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Analysis of tweets about football: 2013 and 2018 leagues in Turkey

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ABSTRACT

Football has recently developed into a unique sector with complex management and marketing functions, where novel communication technologies are employed. In this paper, we aim to contribute to the numerous fields involving emerging European sports marketing literature, social media analytics, and digital consumer behaviour. Our purpose is to explore Twitter use related with football by analysing real-time streamed data in offering a longitudinal perspective by focusing on 2013 and 2018 leagues in Turkey via the use of social media analytics framework. Retrieved dataset involved randomly selected publicly available 370 thousand and 6.8 million real-time tweets in 2013 and 2018 leagues, respectively. We report that majority of tweets about the football was posted within the three-hour window before the match independent of the match result and the importance of the result. Moreover, pre-match tweeting volume was almost a crystal ball signalling match winning. Our findings are valuable for sports managers and marketers where some key suggestions provided are to involve particular contexts of winning or losing in their after-match marketing plans, to value weekdays as much as the weekends, and to utilise the after-work prime time of social media engagement.

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1. Introduction

Football is among those sports that generate a widespread enthusiasm for large crowds, who are also social media users for a variety of reasons. Individuals excited for different reasons about football could range from waiting for an important match to scoring of a goal or even losing a match in choosing to engage with social media about football on an increasing pattern. One such social media that individuals post about football is Twitter. Twitter is a micro-blogging social media with an estimated 1.3 billion total number of registered user, where 34% of active users log onto it more than once a day (Smith 2017). As of 2nd quarter of 2013 and 2018, Twitter's monthly active user base was 218 and 335 million, respectively (Statista 2018). Social network estimates indicate some 2.62 and 3.02 billion users worldwide by 2018 and 2021, respectively (Statista 2017). Recently, sports-related Twitter use included streaming of live videos, which constituted about half of all live videos posted on Twitter during the first quarter of 2017 (Spangler 2017). During the year 2016, 91% of the top 100 telecasts were about sports, which in turn lead to more than half of the social TV conversations on Twitter in the U.S. (Townsend and Lovett 2017). Twitter data analysis offers valuable insights with significant findings on individual and group tweeting

characteristics on sports, which could be used in managing related social media marketing efforts (Jacobs 2009; Savage 2011). In this regard, Turkey provides an interesting ground by hosting some of the most valuable football clubs in Europe (KPMG 2017, 2018; Terekli and Çobanoğlu 2018) as well as the widespread use of Twitter. Turkey ranks 8th among Twitter's top markets of active users with a share of 3.0 per cent of global users (Richter 2013). Twitter is the 7th most popular website in Turkey (Alexa 2016).

Studies about sports on social are an emerging field. In this regard, our paper is a frontier effort to offer an analysis of real-time streamed data on a longitudinal approach. This paper aims to contribute various literature including European sports marketing, social media analytics, and digital consumer behaviour. The purpose entails exploring Twitter use in relation with football by focusing on 2013 and 2018 leagues in Turkey with the aid of social media analytics framework. Analysed dataset included 370 thousand and 6.8 million tweets that were streamed between 10 March 2013 and 30 June 2013, and between 29 December 2017 and 8th June 2018, respectively. Conclusions drawn are valuable for managers and marketers who are interested in designing strategies for social media surrounding sports activities.

The remainder of the paper is structured in the following manner. Next section includes an overview of the literature where the importance of our frontier research is underlined. Section 3 explains methodology and data. Section 4 describes analysis and results. Section 5 delivers conclusion and discussion of major findings. Finally, Section 6 involves contributions, limitations, and future research directions.

2. Literature review

Twitter presents a novel direct communication channel for teams and their fans (Price, Farrington, and Hall 2013). It also allows football players to express themselves, helping them to establish powerful personal brands. Football teams, on the other hand, tend to have less Twitter presence compared to individual players. Among the many underlying factors, team's limited human resources dedicated to social media management could be a major bottleneck in their Twitter presence. The need to interact 7/24 with a large fan-base could require significant resources and knowledge to fully grasp the potential of social media. It is perhaps this bottleneck that influences teams' decisions to use Twitter mostly for provision of traditional information, such as transfer news, rather than tapping into the interactive novelties involved in social media communication. Sporting event organisers and sport teams often use Twitter to share information about and promote their events by sending informational and promotional messages (Hambrick 2012). This one-way communication activity is believed to attract followers, in addition to resulting in the rapid spread of information through the online social network. On the other hand, speculations and misinformation could be disseminated too quickly via Twitter, too. All in all, teams should develop marketing and communication strategies specially crafted for social media. In this regard, this research provides an important contribution in offering analysis of real-time tweeting in years 2013 and 2018. As we are responding to similar earlier research by Eagleman (2013) and Filo, Lock, and Karg (2015), where it is mentioned that social media is utilised mostly as a communication tool rather than a marketing tool. According to their findings, social media could be used (1) to communicate and develop the relationship with users and fans, (2) to promote brand and sport activities by posting stories, news, videos, or pictures, and (3) to engage in discussions with fans/followers. Our research took a further step to provide insight on how the Twitter use changed over the 5-year period from 2013 to 2018. In addition, some past research suggested that social media opportunities should be considered as a factor in sponsorship

selection (Greenhalgh and Greenwell 2013). In this context, social media could further be used as a marketing tool for promoting or activating sponsorships by offering discount or promotional codes for tickets and commodities. Ioakimidis (2010) explored the media-based content and opportunities for fan interaction used by sports teams in North America and Europe. Their findings indicated that the U.S. sports teams outperformed others in using online sports marketing strategies. U.S. teams applied online sports marketing strategies in social media with the aim of increasing revenue, enhancing fan loyalty, and establishing brands. U.S. teams' fans interacted with the teams and players through team-related blogs and online communities that provided a virtual home to increase connection and sense of belonging. Though the US-based research on the use of social media had been emerging, similar research in Europe, particularly about Twitter, with regard to sports marketing and sponsorship activities is still developing. It is in this context that this paper is a frontier research effort in (1) analysing real-time behaviour since streamed data was collected, (2) offers a longitudinal lens in enclosing 2013 and 2018 leagues, (3) employs social media analytics framework to football-related Twitter use, and lastly (4) provides an analysis from Turkey to contribute to the emerging European sports marketing literature.

Most sport events, including football matches, tend to provoke some emotional reactions (Bal, Quester, and Plewa 2009). In adopting an evolutionary psychology perspective, Schaller, Park, and Kenrick (2009) categorised such sport-induced emotional reactions as part of a motivational system that accommodates human adaptation. This study focuses on understanding the various factors involved in social media engagement related with football matches. Not only social media is considered a platform of social activity, but watching football match is also considered to be part of sociality. Sociality is among the most central characteristics of humans (Baumeister and Leary 1995). Past research indicates two motivational directions competing with each other that any individual would be required to tackle in building a social life, namely *relatedness* and *competence* (Bugental 2000; Kenrick, Li, and Butner 2003). Building connection with others is known as relatedness motivation, while competing with others for limited resources is known as competence motivation. Exposure to sports events is considered as a triggering activity for these motivational systems (Ahn, Cheong, and Kim 2013). Football matches involve a win-or-lose environment involving competition among social entities, which in turn might also induce social cohesion (Wann 2001; Raney 2006). Building community with

others to better protect the group is considered a *relatedness motivation* (Schachter 1959; Taylor et al. 2000; Griskevicius et al. 2006) while *competence motivation* is reflected in attaining and controlling resources (Keltner, Gruenfeld, and Anderson 2003). Despite football matches reflect the two contrasting motivational domains of competence and relatedness, it is unlikely for both to be active simultaneously by the same match. Past research indicated that ‘when individuals are motivated to get ahead of others, they are relatively unlikely to get along with those others’ (Ahn, Cheong, and Kim 2013, p.70).

Parganas, Anagnostopoulos, and Chadwick (2017) showed that sports teams could use social media in reaching geographically distant fans. Accordingly, building enthusiasm by involving emotion sharing within groups to further enhance the spirit of community feeling was possible. Their study highlighted the importance of studying fans in different national contexts as well as various fan segments. To do so, they suggested using social media, which also affects most teams’ marketing strategies especially in adjusting to particular social and geographic criteria by strengthening both their commercial and brand value. Indeed social media became a rapidly developing alternative medium to traditional media in sports (Özsoy 2011). Due to swiftly developing mobile technologies, fans can access news about sports events and match scores regardless of time and place with the help of social networking sites that are more practical, cheaper, and faster compared to the traditional media. More research into social media is needed to understand the involved behavioural dynamics. However, most sports management research on social media relies on either content analyses, or questionnaires and interviews (Filo, Lock, and Karg 2015). Filo, Lock, and Karg (2015) also revealed that the data collected from different regions and countries can be utilised for cross-cultural comparisons by broadening our understanding of social media. This study, on the other hand, is based on real-time streamed data analysis; hence it provides a unique contribution to the existing literature as a response to this call.

3. Methodology and data

Studies on Twitter data involve either data retrieved from paid data sources or collected from streamed data. We collected tweets that were posted by publicly available Twitter profiles. Retrieved data were then analysed by our developed our methodology on social media analytics framework (Fan and Gordon 2014). We followed the three steps of *capturing*, *understanding*, and *presenting* suggested by the social media analytics

framework (Fan and Gordon 2014) in line with other similar past research (Çevik, Ozturkcan, and Kasap 2015; Ozturkcan et al. 2017) that studied various social phenomenon (Figure 1).

3.1. 2013 League

MongoDB was used in collecting randomly selected 1% of tweets posted in Istanbul (Turkey) region. Total number of tweets in our 2013 dataset was 25.8 million; in this dataset the total number of football team-related tweets between 10 March 2013 and 30 June 2013 was 370,087 (Figure 2) since this period covered the annual football league. All contents of these tweets were transformed to lower case Roman letters to conclude the *capturing* stage.

In the *understanding* stage, tweets’ textual information was analysed in terms of occurrence frequency of keywords, hash tags, or mentions (Provost and Fawcett 2013, 254; Russell 2013, 30). When the occurrence exceeded 50 times of appearance in the dataset, that phrase was recorded as ‘commonly occurring’ one. Fifty was chosen as a cut off since it represented a reasonable lower bound of replication for all 25.8M tweets in the dataset.

Lastly, in the *presenting* stage, three researchers manually investigated the 7932 ‘commonly occurring’ terms to identify the football-related data subset with a consensus of 0.8 inter-rater reliability. On a similar second round, the subset of 732 football-related keywords was reviewed by researchers to outline and categorise the main representative phrases related to Besiktas¹ (BJK), Fenerbahce² (FB), Galatasaray³ (GS), and Trabzonspor⁴ (TS) for further analysis.

3.2. 2018 League

Logstash (for collecting) and Elasticsearch (for indexing) were used in collecting purposefully selected tweets posted in Turkish. Seven hundred and thirty-two keywords filtered and re-categorised by 2 researchers, 2 football fans, and a sports consultant to 172 football-related keywords, which were then used to purposefully record streamed data from Twitter. Total number of tweets in our 2018 dataset was 14 million. When querying Twitter through its public application programming interface, Twitter returns all tweets containing at least one of the keywords provided by the query in any of the tweet’s fields such as user names, links, or the actual content. Thus, a first-round filtering was done on the dataset using the 172 keywords, only on the text content of the tweets, to acquire only the relevant football-related ones. In this filtered dataset the total number tweets with relevant text in their content between 29 December

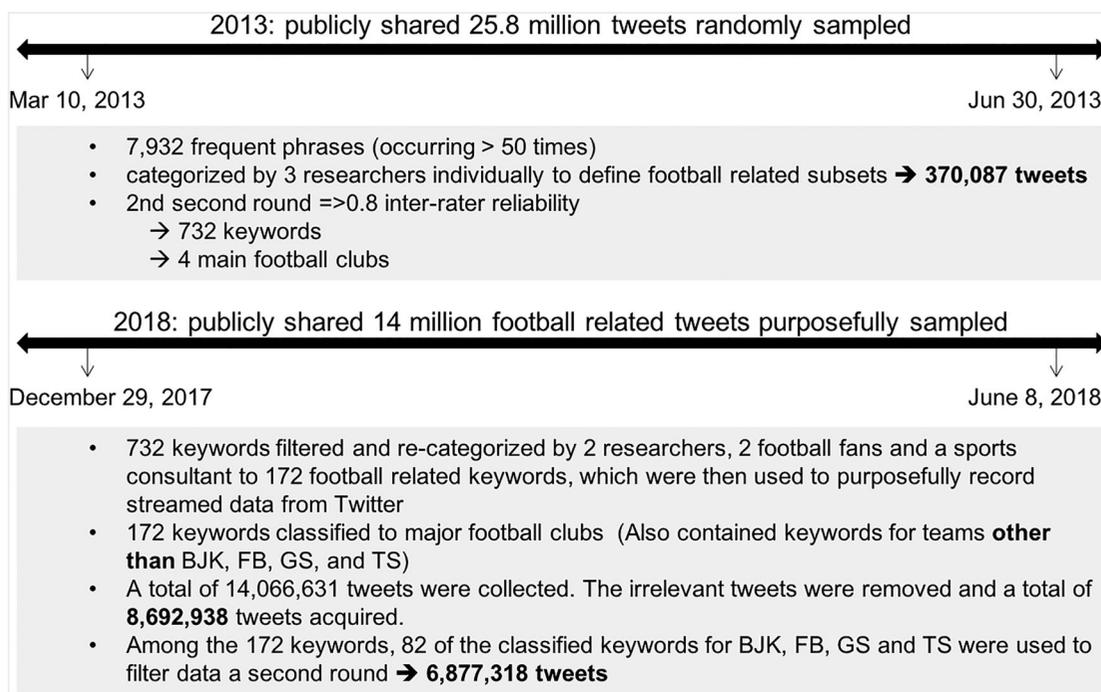


Figure 1. Structure of data and methodology.

2017 and 8 June 2018 was 8.6 million since this period also covered the annual football league. Among these 8.6 million tweets, 6.8 million were related with four major teams (BJK, FB, GS, and TS).

In the *understanding* stage, tweets' textual information was analysed in terms of occurrence frequency of keywords, hash tags, or mentions (Provost and Fawcett 2013, 254; Russell 2013, 30). Among the 172 keywords used for collecting data, 82 of them were classified for each major team (BJK, FB, GS, and TS). At second round, using these 82 keywords, a second filter was applied in order to acquire the 6.8 million tweets mentioned above.

Lastly, in the presenting stage, two researchers manually investigated the 6.8 million tweets related with Besiktas (BJK), Fenerbahce (FB), Galatasaray (GS), and Trabzonspor (TS) for further analysis.

The four sports teams (GS, FB, BJK, and TS) were not only the top 4 Twitter profiles in Turkey in terms of follower basis, but three of them were also listed among the top European, too. Listed among the top 20 social media following of the European football clubs, GS had 12.9 million Facebook, 8.7 million Twitter, and 4.5 million Instagram followers; FB had 9.5 million Facebook, 6.7 million Twitter, and 3.1 million Instagram followers; and BJK had 6.0 million Facebook, 4.0 million Twitter, and 2.0 million Instagram followers (KPMG 2018). Enterprise values in 2018 for BJK, GS, and FB were reported as USD 401 million, USD 398 million, and USD 385 million, respectively (KPMG 2018).

4. Analysis and results

In exploring reflections of football on Twitter, we employed several steps of analysis. First, tweet volumes were calculated on a daily basis and days with the highest tweet volumes were investigated in terms of any football bearing incidents. Then tweets about the major football clubs were analysed to understand before, during, and after match tweeting. This was followed by an investigation of again three phases of before, during and after match tweeting with regard to result of the match in three categories of winning, losing, and draw. Then analysis focused on the weekdays with regard to matches and tweet volumes distribution on the days of the week. Lastly, 2018 data were mapped to understand the prime time of the day for tweeting.

4.1. Real-life football events vs. football-related tweeting

To begin our reflection from the most important football events, it is perhaps worth noting the champions of 2013 and 2018. 2012–2013 Turkish super leagues champion was GS, while FB and BJK were 1st and 2nd runners-up. Regarding the 2017–2018, GS was the champion, while FB was the 1st runner-up. BJK and TS were the fourth and fifth most successful teams respectively in this season. Daily tweet volumes for 2013 and 2018 for each team are included in Figure 2, where Table 1 lists the major events on the corresponding high tweet

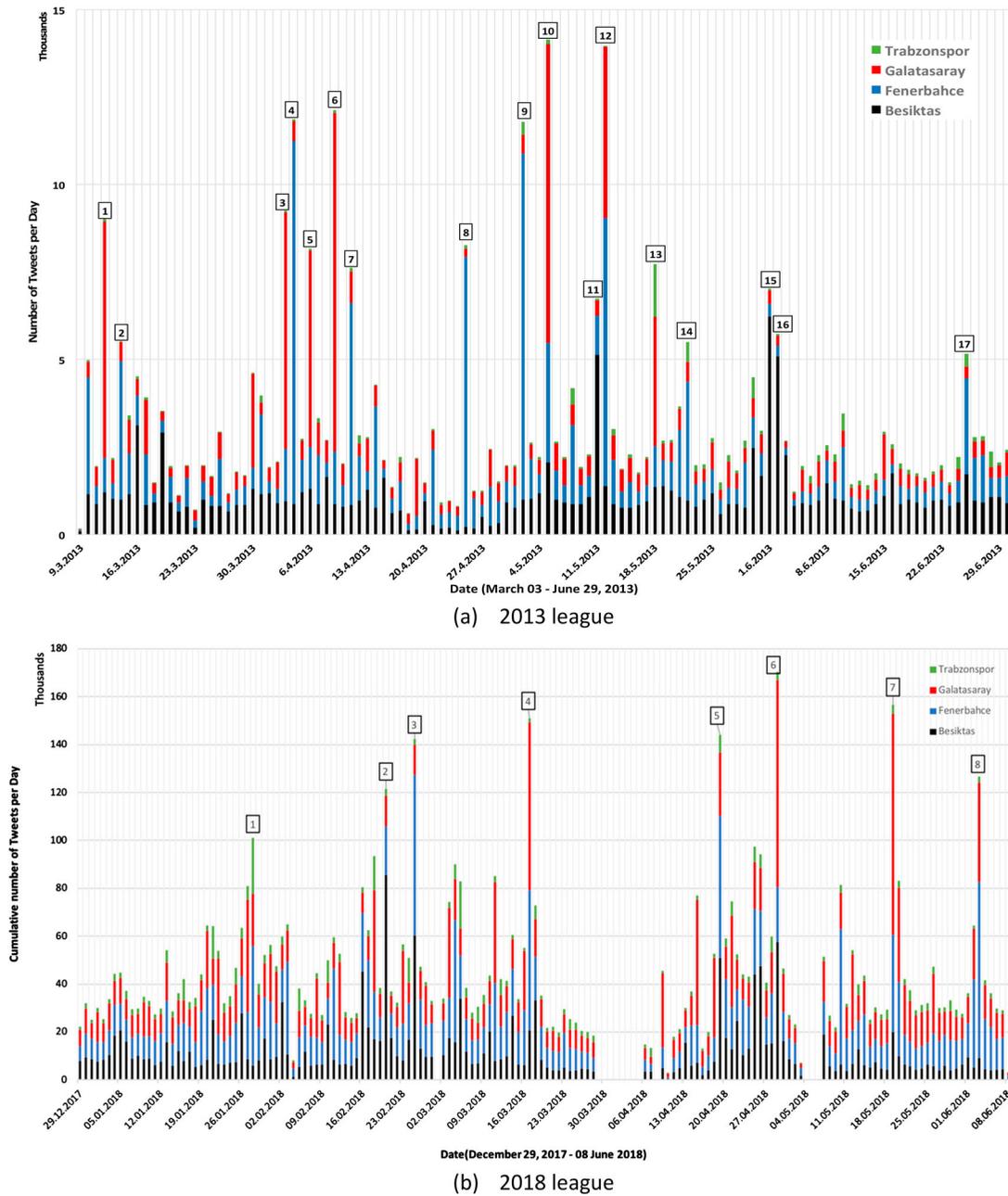


Figure 2. Number of total tweets per day.

volume days. Overall there were totally 124, 131, 101, and 13 K tweets posted about BJK, FB, GS, and TS, respectively in 2013 (Figure 2). Five years later, in 2018, total tweets posted about BJK, FB, GS, and TS amounted to 141, 170, 160, and 40 K, respectively. Interestingly, both in 2013 and 2018 there were fewer tweets posted about the champion GS, but tweets about 1st runner FB were highest in volume. Among the days that had total daily tweet volume exceeding 5 K, UEFA leagues and Turkish league matches presented the highest peaks both in 2013 and 2018. Other than those, the days when there was a Turkish

cup match and/or some other public concerning events, there was also an increase in the tweet volume posted. Moreover, derby match days have also received an increase in tweeting, which is kind of trivial. The total maximum volume of daily tweets (14,141) was posted on 5 May 2013, at which there was no derby matches played but BJK, FB, and GS had individual matches with other teams in the Turkish Super League. Similarly, the total maximum volume of daily tweets (170,445) was posted on 29 April 2018, when there was a Turkish super league derby match between GS and BJK (Figure 3).

Table 1. Daily events and team-based daily tweet volumes for daily tweets exceeding 5 and 100 K on Figure 1(a,b), respectively.

Year	No	Date	Number of Tweets of				Total Tweets	Event
			BJK	FB	GS	TS		
2013	1	12/03/13	1201	984	6752	76	9013	UEFA Champions League, 2nd Round, Schalke 04 - Galatasaray match (2:3)
	2	14/03/13	1004	3956	530	37	5527	UEFA European League, Final 16, Fenerbahce - Viktoria Plzeň match (1:1)
	3	03/04/13	947	1494	6752	58	9251	UEFA Champions League, Quarter-final, Real Madrid - Galatasaray match (3:0)
	4	04/04/13	876	10,375	571	40	11,862	UEFA European League, Quarter-final, Fenerbahce - Lazio match (2:0)
	5	06/04/13	1310	1196	5618	47	8171	Turkish Super League matches, but no derbies
	6	09/04/13	862	1519	9669	82	12,132	UEFA Champions League, Quarter-final, Galatasaray - Real Madrid match (3:2)
	7	11/04/13	857	5769	884	103	7613	UEFA European League, Quarter-final, Lazio - Fenerbahce match (1:1)
	8	25/04/13	214	7716	242	106	8278	UEFA European League, Semi-final, Fenerbahce - Benfica match (1:1)
	9	02/05/13	998	9891	534	372	11,795	UEFA European League, Semi-final, Benfica - Fenerbahce match (3:1)
	10	05/05/13	2054	3428	8539	120	14,141	Turkish Super League matches, but no derbies, Galatasaray's likelihood to early announcement of championship due to possible league points.
	11	11/05/13	5151	1106	431	52	6740	Turkish Super League matches, but no derbies, Police intervention to Besiktas fans prior to match
	12	12/05/13	1382	7663	4882	50	13,977	Turkish Super League match, Fenerbahce - Galatasaray derby (2:1)
	13	18/05/13	1354	1179	3684	1513	7730	Final week of Turkish Super League matches, Galatasaray - Trabzonspor derby (2:0) → league championship was determined
	14	22/05/13	974	3398	564	573	5509	Ziraat Turkish Cup, Final, Fenerbahce - Trabzonspor derby (1:0)
	15	01/06/13	6217	375	388	50	7030	Gezi Park protests has started on May 31 (Ozturkcan et al. 2017)
	16	02/06/13	5094	296	303	30	5723	Gezi Park protests related with BJK fans
	17	25/06/13	1727	2741	326	370	5164	News on UEFA match-fixing investigation results
2018	1	28/01/18	5970	49,790	22,070	23228	101,058	Turkish Super League match, Trabzonspor - Fenerbahce derby (1:1)
	2	20/02/18	85,596	20,251	12,802	2857	121,506	Turkish Super League match, Trabzonspor - Başakşehir (0:1)
	3	25/02/18	60,205	67,180	12,526	2537	142,448	Turkish Super League match, Besiktas - Fenerbahce derby (3:1)
	4	17/03/18	20,680	58,427	70,075	1768	150,950	Turkish Super League match, Fenerbahce-Galatasaray derby (0:0)
	5	19/04/18	50,994	59,201	26,509	7345	144,049	Ziraat Turkey Cup, Fenerbahce-Besiktas derby - at 57th minute of the match an attack against technical director where several injured had resulted with the match called off
	6	29/04/18	57,538	23,011	86,362	3534	170,445	Turkish Super League match, Galatasaray - Besiktas derby (2:0)
	7	19/05/18	19,960	40,490	92565	3520	156,535	Turkish Super League match, Göztepe - Galatasaray (0:1) → league championship was determined
	8	03/06/18	9136	73,558	41,398	2423	126,515	News on the player transfers at the end of the season

4.2. Tweeting before, during, and after the matches

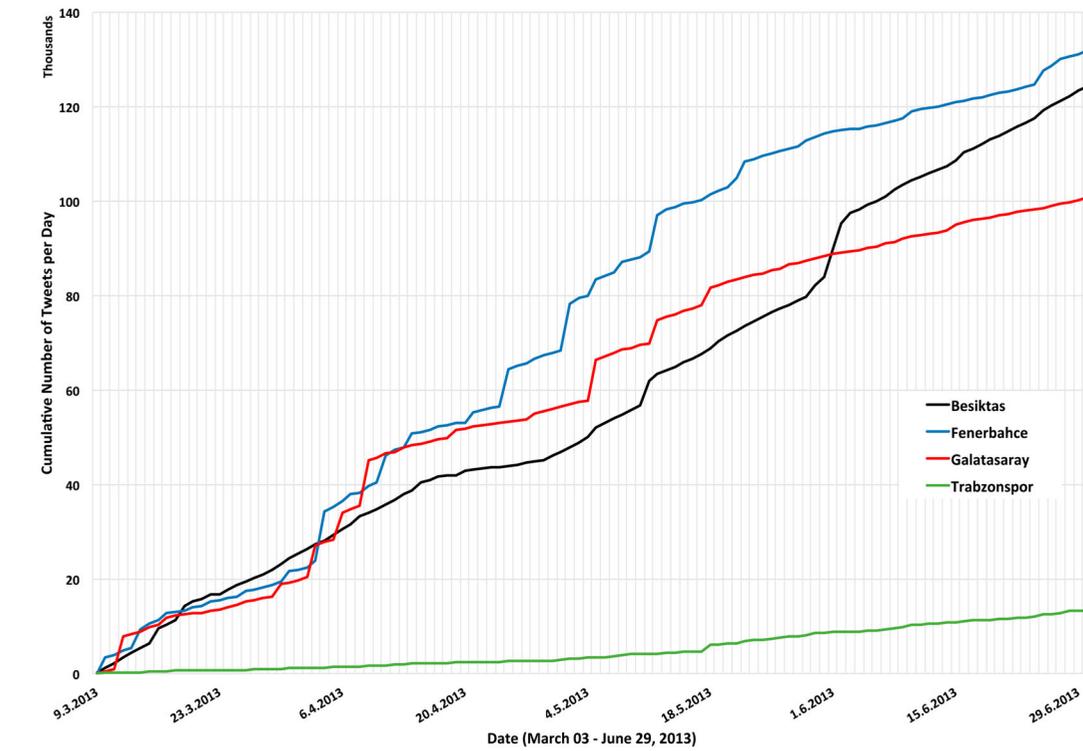
When tweeting behaviour during all matches played by GS, FB, BJK, and TS was analysed, it was found that there was considerable amount of tweeting activity before the match (Table 2) both in 2013 and 2018. Our analysis included tweets three hours before, during, and three hours afterwards the match. Tweets increased to high levels before the match, decreasing during the match, and continuing to even lower levels following the match in 2013. In 2018, tweets after the match increased but not to a level observed before the match. The change indicates that there is an increase in football-related tweeting after the match, even though there are less tweets before, during, and after the matches in general. Particularly there were more FB and GS-related tweets posted before the match in 2013, while BJK-related tweets gained a momentum accompanying the GS and FB-related pre-match tweeting. All in all, 81% and 73% of tweets were posted within 3 h before the matches in 2013 and 2018, respectively. While tweets during the matches remained only at 15% and 10% of all posted tweets, 4% and 17% were posted within the following three hours after the matches in 2013 and 2018, respectively. Hence, tweeting behaviour induced by matches suggests that there is heightened activity prior

to the match, but not resumed during the match, and is in a process of improvement during the last five years for not quickly fading away subsequent to the match.

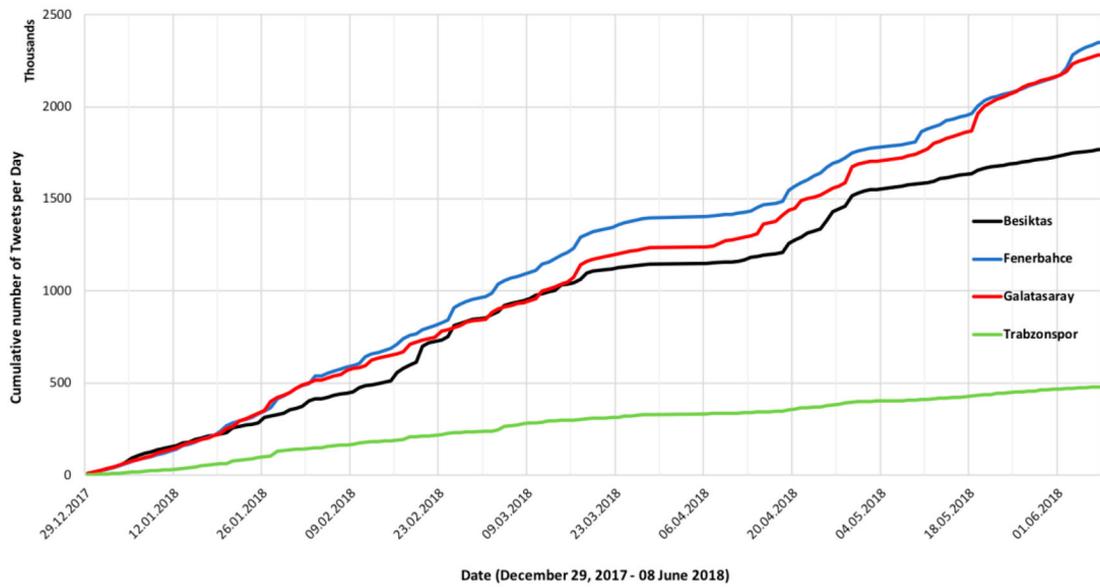
When team-based tweets were analysed, it was found that FB tweets were 48% of all tweets posted within the analysed time frame of matches in 2013. In this year, this was followed by 40%, 10%, and 2% of tweets posted on GS, BJK, and TS, respectively. On the other hand, FB and GS-related tweets were higher within the pre-match tweeting group in 2013 and 2018, respectively. However, GS-related tweets exceeded all other team-based tweets during the matches both in 2013 and 2018. Finally, post-match tweeting was highest for GS-related tweets again both in 2013 and 2018. Interestingly, the dominant leadership of FB's pre-match tweet levels was not repeated neither during nor the post-match tweeting levels in 2013, while GS-related tweets remained the highest in all three categories of before match, during match, and after match in 2018.

4.3. Match score and tweeting before/during/after match

Analysis included influence of match result (winning, draw, or loosing) on the tweet volumes, too. Findings



(a) 2013 league



(b) 2018 league

Figure 3. Cumulative number of tweets per day.

Table 2. Tweet volume 3 h before, during, and 3 h after matches played by FB, GS, BJK, and TS.

Team	2013 league			2018 league		
	3 hrs before	During	3 hrs after	3 hrs before	During	3 hrs after
Besiktas	5649	1673	1182	261,262	31,992	53,459
Fenerbahce	36,426	5385	1085	242,317	37,109	66,947
Galatasaray	28,189	6145	1280	345,104	52,404	81,718
Trabzonspor	1312	281	131	71,759	,9082	13,468
Total	71,576	13,484	3678	920,442	130,587	215,592

Table 3. Number of team-based tweets before, during, after matches on occasions of won, lost, and draw.

	2013	2018	Periods of tweets	2013				2018			
				BJK	FB	GS	TS	BJK	FB	GS	TS
WON	67%	62%	Pre-Match	2588	20,989	23,013	473	160,296	110,266	269,559	21,450
			During-Match	741	3129	5360	88	19,551	18,707	41,244	2380
			Post-Match	734	788	1164	48	30,193	37,449	65,650	4183
LOST	26%	20%	Pre-Match	3033	9651	5118	834	53,332	63,741	46,336	22,086
			During-Match	875	1523	747	183	6786	9430	6762	3029
			Post-Match	433	231	107	81	9915	14,668	9271	3981
DRAW	8%	19%	Pre-Match	28	5786	58	5	47,634	68,310	29,209	28,223
			During-Match	57	733	38	10	5,655	8972	4398	3673
			Post-Match	15	66	9	2	13,351	14,830	6797	5304
				8504	42,896	35,614	1724	346,713	346,373	479,226	94,309

revealed if posting behaviour changed in relation to the match's end score (Table 3).

When it comes to the match score, matches that ended with a draw attracted the least amount of tweeting both in 2013 (8%) and 2018 (19%). Perhaps the more than double fold increase in volume should be further analysed even when the tie score is not inducing highest levels of tweeting, even not during the match when the score is yet uncertain and there is still hope for the favourite team to win. When looked into for more details where the most increase is present in the draw matches, it was revealed that post-match tweeting registered a dramatic increase from 2013 to 2018. This could perhaps be due to social media providing the grounds for a prolonged discussion about who the winner should have been as it recruits more users.

An interesting finding of our study was that pre-match tweeting volume was almost the crystal ball telling the signalling the match result, especially in those cases of winning, with an improved precision from 2013 to 2018. In 2013, only tweets about FB (20,989) and GS (23,013) were the highest during the pre-match when these teams won the matches they played. In 2018, however, three teams (BJK: 160,296; FB: 110,266; GS: 269,559) enjoyed highest pre-match tweet volumes in those matches that they have won afterwards. In other words, pre-match tweet volumes could be taught as a barometer of the match result to a certain extend. Tweets about TS were comparably low both in 2013 and 2018, and the win/lost/draw-based tweeting followed a unique pattern, too. Hence, it might be true that mainstream tweeting behaviour about football also has its exceptions when it comes to the score of the match. Yet, the more the fans virtually cheer before the match the higher the likelihood of the winning is an interesting proposal that can attract future research. In addition, higher tweeting pre-match when compared to during match could be the result of devoting attention to watching the match rather than engaging with social media. However, the dramatic drop in the post-match tweet volumes except for those about BJK suggests that attention – and

perhaps engagement – with the matches were readily consumed, without any prolonged interest.

4.3.1. Days of tweeting

Distribution of matches in a week was not homogeneous in 2013 (Figure 4(a,b)). Most matches were played on Sunday (31.5%) or Saturday (25.9%) with all teams having at least one match on each weekend day. Distribution of all matches was 42.6% and 57.4% between weekdays and weekend, respectively. However, 63.7% of all match-related tweets were posted during the weekdays, but only 36.3% on weekends (Table 4). Both watching football matches and social media engagement are considered leisurely activities often assumed to take place during the weekends. Contrary to common perception, weekend tweeting in 2013 was observed less even when the total number of matches organised during the weekends was higher.

In 2018, distribution of matches in a week was not homogeneous, neither (Figure 5(a,b)). Most matches were played on Sunday (38%) or Saturday (36.9%) with all teams having at least one match on each weekend day. Distribution of all matches was 25% and 75% between weekdays and weekend, respectively. Similar to 2013, 60.7% of all match-related tweets were posted during the weekdays, but only 39.3% were on weekends (Table 4). Despite the distribution of matches changing from 2013 to 2018, our results indicate similarities in terms of weekday and weekend tweet volume percentiles.

Day-by-day analysis of number of matches and tweet volume distribution reveals interesting findings (Table 4). There was a similar distribution of tweet volume distribution vs. number of match distribution on Mondays, Wednesdays, and Fridays in 2013. However, despite fewer matches were played on Tuesdays, volume of tweets increased. More interestingly, only GS played matches but there were tweets posted about all four teams on Tuesdays. On another note, Thursdays had a similar distribution of number of matches with the subsequent day (Wednesday), but the number of Tweets

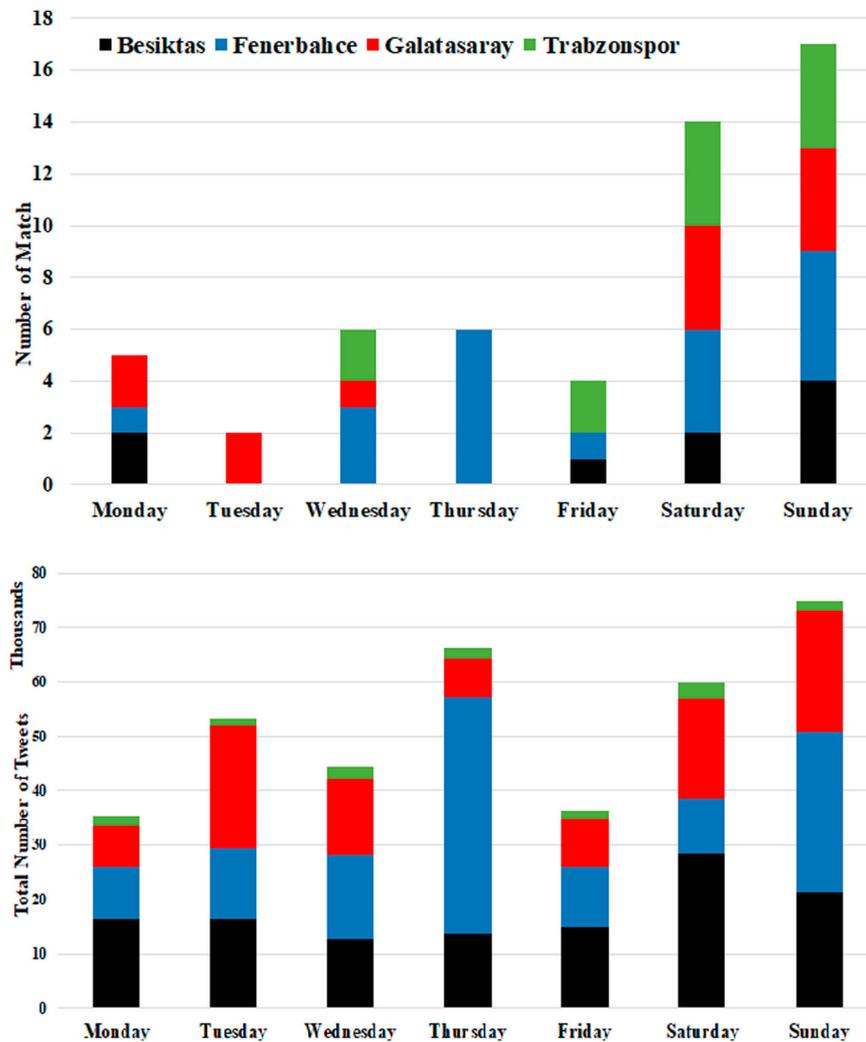


Figure 4. 2013: (a) Number of matches per week day and (b) total number of tweets per week day.

posted had increased. Only FB played matches on Thursdays but similar to Tuesdays, again all four team-based tweeting activities were increased on Thursdays. Starting with Saturday, weekend days were more popular for tweeting in line with more matches played. In a broader sense, tweeting on weekend days was inflated. Even at the absence of matches, some tweeting activity remained during the weekdays, too.

2018 involved an interesting allocation of match distribution, where there were no matches on three days of the week (Tuesday, Wednesday, and Thursday) at all. Interestingly, distribution of tweet volume on Sunday remained the same in 2013 and 2018. Moreover, lack of

match on Tuesday, Wednesday, and Thursday did not lead to lack of tweeting on these days.

4.3.2. Hours of tweeting

Analysis of the 2018 data indicated that there were some popular times during the day that attracted more tweeting (Figure 6). Mornings or mid-day were not popular times for individuals to post tweets about football. However, the prime time of tweet volume was captured around 18:00. Perhaps it is the after-work commuters that choose to post in these hours during the weekdays, yet the pattern for hourly distribution was again the same for weekends, too. Therefore, irrespective of the day of

Table 4. Distribution of match and tweet volume by week day.

Year		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2013	Dist of Match	9.3%	3.7%	11.1%	11.1%	7.4%	25.9%	31.5%
	Dist of Tweet volume	9.6%	14.4%	12.0%	17.9%	9.8%	16.1%	20.2%
2018	Dist of Match	16.7%	0.0%	0.0%	0.0%	8.3%	36.9%	38.1%
	Dist of Tweet volume	13.2%	11.4%	11.3%	12.4%	12.5%	18.9%	20.4%

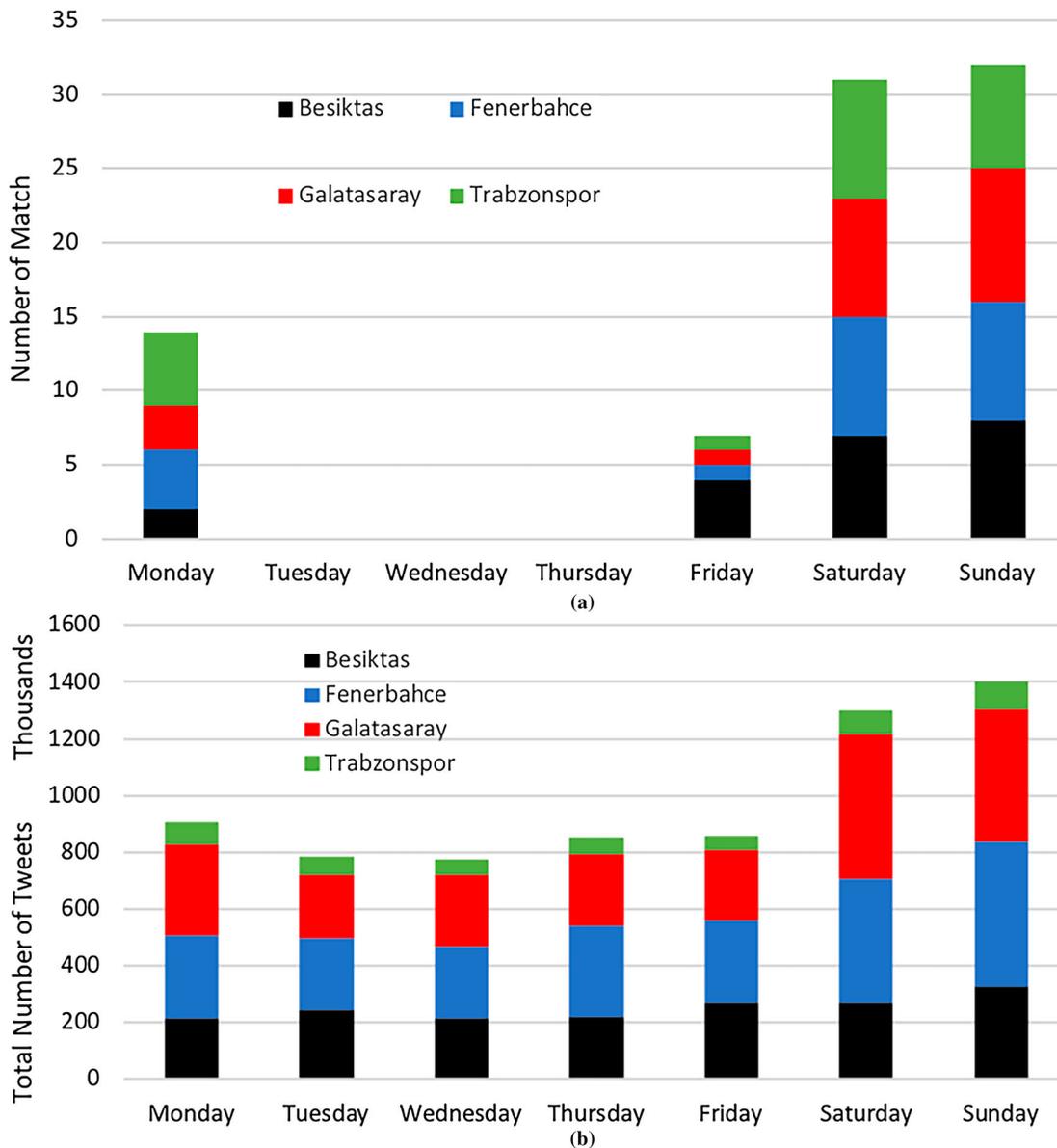


Figure 5. 2013: (a) Number of matches per week day and (b) total number of tweets per week day.

the week, football attracts tweets around 18:00 pm. Future social media marketing strategies related with football should consider the hours to facilitate engagement.

5. Discussion and conclusions

Both 2013 and 2018 leagues covered in this analysis ended by the championship of GS. However, contrary to common expectations, number of tweets about GS were not the highest in volume neither in 2013 nor in 2018. FB-related tweets were ranked first, even though it was the 1st runner-up. This finding suggests that *competence motivation* was observed around FB-related tweeting probably had more presence than the *relatedness motivation* observed around the league champion, GS-related

tweeting. The community built around the league champion to protect the group dynamics might have considered the *relatedness motivation* (Schachter 1959; Taylor et al. 2000; Griskevicius et al. 2006), while attaining and controlling resources for better results might have considered the *competence motivation* (Keltner, Gruenfeld, and Anderson 2003). Therefore, findings presented provide interesting insight in terms of developing social media strategies for champion team as well the runner teams. Building and retaining community could be a strategy in developing social media marketing for the champion, while attaining and controlling resources could be more appropriate for the runners.

There was an observed trend in tweet volumes with matches. Number of tweets about the football team increased whenever there was a match that it played,

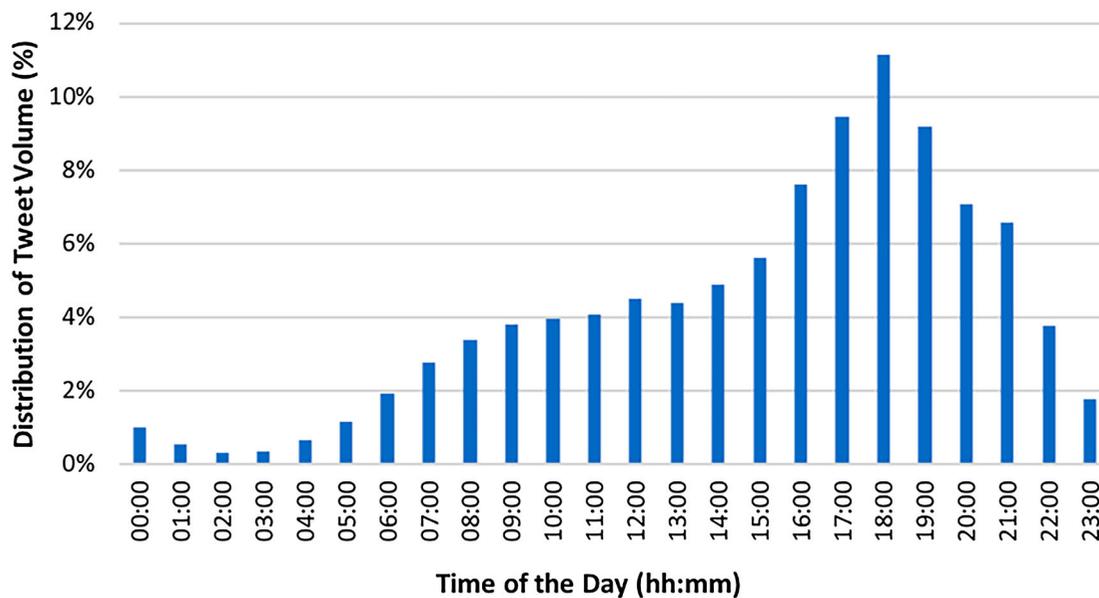


Figure 6. Distribution of tweet volume during the time of the day, 2018.

however the importance of the match was also a factor in determining the increase. As the match became more important, even when it was not a derby match, the tweet volume often enjoyed an increase. Therefore, the widespread observed practice of focusing only on derby matches for developing practice social media strategy could miss on major opportunities that could be captured in other matches.

The analysis in this paper showed that 81% and 73% of all tweets were posted within 3 h prior to matches in 2013 and 2018, respectively. Number of tweets increased to highest levels before the match in both years. In 2013, there was a step-wise decrease in tweet volumes to 15% during the match and 4% after the match. This structure changed into an inverted volume with tweet volumes of 10% during the match and 17% after the match in 2018. This shift towards higher distribution of tweets to after match indicates future possibilities for social media interaction design. Yet, still the most of the tweeting takes place before the match, where there is perhaps heightened excitement about the match to be played. Sports marketing strategies should consider this heightened tweeting behaviour prior to matches and develop tools to benefit from the readily engaging individuals in their social media activities. Most of the traditional mass media coverage is designed for those activities that are planned subsequent to the matches such as reviews of the critical moments in the game with focus on penalties and goal scores, and/or celebrations of the results. However, social media offers an alternative time window before the matches for developing rich interaction. Moreover, the spillover effect of traditional

mass media on social media was not yet present. Abundance of after match activities was still not reflected upon in tweeting.

Results of matches on the number of tweets posted were also analysed. Matches that ended with a draw attracted the least tweeting both in 2013 and 2018. The low tweeting surrounding the draw condition might be due to exclusion of both *relatedness* and *competence motivation*. When only those matches that were won are considered, in terms of number of tweets posted during the game, those tweets about GS (2013: 5360; 2018: 41,244) well exceeded all other team-based tweets. Championship is perhaps stimulating an extra tweet volume during the match as GS was the champion in both years. When we focus on the 1st runner-up, FB-related tweets presented a consistent volume independent of match results. Social media marketing should be tailor designed depending on the context of the sports activity as well as the unique characteristics of the fan interaction with the club for achieving its best possible results.

6. Contributions, limitations, and future research

Football in Turkey is important for the society as much as it is in Germany, Holland, Sweden, Spain, Brazil, and Argentina. Therefore, reflections of football on social media are representative in other contexts for other cultures and countries as well. Moreover, use of social media about sporting events is an emerging research topic in Europe while it has been developing in US for a few years now.

Earlier research (Argan et al. 2013) analysed Facebook as a social media for sport marketing, but did not extend its scope to Twitter. Indeed, Twitter has been gaining a momentum in attracting new users as well as more engagement from its existing users. Hence, this study is a frontier in investigating football-related tweeting behaviour in Turkey, which could be utilised in developing novel sport marketing strategies in the European football context.

Most of the previous studies focusing on (Baena 2016) online and mobile marketing strategies analyse survey data, which heavily relies on self-response bias. It is often difficult to reflect on past behaviour just by answering survey question since the context might also be a factor as well as recognition of precise information. This study, on the other hand, analysed real behavioural data since streamed tweets were collected at the time that they were posted. Moreover, a longitudinal approach was undertaken.

This study analysed retrieved data via Twitter Stream API, and has some related limitations. Twitter does not permit retrieval of all tweets, but instead allows streaming of only a small fraction of the total volume of Tweets at any given moment. In addition, there were some shortages faced in data collection, where server was down for several short periods during the 2018 data collection (1 March; 29 March–5 April; 8 April; 4–6 May 2018).

Future research should involve location-based analysis of social media engagement to better understand if the physical facilities such as stadiums or arenas could also be integrated in augmented reality designs. Moreover, novel approaches of visual analysis could provide useful insight into Instagram-based engagement factors. Jensen, Limbu, and Spong (2015) demonstrate that visual analytics gives a comprehensive view of sponsor by examining the images on Twitter. Using only text analysis skips most of the images about the sponsor hence misses the depth of engagement around images. In addition, analysed tweets involved content in Turkic language, which is spoken by more than 100 million people around the globe, presenting further challenges as an agglutinative language with limitations in running sentiment analysis. Future studies should focus both developing sentiment analysis and building prediction models with machine learning algorithms that may identify which kind(s) of tweets might be produced under which circumstances (days of the week, teams, victory/defeat/draw situations).

Notes

1. <http://www.bjk.com.tr/en>.
2. <http://www.fenerbahce.org/eng>.
3. <http://www.galatasaray.org>.
4. <http://www.trabzonspor.org/tr/en>.

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References

- Ahn, D., Y. Cheong, and K. Kim. 2013. "Exploring the Influence of Television Sport on Consumers' Attitudes Towards Programme-Embedded Advertising Using Motivational Responses Generated by the Game." *International Journal of Sports Marketing and Sponsorship* 14 (4): 67–83. doi:10.1108/IJMS-14-04-2013-B005.
- Alexa. 2016. <http://www.alexa.com/topsites/countries/TR>.
- Argan, M., M. T. Argan, H. Köse, and B. Gökalp. 2013. "Using Facebook as a Sport Marketing Tool: A Content Analysis on Turkish Soccer Clubs." *IUYD* 4 (1): 25–36. doi:10.5505/iuyd.2013.74046.
- Baena, V. N. 2016. "Online and Mobile Marketing Strategies as Drivers of Brand Love in Sports Teams: Findings from Real Madrid." *International Journal of Sports Marketing and Sponsorship* 17 (3): 202–218. doi:10.1108/IJMS-08-2016-015.
- Bal, C., P. Quester, and C. Plewa. 2009. "Event-related Emotions: A Key Metric to Assess Sponsorship Effectiveness." *Journal of Sponsorship* 2 (4): 367–378.
- Baumeister, R. F., and M. R. Leary. 1995. "The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation." *Psychological Bulletin* 117: 497–497.
- Bugental, D. B. 2000. "Acquisition of the Algorithms of Social Life: A Domain-based Approach." *Psychological Bulletin* 126 (2): 187–219.
- Çevik, M., S. Ozturkcan, and N. Kasap. 2015. "Social Media Analytics: Big Data Approach for Twitter." Paper presented at the 20th Marketing Congress, Eskisehir, Turkey.
- Eagleman, A. N. 2013. "Acceptance, Motivations, and Usage of Social Media as a Marketing Communications Tool Amongst Employees of Sport National Governing Bodies." *Sport Management Review* 16 (4): 488–497.
- Fan, W., and M. D. Gordon. 2014. "The Power of Social Media Analytics." *Communications of the ACM* 57 (6): 74–81. doi:10.1145/2602574.
- Filo, K., D. Lock, and A. Karg. 2015. "Sport and Social Media Research: A Review." *Sport Management Review* 18 (2): 166–181.
- Greenhalgh, G. P., and T. C. Greenwell. 2013. "Professional Niche Sports Sponsorship: An Investigation of Sponsorship Selection Criteria." *International Journal of Sports Marketing and Sponsorship* 14 (2): 2–19.
- Griskevicius, V., N. J. Goldstein, C. R. Mortensen, R. B. Cialdini, and D. T. Kenrick. 2006. "Going Along Versus Going Alone: When Fundamental Motives Facilitate Strategic (non) Conformity." *Journal of Personality and Social Psychology* 91 (2): 281–294.
- Hambrick, M. E. 2012. "Six Degrees of Information: Using Social Network Analysis to Explore the Spread of

- Information Within Sport Social Networks.” *International Journal of Sport Communication* 5 (1): 16–34.
- Ioakimidis, M. 2010. “Online Marketing of Professional Sports Clubs: Engaging Fans on a new Playing Field.” *International Journal of Sports Marketing and Sponsorship* 11 (4): 2–13.
- Jacobs, A. 2009. “The Pathologies of big Data.” *Communications of the ACM* 52 (8): 36–44. doi:10.1145/1536616.1536632.
- Jensen, R. W., Y. B. Limbu, and Y. Spong. 2015. “Visual Analytics of Twitter Conversations About Corporate Sponsors of FC Barcelona and Juventus at the 2015 UEFA Final.” *International Journal of Sports Marketing and Sponsorship* 16 (4): 3–9.
- Keltner, D., D. H. Gruenfeld, and C. Anderson. 2003. “Power, Approach, and Inhibition.” *Psychological Review* 110 (2): 265–284.
- Kenrick, D. T., N. P. Li, and J. Butner. 2003. “Dynamical Evolutionary Psychology: Individual Decision Rules and Emergent Social Norms.” *Psychological Review* 110: 3–28.
- KPMG. 2017. *Football Clubs’ Valuation: The European Elite 2017*. https://www.footballbenchmark.com/documents/files/public/KPMG_Football_Clubs_Valuation_Report_31_05_2017.pdf.
- KPMG. 2018. *The European Elite 2018: Football Clubs’ Valuation*. <https://assets.kpmg.com/content/dam/kpmg/hu/pdf/KPMG20Football20Clubs20Valuation202018%20WEB.pdf>.
- Özsoy, S. 2011. “Use of New Media by Turkish Fans in Sport Communication: Facebook and Twitter.” *Journal of Human Kinetics* 28: 165–176.
- Ozturkcan, S., N. Kasap, M. Çevik, and T. Zaman. 2017. “An Analysis of the Gezi Park Social Movement Tweets.” *Aslib Journal of Information Management* 69 (4): 426–440. doi:10.1108/AJIM-03-2017-0064.
- Parganas, P., C. Anagnostopoulos, and S. Chadwick. 2017. “Effects of Social Media Interactions on Brand Associations: A Comparative Study of Soccer fan Clubs.” *International Journal of Sports Marketing and Sponsorship* 18 (2): 149–165.
- Price, J., N. Farrington, and L. Hall. 2013. “Changing the Game? The Impact of Twitter on Relationships Between Football Clubs, Supporters and the Sports Media.” *Soccer and Society* 14 (4): 446–461.
- Provost, F., and T. Fawcett. 2013. *Data Science for Business: What You Need to Know About Data Mining and Data-Analytic Thinking*. CA: O’Reilly Media.
- Raney, A. A. 2006. “Why we Watch and Enjoy Mediated Sports.” In *Handbook of Sports and Media*, edited by A. A. Raney, and J. Bryant, 313–329. Mahwah, NJ: Erlbaum.
- Richter, F. 2013. <https://www.statista.com/chart/1642/regional-breakdown-of-twitter-users/>.
- Russell, M. A. 2013. *Mining the Social Web* (2nd ed.). CA: O’Reilly Media.
- Savage, N. 2011. “Twitter as Medium and Message.” *Communications of the ACM* 54 (3): 18–20. doi:10.1145/1897852.1897860.
- Schachter, S. 1959. *The Psychology of Affiliation: Experimental Studies of the Sources of Gregariousness*. Stanford, CA: Stanford University Press.
- Schaller, M., J. H. Park, and D. T. Kenrick. 2009. “Human Evolution and Social Cognition.” In *The Oxford Handbook of Evolutionary Psychology*, edited by R. I. M. Dunbar and L. Barrett, 491–504. Oxford: Oxford University Press.
- Smith, C. 2017. “388 Amazing Twitter Statistics and Facts.” <http://expandedramblings.com/index.php/march-2013-by-the-numbers-a-few-amazing-twitter-stats/>.
- Spangler, T. 2017. “Twitter Drives Strong User Growth in Q1, Beating Wall Street Financial Forecasts.” <http://variety.com/2017/digital/news/twitter-q1-user-growth-revenue-estimates-1202398986/>.
- Statista. 2017. “Number of Social Media Users Worldwide from 2010 to 2021.” <https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/>.
- Statista. 2018. “Number of Monthly Active Twitter Users Worldwide from 1st quarter 2010 to 2nd quarter 2018 (in millions).” <https://www.statista.com/statistics/282087/number-of-monthly-active-twitter-users/>.
- Taylor, S. E., L. C. Klein, B. P. Lewis, T. L. Gruenewald, R. A. Gurung, and J. A. Updegraff. 2000. “Biobehavioural Responses to Stress in Females: Tend-and-Befriend, Not Fight-or-Flight.” *Psychological Review* 107 (3): 411–429.
- Terekli, S., and H. O. Çobanoğlu. 2018. “Developing Economic Values in Football: Example of Turkish Football Federation.” *Open Access Library Journal* 5: e4263. doi:10.4236/oalib.1104263.
- Townsend, D., and G. Lovett. 2017. “Perspectives: The Case for Unified Sports Sponsorship Measurement.” <http://www.nielsen.com/us/en/insights/news/2017/perspectives-the-case-for-unified-sports-sponsorship-measurement.html>.
- Wann, D. L. 2001. *Sport Fans: The Psychology and Social Impact of Spectators*. New York, US: Routledge.