t = -4.20, $p < .001$, 95% CI [-126.77, -43.94]) were significant predictors. Therefore, H1 – the number of social mediators of a football club is related to the number of Twitter followers – was supported by the data.

Table III

Regression models explaining the number of social mediators

	Model I	Model II
Predictors	b^*	b^*
Division	-153.02*	-85.36*
Twitter followers		.0005*
N	35	35
F	18.17	75.53
R^2	.36	.83
ΔR^2		.47*

Note. * $p < .001$.

CATEGORIES. In total, 5,964 social mediators were identified. As shown in Figure III, individual social mediators captured 67.14% of the number social mediators (n = 4004).

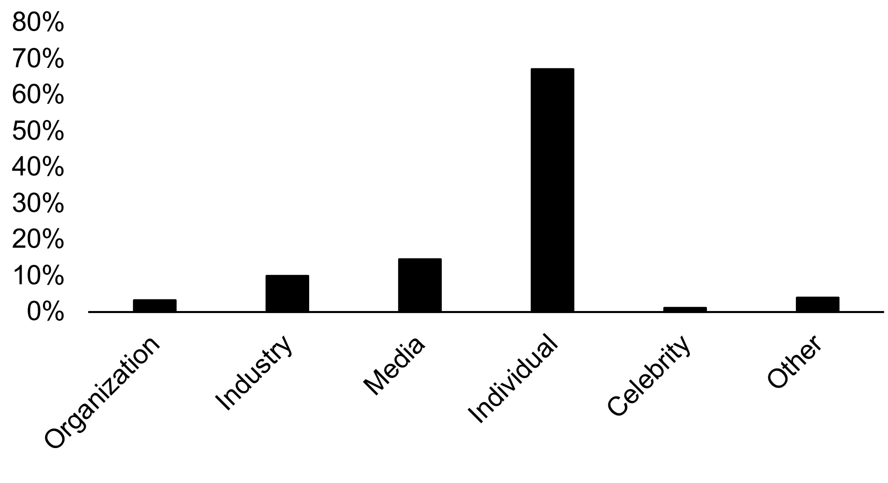

Figure III. Types of Social Mediators (in %)

4,405 social mediators were related to conversations about top-division clubs, and 1,559 social mediators were related to first-division clubs. A 6 × 2 Pearson's chi-square test was conducted to examine whether significant differences exist between types of social mediators in the top-division and the first-division. The results indicate a significant difference between types of social mediators and division, $\chi^2(5, N = 5964) = 236.11$, $p < .001$ (see Table IV).

Table IV

Results of chi-square test and descriptive statistics for social mediators by division

	Divisions	
Type of social mediator	Top-division (Eredivisie)	First-division (Jupiler League)
Organizational social mediators	66 (1.50%)	131 (8.40%)
Industry social mediators	398 (9.04%)	198 (12.70%)
Media social mediators	685 (15.55%)	186 (11.93%)
Individual social mediators	3063 (69.53%)	941 (60.36%)
Celebrity social mediators	55 (1.25%)	9 (.58%)
Other social mediators	138 (3.13%)	94 (6.03%)

Note. $\chi^2 = 236.11$, df = 5. Numbers in parentheses indicate column percentages.

Next, various two-sample z-tests for proportions have been conducted to retrieve a closer examination of the data. The results indicate that the proportion of organizational social mediators was significantly higher for first-division clubs compared to top-division clubs ($z = -13.41$, $p < .001$). H2a – that the proportion of organizational social mediators is higher for top-division football clubs compared to first-division football clubs – was supported by the data. Remarkably, topic-networks of first-division clubs included significantly more industry social mediators compared to top-division clubs ($z = -4.53$, $p < .001$). Therefore, H2b – that the proportion of industry social mediators is higher for top-division football clubs compared to first-division football clubs – was not supported by the data. The remaining types of social mediators represent larger proportions for top-division clubs compared to first-division clubs. Differences were significant for media social mediators (z = 3.09, $p < .01$), individual social mediators ($z = 5.43$, $p < .001$), and celebrity social mediators (z = 2.12, $p < .05$). Thus, Hypotheses 2c, 2d, and 2e – the proportion of media social mediators, individual social mediators, and celebrity social mediators is higher for top-division football clubs compared to first-division football clubs – were fully supported by the data.

IN-DEGREE. Next, the in-degree (the number of received mentions, replies and retweets) of social mediators has been explored. As shown in Table V, organizational social mediators indicated the highest in-degree (M = 448.22, SD = 2310.70). It has been examined whether the in-degree of organizational social mediators is significantly higher compared to other social mediators. A one-way ANOVA was conducted with in-degree as dependent variable and type of social mediator as independent variable. The ANOVA results confirmed that the in-degree significantly differs between social mediators, $F(5, 5958) = 10.66$, $p < .001$ (see Appendix D, Table I). A Bonferroni post hoc test revealed that the in-degree was significantly higher for organizational social mediators compared to industry social mediators ($M_{difference}$ = 390.49, $p < .001$), media social mediators ($M_{difference}$ = 383.41, $p < .001$) and individual social mediators ($M_{difference}$ = 409.28, $p < .001$). There was no significant difference between organizational social mediators and celebrity social mediators. Thus, H3a – that organizational social mediators receive more mentions, replies and retweets compared to other types of social mediators in sports-related networks – was partially supported by the data.

Table V

In-degree

Type of social mediator	Mean	Standard Deviation	*n*
Organizational social mediators	448.22	2310.70	197
Industry social mediators	57.73	205.26	596
Media social mediators	64.81	243.94	871
Individual social mediators	38.94	808.77	4004
Celebrity social mediators	248.47	831.75	64
Other social mediators	25.50	229.14	232

As shown in Table VI, organizational social mediators in the top-division indicate the highest in-degree (*M* = 959.57, *SD* = 3856.66). To examine the influence of division and type of social mediator on in-degree, a two-way ANOVA was conducted. The dependent variable was in-degree, whilst the independent variables were division and type of social mediator. The ANOVA results revealed a significant interaction between the effects of division and type of social mediator on in-degree, $F(5, 5952) = 7.07$, $p < .001$ (see Appendix D, Table II). A Bonferroni post hoc test indicated that organizational social mediators have a significantly higher in-degree within the top-division compared to the first-division ($M_{difference} = 768.97$, $p < .001$). Thus, H3b – that the hypothesized result (H3a) for organizational social mediators and mentions, replies, and retweets is stronger for top-division football clubs compared to first-division football clubs – is supported by the data. There were no differences between divisions for the remaining types of social mediators.

Table VI

In-degree per division

	Top-division (Eredivisie)		**First-division (Jupiler League)**	
Type of social mediator	Mean (SD)	*n*	Mean (SD)	*n*
Organizational social mediators	959.57 (3856.66)	66	190.60 (643.06)	131
Industry social mediators	67.38 (247.93)	398	38.35 (52.98)	198
Media social mediators	74.73 (272.65)	685	28.30 (57.38)	186
Individual social mediators	49.02 (925.55)	3063	6.13 (23.55)	941
Celebrity social mediators	272.78 (894.40)	55	99.89 (139.09)	9
Other social mediators	38.72 (296.60)	138	6.09 (13.38)	94

SENTIMENT. Next, the sentiment value of social mediators has been explored. As shown in Table VII, sentiment values indicate minor differences between various types of social mediators. Celebrity social mediators indicated the most positive sentiment value (*M* = .09, *SD* = .19). It has been examined whether sentiment value differs significantly among social mediators. A one-way ANOVA was conducted with the sentiment value as dependent variable and type of social mediator as independent variable. The ANOVA results confirmed that sentiment value significantly differs among social mediators, $F(5, 5958) = 3.63$, $p < .01$ (see Appendix D, Table III). A Bonferroni post hoc test revealed that celebrity social mediators expressed significantly more positive sentiment compared to individual social mediators ($M_{difference} = .07$, $p < .05$). Organizational social mediators also expressed significantly more positive sentiment compared to individual social mediators ($M_{difference} = .05$, $p < .05$). A marginal difference has been found between organizational social mediators and media social mediators ($M_{difference} = .04$, $p = .09$). There were no significant differences between the remaining types of social mediators.

Table VII

Sentiment value

Type of social mediator	**Mean**	**Standard Deviation**	***n***
Organizational social mediators	.07	.14	197
Industry social mediators	.03	.17	596
Media social mediators	.03	.17	871
Individual social mediators	.02	.20	4004
Celebrity social mediators	.09	.19	64
Other social mediators	.03	.24	232

As shown in Table VII, celebrity social mediators in the first-division indicate the highest sentiment value ($M = .27$, $SD = .12$) compared to other social mediators in the top-division or the first-division. To examine the influence of division and type of social mediator on sentiment a two-way ANOVA was conducted. The dependent variable was the sentiment value, whilst the independent variables were division and type of social mediator. The ANOVA results revealed no significant interaction between the effects of division and type of social mediator on sentiment, $F(5, 5952) = 1.74$, $p = .12$ (see Appendix D, Table IV).

Table VII

Sentiment value per division

	Top-division (Eredivisie)		First-division (Jupiler League)	
Type of social mediator	Mean (SD)	*n*	Mean (SD)	*n*
Organizational social mediators	.05 (.09)	66	.08 (.16)	131
Industry social mediators	.03 (.19)	398	.04 (.14)	198
Media social mediators	.03 (.18)	685	.04 (.15)	186
Individual social mediators	.02 (.20)	3063	.04 (.20)	941
Celebrity social mediators	.06 (.18)	55	.27 (.12)	9
Other social mediators	.02 (.24)	138	.05 (.24)	94

FAN ENGAGEMENT

Finally, to answer RQ2, various stepwise multiple regression analyses were conducted to find the combination of variable(s) that predict fan engagement (the number of mentions, retweets and replies; see Table VIII)[8]. Numerous independent variables[9] were sequentially entered into and/or removed from the model – in a stepwise manner – to predict fan engagement. The results of the regression analyses revealed that adding the number of Twitter followers of a football club ($p < .001$), the number of individual social mediators ($p < .001$), the number of media social mediators ($p < .05$), and the number of celebrity social mediators ($p < .05$) contributed significantly to the model: $F(4, 30) = 92.35$, $p < .001$, explaining 92.49% of the variance ($R^2 = .93$; see Table VIII, Model IV). Fan engagement was primarily predicted by the number of celebrity social mediators ($b^* = 10261.27$, $t = 2.20$, $p < .05$, 95% CI [723.34, 19799.20]), the number of individual social mediators ($b^* = 997.06$, $t = 5.98$, $p < .001$, 95% CI [656.68, 1337.44]), and to a lesser extent by the number of Twitter followers of a football club ($b^* = .28$, $t = 3.46$, $p < .01$, 95% CI [.11, .44]). Remarkably, the

[8] Violation of assumptions: A linear regression established that the number of organizational social mediators was not related to fan engagement, $F(1, 33) = 1.20$, $p = .28$, $R^2 = .04$, and was thus not included as a possible predictor in the regression model.

[9] (1) the number of Twitter followers of a football club, (2) the division, (3) the number of industry social mediators, (4) the number of media social mediators, (5) the number of individual social mediators, (6) the number of celebrity mediators, and (7) the sentiment value of social mediators.

number of media social mediators negatively affects fan engagement (b* = -2865.92, t = -3.52, p < .01, 95% CI [-4529.59, -1202.25]).

Table VIII

Regression model explaining fan engagement

Predictors	*b**
Twitter followers	.28**
Individual social mediators	997.06***
Media social mediators	-2865.92**
Celebrity social mediators	10261.27*
N	35
F	92.35
R^2	.93

Note. * *p* < .05 ** *p* < .01 *** *p* < .001.

Discussion

The present study aimed to understand how various types of social mediators influence the diffusion of organization-related information on Twitter. Drawing from research on information diffusion and eWOM, as well as from emerging literature on mediated PR, this study tested which types of social mediators play a key role in connecting publics and diffusing information on Twitter. This study extends previous case study research (e.g., Himelboim et al., 2014, Himelboim et al., 2016) as it collected and analyzed data on over 4,5 million tweets about 35 football clubs, and subsequently reviewed the details of about 6,000 key users. This study aimed to retrieve a broader perspective of the role of various types of social mediators in a post-mass media society.

The results indicate that the number of social mediators is strongly related to the number of Twitter followers. In particular, the greater the number of Twitter followers, the greater the number of social mediators. Beyond the effect of the number of Twitter followers, division is linked to differences in the number of social mediators. First-division clubs are dominated by social mediators strongly related to sports, whilst top-division clubs showed more diverse social mediators. Contrary to our hypothesis, first-division clubs accounted for a greater number of industry social mediators compared to top-division clubs. One explanation may be that, when minor football clubs encourage fans to attend live matches (Bruns et al., 2014), they play a key role in spreading information when playing other clubs home and away. As top clubs do not engage with fans on Twitter (Bruns et al., 2014), this results in a greater proportion of industry social mediators in the first-division.

Furthermore, the findings indicate that organizational social mediators spread more positive eWOM compared to individual social mediators and media social mediators. This indicates that fans, supporters' groups, journalists, among others, are more likely to express criticism towards sports entities (Blaszka et al., 2012). Organizational social mediators were also found to be highly influential in receiving many mentions and replies, and creating content that is often retweeted. Though, contrary to our hypothesis, organizational social mediators did not yield a higher in-degree compared to celebrity social mediators. This indicates that, although celebrity social mediators might be irrelevant to the topic of conversation (Boehmer & Tandoc, 2015), they are still able to stimulate others to mention, reply or retweet their content (Cha et al., 2010). A possible explanation for this may be that fans within the network were (1) familiar with the celebrity, and (2) interested in the tweet, resulting in increased sharing intentions (Boehmer & Tandoc, 2015).

The final aspect of this study examined the role of social mediators (and other factors) in predicting fan engagement on Twitter. The findings indicate that individual social mediators and celebrity social mediators had the strongest overall effect on fan engagement on Twitter. Media social mediators, however, were negative predictors fan engagement on Twitter. This indicates that the power of media social mediators, the most traditional PR mediators, over the tools of information creation and diffusion has decreased.

THEORETICAL AND MANAGERIAL IMPLICATIONS

The results of the current study yield several theoretical implications. This study enriches the body of PR literature by providing insights into the key role of mediators in PR. In comparison to prior studies discussing mediated relationships that mainly focus on types of media (Kent & Taylor, 2002), this study expanded the notion of mediated PR by focusing on specific types of social mediators on Twitter. The findings of this study make interesting contributions regarding the most traditional PR mediators, namely mass media. Media social mediators composed less than 15% of the mediators, indicating their loss of monopoly power in connecting organizations with their publics (Meraz, 2009). Media social mediators are now just one force among many mediators. This implies that organizations should not underestimate non-mass media as key mediators for building OPRs. Various scholars pointed out even nonpublic-relations entities may contribute to PR activities (Smith, 2010). Future studies should investigate this topic further by evaluating how various types of social mediators contribute to PR activities (e.g., through unilateral and bilateral relationships; Himelboim et al., 2014).

Furthermore, this study extends existing PR literature by examining various characteristics of social mediators, such as sentiment values, as called for by scholars (Himelboim et al., 2016). Particularly organizational social mediators create positive eWOM on Twitter. Besides, organizational social mediators are able to stimulate information diffusion through mentions, replies and retweets. In turn, this highlights the opportunity for organizations to address organizational social mediators as powerful ambassadors online. Organizational social mediators can increase an organization's visibility and reach (Dreher, 2014). Thereby, they can build and foster valuable relationships with various publics. This can be especially relevant for smaller organizations with limited organizational resources (Chong, 2007).

The current study also makes methodological contributions to PR research. Currently, large-scale data collection and analysis processes are within the reach of academic research. This study extends earlier case study research by collecting more than 4,5 million tweets of approximately 330,000 users over a one-year period. Future studies should consider these capabilities when examining the role of social mediators on social media, and use these capabilities to investigate how their role may differ across industries or platforms.

Along with the theoretical and methodological contributions, this study provides some practical implications. The findings of the current study might be valuable for PR practitioners, specifically within the sports industry. Currently, organizations have millions of followers on Twitter, and these followers receive updates and messages. While this community of followers already provides a powerful platform to communicate with publics, organizations should also consider the potential that social mediators have to extend the reach of the organization beyond the limits of this community. As the results indicate, PR practitioners no longer need to rely merely on relationships with mass media to connect to publics. Organizations can actually identify and target a wide variety of social mediators. Firstly, organizational social mediators can be highly influential Twitter users who receive many mentions and replies, and who also create content that is often retweeted. Furthermore, individual social mediators and celebrity social mediators can be highly influential in increasing overall engagement on Twitter.

Limitations and Future Research

While this study contributes to research with numerous important findings, certain limitations need to be discussed. Firstly, the operationalization of social mediators should be taken into account. The highest in-degree (the number of mentions, replies, and retweets) was one indicator of identifying social mediators. Future studies should also incorporate user-follower relationships, as these also account for a significant amount of information flow throughout Twitter networks (Raban & Rabin, 2007). Besides, social mediators have been identified in clusters of at least four members (Wagenseller III & Wang, 2017) without setting a maximum. Dunbar (2016) posits that large communities of size over 150 contain weak connections among their members and therefore are not stable. Examining communities that are limited to 150 members might be imperative when social mediators are targeted to build and maintain OPRs. Future studies could retrieve a further understanding of operationalizing social mediators in social networks. By performing time series analysis changes in (smaller) clusters, the influence of different types of social mediators can be examined day by day. Times series analysis can also measure if media social mediators, for instance, indicate rapid information diffusion as they hold a societal role as information providers (Himelboim et al., 2014).

Furthermore, this study used Coosto to collect data as it enables users to easily extract large datasets in a short period of time. Although the limitations imposed by Twitter restrict (rapid) data collection, it can be argued that extracting all data directly from Twitter is most fortunate (Kwak et al., 2010). Another possible limitation is that this study focused on mentions, replies and retweets to explore information diffusion on Twitter. Future studies could be limited to retweets. From a theoretical perspective, it can be argued that replies as well as mentions imply a conversation between two Twitter users, being less interesting to the general public (Araujo, Neijens, & Vliegenthart, 2015). The final limitation concerns the sample size of the regression analyses which was somewhat small, this may have reduced the accuracy of the results (Sawyer, 1982). Future studies should therefore expand the sample, for example by including organizations from other industries. Then, it can be examined whether differences exist not only among different types of organizations but also between industries.

Notwithstanding these limitations, this study has provided a strong set of findings, relevant and specific to mediated PR on Twitter. These findings not only update and advance earlier research about the role of social mediators, but also provide a further understanding about their specific characteristics that can be used by future studies to continue investigating the significant PR role that social mediators play as collaborators for dialogic relationships with publics.

Data availability

The data that support the findings of this study have been prepared for data repository within the Amsterdam School of Communication Research (ASCoR), and are available from the first author on request.

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REFERENCES

Abosag, I., Roper, S., & Hind, D. (2012). Examining the relationship between brand emotion and brand extension among supporters of professional football clubs. *European Journal of Marketing, 46*(9), 1233-1251. http://dx.doi.org/10.1108/03090561211247810

Ajax (2012). BN'ers dragen clubliefde uit. [News article] Retrieved from www.ajax.nl/streams/actueel/bners-dragen-clubliefde-uit.htm

Araujo, T., Neijens, P., & Vliegenthart, R. (2015). What motivates consumers to re-tweet brand content? The impact of information, emotion, and traceability on pass-along behavior. *Journal of Advertising Research, 55*(3), 284-295. http://dx.doi.org/10.2501/JAR-2015-009

Araujo, T., Neijens, P., & Vliegenthart, R. (2017). Getting the word out on Twitter: the role of influentials, information brokers and strong ties in building word-of-mouth for brands. *International Journal of Advertising, 36*(3), 496-513. http://dx.doi.org/10.1080/02650487.2016.1173765

Blaszka, M., Burch, L. M., Frederick, E. L., Clavio, G. & Walsh, P. (2012). #WorldSeries: An empirical examination of a Twitter hashtag during a major sporting event. International *Journal of Sport Communication, 5*(4), 435-453. http://dx.doi.org/10.1123/ijsc.5.4.435

Boehmer, J., & Tandoc Jr, E. C. (2015). Why we retweet: Factors influencing intentions to share sport news on Twitter. *International Journal of Sport Communication, 8*(2), 212-232. http://dx.doi.org/10.1123/ijsc.2015-0011

Boyle, R., & Haynes, R. (2006). The football industry and public relations. In L'Etang, J. Pieczka, M. (Eds.), *Public relations: critical debates and contemporary practice* (pp. 221-240). Mahwah, NJ: London: Lawrence Erlbaum Associates. Retrieved from https://goo.gl/bqhZJn

Brown, N. A., & Billings, A. C. (2013). Sports fans as crisis communicators on social media websites. *Public Relations Review, 39*(1), 74-81. http://dx.doi.org/10.1016/j.pubrev.2012.09.012

Bruns, A., Weller, K., & Harrington, S. (2014). Twitter and sports: Football fandom in emerging and established markets. In K. Weller, A. Bruns, J. Burgess, M. Mahrt & C. Puschmann (Eds.), *Twitter and Society* (pp. 263-280). New York, NY: Peter Lang. Retrieved from https://eprints.qut.edu.au/66328/1/

Bush, A. J., Martin, C. A., & Bush, V. D. (2004). Sports celebrity influence on the behavioral intentions of generation Y. *Journal of Advertising Research, 44*(1), 108-118. http://dx.doi.org/10.1017/S0021849904040206

Cetin, C. & Tribou, G. (2017). Has the amount of available financial resources become the predominant factor in sporting clubs' success and that of a country's national team? The case of Turkish basketball clubs. In M. Peris-Ortiz, J. Álvarez-Garciá & M. Del Río Rama (Eds.), *Sports management as an emerging economic activity: Trends and best practices.* (pp. 19-39). New York, NY: Springer Publishing Company. https://dx.doi.org/10.1007/978-3-319-63907-9_2

Cha, M., Haddadi, H., Benevenuto F., & Gummadi, K. P. (2010). Measuring user influence in Twitter: The million follower fallacy. In *Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media,* 10-17. Menlo Park: The AAAI Press. Retrieved from https://www.aaai.org/ocs/index.php/ICWSM/ICWSM10/paper/download/1538/1826.

Charron, C., Favier, J., & Li, C. (2006). *Social computing: How networks erode institutional power, and what to do about it.* Cambridge, MA: Forrester Customer Report. Retrieved from https://www.cisco.com/web/offer/socialcomputing/SocialComputingBigIdea.pdf

Chong, M. (2007). The role of internal communication and training in infusing corporate values and delivering brand promise: Singapore Airlines' experience. *Corporate Reputation Review, 10*(3), 201-212. http://dx.doi.org/10.1057/palgrave.crr.1550051

Christoff, Z., Hansen, J. U., & Proietti, C. (2016). Reflecting on social influence in networks. *Journal of Logic, Language and Information, 25*(3-4), 299-333. http://dx.doi.org/10.1007/s10849-016-9242-y

Clauset, A., Newman, M. E., & Moore, C. (2004). Finding community structure in very large networks. *Physical review E., 70*(6). http://dx.doi.org/10.1103/PhysRevE.70.066111

Clavio, G., Burch, L. M., & Frederick, E. L. (2012). Networked fandom: Applying systems theory to sport Twitter analysis. *International Journal of Sport Communication, 5*(4), 522-538. http://dx.doi.org/10.1123/ijsc.5.4.522

Cleland, J. A. (2010). From passive to active: The changing relationship between supporters and football clubs. *Soccer & Society, 11*(5), 537-552. http://dx.doi.org/10.1080/14660970.2010.497348

Coosto (2017). Coosto. Retrieved from https://www.coosto.com/nl

Cova, B., & Dalli, D. (2009). Working consumers: the next step in marketing theory?. *Marketing Theory, 9*(3), 315-339. http://dx.doi.org/10.1177/1470593109338144

Csardi, G., & Nepusz, T. (2006). The igraph software package for complex network research. *InterJournal, Complex Systems, 1695*(5), 1-9. Retrieved from https://pdfs.semanticscholar.org/1d27/44b83519657f5f2610698a8ddd177ced4f5c.pdf

De Smedt, T. & Daelemans, W. (2012). Pattern for Python. *Journal of Machine Learning Research, 13*, 2031-2025. Retrieved from http://www.jml.org/papers/volume13/desmedt12a/desmedt12a.pdf

Dejonge, T. (2007). *Sport en economie: Een aftrap.* Nieuwegein, The Netherlands: Arko Sports Media.

Dreher, S. (2014). Social media and the world of work: A strategic approach to employees' participation in social media. *Corporate Communications: An International Journal, 19*(4), 344-356. https://dx.doi.org/10.1108/CCIJ-10-2013-0087

Dunbar, R. I. (2016). Do online social media cut through the constraints that limit the size of offline social networks?. *Open Science, 3*(1), 150-292. http://dx.doi.org/10.1098/rsos.150292

Eredivisie (2017). Our History. Retrieved from https://eredivisie.nl/en-us/info/our-history

Ferrara, E., & Yang, Z. (2015). Quantifying the effect of sentiment on information diffusion on social media. *PeerJ Computer Science, 1*(5), 1-15. http://dx.doi.org/10.7717/peerj-cs.26

Fleiss, J. L., Levin, B., & Paik, M. C. (2003). *Statistical Methods for Rates and Proportions.* New York: John Wiley & Sons, Inc. http://dx.doi.org/10.1002/0471445428

Frandsen, K. (2016). Sports organizations in a new wave of mediatization. *Communication & Sport, 4*(4), 385-400. http://dx.doi.org/10.1177/2167479515588185

Frederick, E.L., Lim, C., Clavio, G., Pedersen, P.M., & Burch, L.M. (2014). Choosing between the one-way or two-way street: An exploration of relationship promotion by professional athletes on Twitter. *Communication & Sport, 2*(1), 80-99. http://dx.doi.org/10.1177/2167479512466387

Frederick, E. L., Lim, C. H., Clavio, G., & Walsh, P. (2012). Why we follow: An examination of parasocial interaction and fan motivations for following athlete archetypes on Twitter. *International Journal of Sport Communication, 5*(4), 481-502. http://dx.doi.org/10.1123/ijsc.5.4.481

Galtung, J., & Ruge, M. H. (1965). The structure of foreign news: The presentation of the Congo, Cuba and Cyprus crises in four Norwegian newspapers. *Journal of Peace Research, 2*(1), 64-90. http://dx.doi.org/10.1177/002234336500200104

Gantz, W., & Lewis, N. (2014). Sports on traditional and newer digital media: Is there really a fight for fans? *Television & New Media, 15*(8), 760-768. http://dx.doi.org/10.1177/1527476414529463

Garcia, C. (2011). Real Madrid football club: Applying a relationship management model to a sport organization in Spain. *International Journal of Sport Communication, 4*(3), 284-299. http://dx.doi.org/10.1123/ijsc.4.3.284

Gibbons, T., & Dixon, K. (2010). 'Surf's up!': A call to take English soccer fan interactions on the Internet more seriously. *Soccer & Society, 11*(5), 599-613. http://dx.doi.org/10.1080/14660970.2010.497359

Giulianotti, R. (2002). Supporters, followers, fans and flaneurs. *Journal of Sport & Social Issues, 26*(1), 25-46. https://doi.org/10.1177/0193723502261003

Golan, G. J., & Himelboim, I. (2016). Can world system theory predict news flow on Twitter? The case of government-sponsored broadcasting. *Information, Communication & Society, 19*(8), 1150-1170. http://dx.doi.org/10.1080/1369118X.2015.1106572

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360-1380. https://dx.doi.org/10.1086/225469

Hambrick, M. E., & Kang, S. J. (2015). Pin it: Exploring how professional sports organizations use Pinterest as a communications and relationship-marketing tool. *Communication & Sport, 3*(4), 434-457. http://dx.doi.org/10.1177/2167479513518044

Hambrick, M. E., & Pegoraro, A. (2014). Social Sochi: Using social network analysis to investigate electronic word-of-mouth transmitted through social media communities. *International Journal of Sport Management and Marketing, 15*(3-4), 120-140. http://dx.doi.org/10.1504/IJSMM.2014.072005

Hambrick, M. E., Simmons, J. M., Greenhalgh, G. P., & Greenwell, T. C. (2010). Understanding professional athletes' use of Twitter: A content analysis of athlete tweets. *International Journal of Sport Communication, 3*(4), 454-471. http://dx.doi.org/10.1123/ijsc.3.4.454

Hambrick, M. E., & Svensson, P. G. (2015). Gainline Africa: A case study of sport-for-development organizations and the role of organizational relationship building via social media. *International Journal of Sport Communication, 8*(2), 233-254. http://dx.doi.org/10.1123/ijsc.2014-0087

Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the internet? *Journal of Interactive Marketing, 18*(1), 38-52. http://dx.doi.org/10.1002/dir.10073

Himelboim, I., Golan, G. J., Moon, B. B., & Suto, R. J. (2014). A social networks approach to public relations on Twitter: Social mediators and mediated public relations. *Journal of Public Relations Research, 26*(4), 359-379. http://dx.doi.org/10.1080/1062726X.2014.908724

Himelboim, I., Reber, B., & Jin, Y. (2016, April). *Informing crisis communication preparation and response through network analysis: Social mediators and mediated content in airlines' Twitter networks.* Paper presented at the Meeting of the Annual Meeting of the International Network for Social Network Analysis (INSNA), Newport Beach, CA. Retrieved from https://goo.gl/UisiEL

Himelboim, I., Smith, M. A., Rainie, L., Shneiderman, B., & Espina, C. (2017). Classifying Twitter topic-networks using social network analysis. *Social Media & Society, 3*(1), 1-13. http://dx.doi.org/10.1177/2056305117691545

Hu, Y., Farnham, S., & Talamadupula, K. (2015, May). Predicting User Engagement on Twitter with Real-World Events. In *Proceedings of the 9th International AAAI Conference on Web and Social Media*, 168-178. Retrieved from https://www.aaai.org/ocs/index.php/ICWSM/ICWSM15/paper/viewFile/10670/10500

Hutchins, B. (2011). The acceleration of media sport culture: Twitter, telepresence and online messaging. *Information, Communication & Society, 14*(2), 237-257. http://dx.doi.org/10.1080/1369118X.2010.508534

Jupiler League (2017). Geschiedenis. Retrieved from http://www.jupilerleague.nl/geschiedenis

Kartakoullis, N., Vrontis, D., Thrassou, A., & Kriemandis, T. (2013). Strategic resource planning for football clubs. *Journal of International Business and Entrepreuneurship, 7*(1), 1-20. https://doi.org/10.1504/JIBED.2013.052128

Kassing, J. W., & Sanderson, J. (2010). Fan–athlete interaction and Twitter tweeting through the Giro: A case study. *International Journal of Sport Communication, 3*(1), 113-128. http://dx.doi.org/10.1123/ijsc.3.1.113

Kent, M. L. (2013). Using social media dialogically: Public relations role in reviving democracy. *Public Relations Review, 39*(4), 337-345. http://dx.doi.org/10.1016/j.pubrev.2013.07.024

Kent, M. L., & Taylor, M. (2002). Toward a dialogic theory of public relations. *Public Relations Review,* 28, 21-37. http://dx.doi.org/10.1016/S0363-8111(02)00108-X

Knoppers, A., & Elling, A. (2004). We do not engage in promotional journalism: Discursive strategies used by journalists to describe the selection process. *International Review for the Sociology of Sport, 39*(1), 57-73.

KNVB Expertise (2016a). *Fan onderzoek Eredivisie seizoen 2015/'16*. [Press release] Retrieved from http://www.knvb.nl/downloads/bestand/3484/fan-onderzoek-eredivisie-seizoen-1516

KNVB Expertise (2016b). *Fan onderzoek Jupiler League seizoen 2015/'16.* [Press release] Retrieved from http://www.knvbexpertise.nl/sites/knvbexpertise.nl/files/Fan Onderzoek Jupiler League seizoen 1516.pdf

Kotler, P., Kartajaya, H., & Setiawan, I. (2010). *Marketing 3.0: From products to customers to the human spirit.* New York: John Wiley & Sons, Inc. http://dx.doi.org/10.1002/9781118257883

Kwak, H., C. Lee, H. Park, & S. Moon. (2010). What Is Twitter, a social network or a news media? In *Proceedings of the 19th International Conference on World Wide Web*, 591-600. New York: ACM. http://dx.doi.org/10.1145/1772690.1772751

Laumann, E. O., Galaskiewicz, J., & Marsden, P. V. (1978). Community structure as interorganizational linkages. *Annual Review of Sociology, 4*(1), 455-484. http://dx.doi.org/10.1146/annurev.so.04.080178.002323

Ledingham, J. A., & Bruning, S. D. (1998). Relationship management in public relations: Dimensions of an organization-public relationships. *Public Relations Review, 24*(1), 55-65. http://dx.doi.org/10.1016/S0363-8111(98)80020-9

Lyons, A. & Ronay, B. (2015). When Saturday comes: The half decent football book. London, UK: Penguin. Retrieved from https://books.google.nl/books?isbn=0141927038

Martha, V., Zhao, W., & Xu, X. (2013, August). A study on Twitter user-follower network a network based analysis. In *Proceedings of the IEEE/ACM International Conference on Social Networks Analysis and Mining*, 1405-1409. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6785885

Marwick, A. E., & Boyd, D. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society, 13*(1), 114-133. http://dx.doi.org/10.1177/1461444810365313

Meraz, S. (2009). Is there an elite hold? Traditional media to social media agenda setting influence in blog networks. *Journal of Computer-Mediated Communication, 14*(3), 682-707. http://dx.doi.org/10.1111/j.1083-6101.2009.01458.x

Muntinga, D. G., Moorman, M., & Smit, E. G. (2011). Introducing COBRAs: Exploring motivations for brand-related social media use. *International Journal of Advertising, 30*(1), 13-46. http://dx.doi.org/10.2501/IJA-30-1-013-046

Nichols, J., Mahmud, J., & Drews, C. (2012, February). Summarizing sporting events using twitter. In *Proceedings of the 2012 ACM International Conference on Intelligent User Interfaces*, 189-198. http://dx.doi.org/10.1145/2166966.2166999

Pacheco, D. F., Pinheiro, D., de Lima-Neto, F. B., Ribeiro, E., & Menezes, R. (2016, October). Characterization of Football Supporters from Twitter Conversations. In *Web Intelligence (WI), 2016 IEEE/WIC/ACM International Conference*, pp. 169-176. Omaha, NE: IEEE. http://dx.doi.org/10.1109/WI.2016.0033

Pedersen, P. M. (2014). A commentary on social media research from the perspective of a sport communication journal editor. *Communication & Sport, 2*(2), 138-142. http://dx.doi.org/10.1177/2167479514527428

Petrescu, M., & Korgaonkar, P. (2011). Viral advertising: Definitional review and synthesis. *Journal of Internet Commerce, 10*(3), 208-226. http://dx.doi.org/10.1080/15332861.2011.596007

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective.* New York, NY: Harper and Row.

Raban, D. R., & Rabin, E. (2009). Statistical inference from power law distributed web-based social interactions. *Internet Research, 19*(3), 266-278. http://dx.doi.org/10.1108/10662240910965342

Rubin, R. B., & McHugh, M. P. (1987). Development of parasocial interaction relationships. *Journal of Broadcasting & Electronic Media, 31*(3), 279-292. http://dx.doi.org/10.1080/08838158709386664

Sallot, L. M., & Johnson, E. A. (2006). Investigating relationships between journalists and public relations practitioners: Working together to set, frame and build the public agenda, 1991–2004. *Public Relations Review, 32*(2), 151-159. http://dx.doi.org/10.1016/j.pubrev.2006.02.008

Sanderson, J., & Hambrick, M. E. (2012). Covering the scandal in 140 characters: A case study of Twitter's role in coverage of the Penn State saga. *International Journal of Sport Communication, 5*(3), 384-402. http://dx.doi.org/10.1123/ijsc.5.3.384

Sawyer, R. (1982). Sample size and the accuracy of predictions made from multiple regression equations. *Journal of Educational and Behavioral Statistics, 7*(2), 91-104. https://dx.doi.org/10.3102/10769986007002091

Schultz, B., & Sheffer, M. L. (2008). Left behind: Local television and the community of sport. *Western Journal of Communication, 72*(2), 180-195. http://dx.doi.org/10.1080/10570310802038507

Smith, B. G. (2010). Socially distributing public relations: Twitter, Haiti, and interactivity in social media. *Public Relations Review, 36*, 329-335. http://dx.doi.org/10.1016/j.pubrev.2010.08.005

Sohn, D. (2014). Coping with information in social media: The effects of network structure and knowledge on perception of information value. *Computers in Human Behavior,* 32, 145-151. http://dx.doi.org/10.1016/j.chb.2013.12.006

Tubantia (2014). De Nederlandse voetbalkaart. Retrieved from https://www.tubantia.nl/integratie/voetbalkaart

Twitter (2017). About Twitter. Retrieved from https://about.twitter.com/

Vollmer, C. & Precourt, G. (2008) *Always on: Advertising, marketing, and media in an era of consumer control.* New York: McGraw-Hill.

Wagenseller III, P., & Wang, F. (2017). Size matters: A comparative analysis of community detection algorithms. *arXiv preprint arXiv:1712.01690.* Retrieved from https://arxiv.org/pdf/1712.01690.pdf

Wallace, L., Wilson, J., & Miloch, K. (2011). Sporting Facebook: A content analysis of NCAA organizational sport pages and Big 12 conference athletic department pages. *International Journal of Sport Communication, 4*(4), 422-444. http://dx.doi.org/10.1123/ijsc.4.4.422

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications* (8th ed.). New York, NY: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511815478

Wasserman, S., & Faust, K. (1999). *Social network analysis: Methods and applications.* New York, NY: Cambridge University Press.

Waters, R. D., Burke, K. A., Jackson, Z. H., & Buning, J. D. (2011). Using stewardship to cultivate fandom online: Comparing how National Football League teams use their web sites and Facebook to engage their fans. *International Journal of Sport Communication, 4*(2), 163-177. http://dx.doi.org/10.1123/ijsc.4.2.163

Watkins, B. A. (2017). Experimenting with dialogue on Twitter: An examination of the influence of the dialogic principles on engagement, interaction, and attitude. *Public Relations Review, 43*(1), 163-171. http://dx.doi.org/10.1016/j.pubrev.2016.07.002

Wenner, L. A. (Ed.). (1989). *Media, Sports, and Society*. Thousand Oaks: SAGE Publications, Inc.

Westerman, D., Spence, P. R., & Van Der Heide, B. (2014). Social media as information source: Recency of updates and credibility of information. *Journal of Computer-Mediated Communication, 19*(2), 171-183. http://dx.doi.org/10.1111/jcc4.12041

Williams, J., Chinn, S. J., & Suleiman, J. (2014). The value of Twitter for sports fans. *Journal of Direct, Data and Digital Marketing Practice, 16*(1), 36-50. http://dx.doi.org/10.1057/dddmp.2014.36

Worley, D. A. (2007). Relationship building in an internet age. In S. C. Duhe (Ed.), *New Media and Public Relations* (pp. 145–157). New York, NY: Peter Lang.

Yang, A., & Taylor, M. (2015). Looking over, looking out, and moving forward: Positioning public relations in theorizing organizational network ecologies. *Communication Theory, 25*(1), 91-115. http://dx.doi.org/10.1111/comt.12049

Zhang, Y., Moe, W. W., & Schweidel, D. A. (2017). Modeling the role of message content and influencers in social media rebroadcasting. *International Journal of Research in Marketing, 34*(1), 100-119. http://dx.doi.org/10.1016/j.ijresmar.2016.07.003

APPENDIX A: CODEBOOK

This codebook is designed for coding Twitter users' self-descriptions of social mediators who have tweeted about a professional football club in The Netherlands during the 2016-17 season (i.e., July 2016 – June 2017). This includes top-division football clubs (i.e., *Eredivisie*, such as Ajax and Feyenoord) as well as first division football clubs (i.e., *Jupiler League*, such as VVV Venlo and FC Den Bosch). Social mediators can be defined as: "the entities which mediate the relations between an organization and its publics through social media" (Himelboim et al., 2014, p. 367). Eventually, any Twitter user can act as a social mediator within their network. This codebook is designed to categorize social mediators, including (1) organizational social mediators, (2) industry social mediators, (3) media social mediators, (4) celebrity social mediators and (5) individual social mediators, within the sports industry. Please take the following steps in order to classify the listed social mediators:

Step 1 – Search the user that you are coding on Twitter (*www.twitter.com/[username]*);
Step 2a – Read the user self-description;
Step 2b – If there is no user self-description available read their latest tweets;
Step 3 – Read the following question and indicate your answer in Excel column = [coder1]. The options will be supported by examples of AFC Ajax. Please take into account that you can only select one option.

What type of social mediator was the Twitter user during the 2016-17 season?

[=01]. Organizational social mediator
Organizational social mediators include the football club itself (e.g., @*AFCAjax*), or actors affiliated with the football club of conversation, including the stadium (e.g., @*AmsterdamArenA*), the business club (e.g., @*AjaxBusiness*), foundations (e.g., @*AjaxFoundation*) or the youth academy. This category also includes staff members, such as football players (@*Dolbergofficial*), trainers (@*PBosz*), stewards, physiotherapists and other supporting staff.

[=02]. Industry social mediator
Industry social mediators are organizations or institutions within the sports industry other than the football club of conversation, including competitors (e.g., @*Feyenoord*), leagues (e.g., @*eredivisie*) and associations (e.g., @*KNVB*; @*nocnsf*). This category also includes official referees of the KNVB.

[=03]. Media social mediator
Media social mediators are actors related to media outlets, such as news media (e.g., @*RTL_Nieuws* or @*NOSSport*), talk shows (e.g., @*VI_nl*) and journalists (e.g., @*primadeluxe*).

[=04]. Individual social mediator
Individual social mediators are individuals, mainly football fans, or (small) groups of individuals such as supporters' groups (e.g., @*AjaxFanzoneNL*).

[=05]. Celebrity social mediator
Celebrity social mediators are famous actors especially in entertainment or sports: other than the football club of conversation (e.g., @*LuukdeJong*, @*barbarabarend* or @*VanGaalOfficial*).

[=06]. Other
This category includes other users, such as sponsors (e.g., @*Energiedirect*), governmental organizations (e.g., @*AmsterdamNL*), political parties (e.g., @*CDABrabant*) and other organizations not included in the classification above.

[=07]. I don't know / N.A.
This option applies when you are unsure in classifying the Twitter user to one of the categories mentioned before. This category also includes non-Dutch, suspended, deleted, private or fake Twitter accounts.

APPENDIX B: ANALYSIS OF VARIANCE RESULTS

Table I

One-way analysis of variance of in-degree by type of social mediator

Source	*SS*	*df*	*MS*	*F*	*p*
Between groups	34039743.30	5	6807948.67	10.66	< .001
Within groups	3803900000	5958	638457.87		
Total	3838000000	5963	643631.01		

Table II

Two-way analysis of variance of in-degree by type of social mediator and division

Source	***SS***	***df***	***MS***	***F***	***p***
Model	62033596.50	11	5639417.86	8.89	< .001
Social mediator	50423563.60	5	10084712.70	15.90	< .001
Division	6429623.83	1	6429623.83	10.13	< .01
Social mediator * division	22434228.50	5	4486845.69	7.07	< .001
Residual	3775900000	5952	634398.21		
Total	3838000000	5963	643631.01		

Table III

One-way analysis of variance of sentiment by type of social mediator

Source	***SS***	***df***	***MS***	***F***	***p***
Between groups	.68	5	.13	3.63	< .01
Within groups	223.26	5958	.04		
Total	223.94	5963	.04		

Table IV

Two-way analysis of variance of sentiment by type of social mediator and division

Source	***SS***	***df***	***MS***	***F***	***p***
Model	1.32	11	.12	3.21	< .001
Social mediator	.81	5	.16	4.31	< .001
Division	.51	1	.51	13.61	< .001
Social mediator * division	.32	5	.06	1.74	.12
Residual	222.62	5952	.04		
Total	223.94	5963	.04		