

# Examining fan engagement through social networking sites

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# Examining fan engagement through social networking sites

## Abstract

**Purpose** - This paper aims to conceptualize and measure the construct of fan engagement through social network sites (SNS), and to examine its role on subsequent online and offline behavioural intentions.

**Design/methodology/approach** – A multi-stage procedure was completed to validate the proposed fan engagement through SNS model with three first-order constructs (fan-to-fan relationships, team-to-fan relationships and fan co-creation). First, a preliminary analysis of the proposed items to capture fan engagement through SNS was conducted through expert review. Second, an assessment of item reliability and construct validity was completed using confirmatory factor analysis (CFA). Finally, CFA and subsequent structural equation model (SEM) were conducted to review the psychometric properties and to test the relationships between the proposed construct with online and offline behavioural intentions.

**Findings** – The results indicate good psychometric properties of the constructs of fan-to-fan relationships, team-to-fan relationships and fan co-creation, and these three constructs were significantly related with the second-order construct of fan engagement through SNS. Additionally, the construct of fan engagement through SNS was significantly related to both online and offline behavioural intentions.

**Implications** – These findings suggest that teams should use SNS to interact with fans, to allow fans to share experiences and to involve fans in co-creation processes aimed at increasing engagement and subsequent positive behavioural intentions towards the team.

**Originality/value** – This study extends previous research by measuring fan engagement through SNS as a multidimensional construct, and by testing its effect on fans' online and offline behavioural intentions. Several suggestions for future studies and strategies for increasing fan engagement can be drawn from this study.

1 **Keywords:** sport fans, engagement, social networking sites, behavioural intentions.

2 **Paper type:** research paper.

3

# 1                    **Examining fan engagement through social networking sites**

## 2   **Introduction**

3   Consumer engagement has received an increased amount of attention in the management  
4   literature (e.g. Brodie *et al.*, 2013; Verhoef *et al.*, 2010; Vivek *et al.*, 2012) due its role in  
5   establishing interactions between organizations and target consumers (van Doorn *et al.*,  
6   2010). These interactions can supply valuable information about consumers' expectations and  
7   needs (Hollebeek and Chen, 2014) and the recent growth of social networking sites (SNS;  
8   e.g., Facebook, Twitter, YouTube) provides an important opportunity to increase engagement  
9   with the organizations (Malthouse *et al.*, 2013; Vale and Fernandes, 2018). The development  
10   of SNS has influenced the way sport organizations relate with their consumers (Gummerus *et*  
11   *al.*, 2012) as these platforms offer sport fans a place where they can interact with their teams,  
12   other fans, and to share and generate content (Pegoraro and Jinnah, 2012). In line with this  
13   view, professional teams are increasingly developing online marketing strategies to interact  
14   directly with their fans (Pegoraro, 2010).

15            The growth of SNS has perhaps been most notable in the context of sport.

16   Approximately 1.6 billion individuals have Facebook profiles, and 500 million of these users  
17   are football fans (The Guardian, 2014). Also, a report from IMG Consulting (2014) noted that  
18   eight out of ten want to interact with sport brands. Pronschinske *et al.* (2012) noted that there  
19   are great benefits in the use SNS and suggested that sport teams should implement online  
20   marketing activities to enhance the relationships between teams and fans, and foster relational  
21   exchanges. Recent empirical studies have examined the role of online interactions on brand  
22   perceptions and the quality of interactions across SNS (Carlson and O'Cass, 2012), sport  
23   consumer behaviour in the online context (Filo *et al.*, 2009), and athletes' behaviour on  
24   Twitter to promote fan engagement (Pegoraro, 2010). Pronschinske *et al.* (2012) suggested  
25   that social media attributes tend to enhance fan engagement towards sport teams. Hur *et al.*

1 (2011) noted that fans' interaction with their teams via online platforms leads them to adopt  
2 various positive behaviours (e.g., buying products, obtaining information about the team or  
3 sharing opinions about players), while Ioakimidis (2010) examined the online information  
4 shared by the teams and its role on the effectiveness of online marketing strategies and  
5 followers' engagement. Despite the contribution of previous literature to understand aspects  
6 such as the quality of online channels, shared information or the predictive aspects leading  
7 fans to continue visiting online channels (Pronschinske *et al.*, 2012; Sashi, 2012; Uhrich,  
8 2014), there is a limited understanding and empirical research on how to conceptualize and  
9 measure fan engagement through SNS (Filo *et al.*, 2015). Also, most previous studies do not  
10 specifically consider fan engagement as a voluntary behaviour (Yoshida *et al.*, 2014) that  
11 may lead to positive responses towards the team in both online and offline contexts.

12         The consumer's interaction experience in virtual environments is as important as their  
13 offline experience with the product of a brand (Prahalad and Ramaswamy, 2004). Gibbs *et al.*  
14 (2014) suggested that sharing information via SNS tends to increase the use of these  
15 platforms by fans. Also, Ioakimidis (2010) proposed that fan interactions with the sport  
16 organization and/or other fans via SNS often contributes to strengthening their link with the  
17 team subsequently leading to improved behavioural intentions (Bruner and Kumar, 2000).  
18 Therefore, based on previous literature and remaining gaps, the purpose of this study is to  
19 propose and examine a scale to assess sport fan engagement through SNS. With the  
20 proliferation of SNS, understanding how to conceptualize fan engagement and its subsequent  
21 role is paramount for sport organizations. Also, this study examines the role of fan  
22 engagement on positive behavioural intentions towards the team that may help maximizing  
23 revenues (e.g., Biscaia *et al.*, 2013; Yoshida *et al.*, 2014). From a theoretical point of view,  
24 this study aims to contribute to a better understanding on how to assess fan engagement  
25 through SNS and its role on future behavioural intentions. From a practical perspective, the

1 knowledge derived from this study intends to provide sport managers with a framework to  
2 facilitate long-term relationships between sport organizations and their fans.

### 3 **Theoretical background**

4 Consumer engagement refers to "the intensity of an individual's participation in and  
5 connection with an organization's offerings or organizational activities, which either the  
6 customer or the organization initiates" (Vivek *et al.*, 2012, p. 133). It involves the connection  
7 that individuals develop with the organization, based on their experiences with the  
8 organization's offerings and activities, and the interactive and co-creative experiences with  
9 other consumers (Brodie *et al.*, 2011). That is, consumer engagement is not necessarily  
10 focused on the purchase of a product or service, but is more focused on the aspects that may  
11 influence decision-making related to purchasing (Vivek *et al.*, 2012). It is important to  
12 distinguish consumer engagement from other relational concepts within a broader network of  
13 service relationships (e.g., involvement, commitment or loyalty). Brodie *et al.* (2011) noted  
14 that consumer engagement is related to interactive and co-creative experiences, often being  
15 preceded by a certain degree of involvement (i.e. predisposition to interact with the  
16 organization; Zaichkowsky, 1985). The relational consequences of consumer engagement  
17 often include a stronger commitment (i.e., a desire to maintain the relationship with the  
18 organization; Morgan and Hunt, 1994) and increased loyalty (i.e., a strong internal  
19 disposition that reflects on consumers' regular positive behaviours towards the organization;  
20 Dwyer, 2011).

21 The constant and rapid evolution of digital media channels makes understanding how to  
22 measure consumer engagement paramount for sport organizations (Ioakimidis, 2010).

23 Previous research has suggested a set of attributes related to online platforms (e.g., feedback,  
24 user control, and interactivity) that increase consumers' engagement (O'Brien and Toms,  
25 2008). The development of SNS and their interactive nature have influenced consumers to

1 engage with organizations due to the potential to enhance relationships with other consumers  
2 (Sashi, 2012). In addition, the development of online platforms suggests a different marketing  
3 logic (Brodie *et al.*, 2013; Carlson and O’Cass, 2012). Strauss and Frost (2014) consider that  
4 the potential generated by user-friendly, fast and affordable access to digital information  
5 results in new business models and processes for distribution of the most effective products  
6 and services. Complementarily, the active behaviours of consumers regarding the  
7 development of products and services can benefit the activation of consumption (Carlson and  
8 O’Cass, 2012).

9 Online engagement tends to manifest as an active relationship with the brand (Mollen  
10 and Wilson, 2010), given that the interaction between consumers and organizations via SNS  
11 (Trainor *et al.*, 2014) allows consumers to have an active role during online experiences. The  
12 engagement in SNS may be a result of consumer experiences with a brand (consumer-to-  
13 brand) (Jurisic and Azevedo, 2011), value co-creation stimulated by the organization (Vargo  
14 *et al.*, 2008), and relationships shared by consumers of the same brand, product or service  
15 (consumer-to-consumer) (Johnson *et al.*, 2013). Therefore, a positive consumer experience  
16 with an organization may lead to an increased predisposition to share positive word-of-mouth  
17 about the brand, to invest time, energy and value in promoting the brand, to provide  
18 assistance in innovation processes of products and services, to repeat purchases, and to  
19 participate in value co-creation related to the organization (Hoyer *et al.*, 2010). Conversely,  
20 negative experiences with other consumers and/or brands may decrease consumer  
21 engagement prompting individuals to be less likely to adopt these positive behaviours  
22 towards the organization (Ashley *et al.*, 2011).

23 Dolan *et al.* (2016) further consider that social media engagement should capture  
24 consumer's behavioural manifestations on SNS platforms resulting from motivational drivers,  
25 while Vale and Fernandes (2018) highlights the need to further understand fan engagement



1 through SNS to increase the linkages between teams and fans. Overall, fan engagement has  
2 been suggested to have a positive impact on behavioural intentions towards the team  
3 (Yoshida *et al.*, 2014) in both online settings (Carlson and O’Cass, 2012) and offline settings  
4 (Lim and Lee, 2015). Thus, understanding how to measure consumer engagement through  
5 SNS is vital for sport organizations to provide a better experience for fans and thereby  
6 increasing their positive behaviours towards the organization (Yoshida *et al.*, 2014).

7

## 8 **Conceptualization of the model**

### 9 *Fan engagement through SNS*

10 The development and maintenance of a passionate group of fans is vital to the success of  
11 sport teams (Biscaia *et al.*, 2018), and fans are often not considered to be typical customers  
12 (McCarthy *et al.*, 2014). According to Robinson *et al.* (2005), fans do not merely watch and  
13 purchase, but rather they are enthusiastic devotees of a given sport team. They tend to reveal  
14 a strong sense of identification with their teams and commonly express it by the colours they  
15 wear, or by the stories and traditions of the team they identify with (Dixon, 2013; Foer, 2010,  
16 Kennedy and Kennedy, 2012). Also, fans have a strong commitment towards their team(s)  
17 (Funk and James, 2001) leading to different levels of engagement on SNS (Vale and  
18 Fernandes, 2018). Furthermore, research has suggested that highly engaged fans exhibit high  
19 attendance levels, recommend the team to others and purchase more merchandise (Hedlund,  
20 2014; McDonald, Karg, and Vocino, 2013).

21 Consumer engagement in the context of sports is closely associated with the  
22 development of new media, which has greatly affected the way sports organizations  
23 communicate with, and market to, their fans (Ioakimidis, 2010). SNS have provided  
24 increased opportunities for fans to become engaged via interaction with other fans, teams and  
25 athletes (Pegoraro and Jinnah, 2012), which may benefit both the organization and fans (de

1 Ruyter and Wetzels, 2000) through transactional and non-transactional exchanges (Yoshida  
2 *et al.*, 2014).

3 Yoshida and colleagues (2014) proposed a typology of fan engagement focused on two  
4 axes. The first axis refers to fans' in-role behaviours (i.e., self-interest in attending, watching,  
5 and reading news about a sport team), and fans' extra-role behaviours (i.e., behaviours  
6 directed toward a sport team and other fans based on a moral obligation as a fan). The second  
7 axis refers to consumer activity related with transactional (e.g., repurchase behaviour, media  
8 consumption, merchandising, and relationship equity), and non-transactional behaviours  
9 (e.g., interactions with other fans and organizations). Consequently, Yoshida *et al.* (2014)  
10 define fan engagement as a consumer's spontaneous, interactive, and co-creative behaviours  
11 with the sport organization and/or other consumers to achieve individual or social purposes.  
12 Yet, the study developed by Yoshida *et al.* (2014) was not designed to capture fan  
13 engagement in the online context, which represents an important vehicle for sport  
14 organizations to interact with their fans (Filo *et al.*, 2015). For the purposes of this study, fan  
15 engagement is framed as an extra-role in non-transactional behaviours, and refers to the fan  
16 experiences with the team, the value co-creation stimulated by the team, and the relationship  
17 shared with fans of the same team within the online context. Thus, we propose a  
18 conceptualization of fan engagement through SNS that includes three components: fan-to-fan  
19 relationship (i.e., interactions among fans who share a common interest with the team; Chan  
20 and Li, 2010), team-to-fan relationship (i.e., fans' behaviours arising from the actions of the  
21 team; Ahn *et al.*, 2014) and fan co-creation (i.e., interactions among fans aimed at increasing  
22 the value of the team for them; Uhrich, 2014).

23 *Fan-to-fan relationship.* Previous studies define consumer-to-consumer relationship as an  
24 interaction between consumers that enhances one's welfare, by providing aid or benefit,  
25 usually with little or no commensurate reward in return (Thompson *et al.*, 2016). This

1 relationship has become increasingly effective due the fast and progressive development of  
2 SNS platforms (Chan and Li, 2010). Therefore, for the purposes of this study, fan-to-fan  
3 relationship is defined as the interaction between two or more fans via the official team SNS  
4 platforms. These interactions involve reciprocal behaviours between fans through SNS  
5 platforms (e.g., communicating and sharing information, helping other fans when buying  
6 products, or providing instructions on how to use a particular service) (Johnson *et al.*, 2013)  
7 and, as such, tend to contribute to the success of sport organizations (Bartikowski and Walsh,  
8 2011).

9 *Team-to-fan relationship.* The interaction between teams and fans represents an opportunity  
10 to create a connection with consumers through unique synergies, and to increase positive  
11 behaviours toward the organization (Dick and Basu, 1994; Oliver, 1999). These interactions,  
12 facilitated by SNS, may help organizations to understand the best tools for maintaining a  
13 relationship with consumers (Sashi, 2012). In this study, the concept of team-to-fan  
14 relationship in SNS is linked to an interactive relationship created by the team aimed at  
15 building a long-term relationship with fans (Hsiao *et al.*, 2015). Ahn *et al.* (2014) further  
16 propose that professional sport organizations should increasingly focus on creating dynamic  
17 SNS (e.g., relevant information, improved design and entertainment possibilities) to drive  
18 traffic and to maintain a strong interactive relationship with their fans. One of the biggest  
19 challenges faced by the teams is managing the network of team-to-fan relationships while  
20 understanding customers' wants and delivering on their expectations (Ambler, 1997).

21 *Fan co-creation.* Fan co-creation can be defined as the benefits realized from the integration  
22 of resources through interactions with other fans (Uhrich, 2014). Previous studies indicate  
23 that SNS have facilitated consumer co-creation (Etgar, 2008), while also allowing fans to  
24 reach and to be reached by others almost anywhere, at any time (Uhrich, 2014). This  
25 reinforces the need for teams to create an environment that allows fans to actively interact

1 with each other, to build personalized and positive experiences, and to strengthen their  
2 relationships with the organization (Kristensson *et al.*, 2004). In this study, fan co-creation  
3 represents an important component of engagement via SNS. It refers to fans' behaviour  
4 through SNS that resonate in sharing content, impressions and experiences with the team and  
5 other supporters (Uhrich, 2014; Yoshida *et al.*, 2014). This often generates unique  
6 experiences (Hedlund *et al.*, 2018), and consumers who participate in co-creation processes  
7 tend to be more engaged with organizations (Lusch and Vargo, 2006; Hoyer *et al.*, 2010).

8 On the basis of previous literature, the interactive processes of fans sharing personal  
9 experiences, the online interactivity created by the teams, and fans' co-creation behaviours in  
10 online settings (Brodie *et al.*, 2013, Ioakimidis, 2010, Yoshida *et al.*, 2014) are critical  
11 aspects to understand fan engagement through SNS. To this end, fan-to-fan relationship,  
12 team-to-fan relationship and fan co-creation represent the basis of the proposed model of fan  
13 engagement through SNS.

14

## 15 **Method**

16 This research was completed through a multi-stage procedure adapted from Churchill (1979).  
17 First, a preliminary analysis of the proposed items and content validity of the construct of fan  
18 engagement through SNS was conducted through expert review. In the second stage, two  
19 steps were implemented. In step 1, an empirical assessment of the proposed scale was  
20 conducted through confirmatory factor analysis (CFA). In step 2, a CFA using a different  
21 sample was conducted to confirm the refined model, and a subsequent structural equation  
22 model (SEM) was carried out to test the role of fan engagement through SNS on their  
23 behavioural intentions.

24

25 *Preliminary analysis*

1 Based on previous research, an initial pool of 12 items was generated to assess the three  
2 proposed components of fan engagement through SNS (fan-to-fan relationship, team-to-fan  
3 relationship, and fan co-creation). All items included in the model were adapted from the  
4 literature to better fit with the SNS context. The construct of fan-to-fan relationship included  
5 four items adapted from Chan and Li (2010). These items refer to communicating and sharing  
6 information, helping other fans buying products and providing instructions on how to use a  
7 particular service of the team in the online context. Four items adapted from Ahn and  
8 colleagues (2014) were chosen to measure the construct of team-to-fan relationship. These  
9 items captured fans' perceptions of how teams share relevant information, as well as the  
10 improved design and entertainment possibilities created by the team through SNS. Lastly, the  
11 construct of fan co-creation included four items based on Uhrich (2014). These items refer to  
12 fan co-creation behaviours towards the team through posting contents on SNS aiming to  
13 show superiority and dissemination of team history. All items were measured using a 7-point  
14 Likert-type scale ranging from “strongly disagree” (1) to “strongly agree” (7).

15 The items were translated into Portuguese and back-translated into English to minimize  
16 discrepancies between the original items and the translated version (Banville *et al.*, 2000).  
17 Next, a panel of three experts (sports management scholars) assessed the content validity of  
18 the items based on relevance and clarity of wording and content. At this point, the experts  
19 recommended all items to be maintained but to change the wording of eight of the 12 items to  
20 increase clarity or meaning. These recommendations were accepted, changes made and,  
21 subsequently, the 12 items proposed to assess the fan engagement through SNS were  
22 randomized and placed into questionnaire format to examine the reliability of the resulting  
23 instrument (see Appendix).

24 *Step 1: Empirical assessment of the proposed scale*

25 *Procedures and Sample*

1 To establish the reliability of the scales, the proposed items of fan-to-fan relationship,  
2 team-to-fan relationship, fan co-creation and behavioural intentions were tested in a pilot  
3 study. Data were collected during one week through an online questionnaire that was sent to  
4 400 randomly selected students from a mid-sized Portuguese University. To ensure that each  
5 participant answered only once, the IP addresses and emails were recorded in the database  
6 and further access from these addresses was denied resulting in a total of 190 responses. The  
7 option for collecting data online was based on the advantages and logistical constraints  
8 highlighted in prior studies such as reduced overall costs, improved aesthetic and design  
9 capabilities (e.g., Wright, 2005). In addition, University students represent an important  
10 segment of SNS consumers and its use is consistent with previous sport management  
11 literature (e.g., Arai *et al.*, 2013; Hedlund, 2014). Questionnaires from individuals who  
12 indicated in their responses not to follow their team's official SNS, incomplete questionnaires  
13 and the ones that contained 8 or more consecutive answers on the same scale number were  
14 excluded leaving 139 useable questionnaire responses for data analysis.

15 Although the sample size may seem small, the rule of thumb of at least 200  
16 observations is conservative and simplistic (Wolf *et al.*, 2013). Also, there is no absolute  
17 standard of an adequate sample size and no rule that applies to all situations (Wang and  
18 Wang, 2012). After using a power analysis with an anticipated effect size of .20 at a  
19 probability level of .05 and at a statistical power level of .80 (Westland, 2010), the  
20 researchers concluded that a minimum of 69 respondents was required. Thus, the current  
21 sample was deemed suitable for this step of the study. The majority of the respondents were  
22 male (84.2%), with the age of respondents ranging from 18 to 36 years old. More than half  
23 (62.1%) of the participants reported to have visited the official SNS of their teams at least  
24 once a day, for an average time 30 minutes per visit. The most popular official SNS for teams  
25 was Facebook (92.1%), followed by YouTube (51.8%). The most popular devices used to

1 access the team's SNS were notebooks (86.3%) and smartphones (73.4%). In terms of  
2 location, most respondents indicated they accessed team SNS from their homes (96.4%).

### 3 *Data analysis*

4 Data were analysed using AMOS 20.0 (SPSS Inc, Chicago, IL), and a CFA was  
5 conducted. Given that an 'a priori' theoretical structure of fan engagement through SNS  
6 construct was proposed, there were no requirements for an exploratory factor analysis  
7 (Bollen, 1998; Marôco, 2010). To evaluate whether the questionnaire items were close  
8 enough to normal distribution, skewness, kurtosis and Mahalanobis distance were tested  
9 (Bagozzi and Yi, 1988). A good fit of the model was assumed when the ratio of the  $\chi^2$  (chi-  
10 square) to its degrees of freedom was below 3.0 (Hair *et al.*, 2009), the CFI (comparative-of-  
11 fit-index), GFI (goodness-of-fit-index) and the TLI (Tucker-Lewis Index) were larger than .90  
12 (Hair *et al.*, 2009), and the RMSEA (root mean square error of approximation) value was  
13 below the minimum cut-off of .07 (Byrne, 2000). Internal consistency was estimated through  
14 composite reliability, and values above .70 were indicative of good internal consistency (Hair  
15 *et al.*, 2009). Convergent validity was evaluated through the average variance extracted  
16 (AVE), and values greater than .50 were considered indicative of good convergent validity  
17 (Fornell and Larcker, 1981). Additionally, discriminant validity was accepted when the AVE  
18 of each construct was greater than the squared multiple correlation between that construct and  
19 any other (Fornell and Larcker, 1981).

### 20 *Step 2: Assessment of fan engagement through SNS and its predictive validity*

#### 21 *Procedures and Sample*

22 In this step, the online questionnaire that resulted from step 1 was utilized, and additional  
23 measures of online and offline behavioural intentions were added to examine the predictive  
24 role of the proposed construct of fan engagement through SNS. The construct of online  
25 behavioural intentions included four items adapted from Carlson and O'Cass (2012) and Trail

1 *et al.* (2005). These items were related to fans' intentions to continue supporting the team,  
2 revisiting and recommending the team's SNS. In turn, the construct of offline behavioural  
3 intentions included three items adapted from Biscaia *et al.* (2013) to capture fan's intentions  
4 to attend live games and recommend them to others. These items were measured on a 7-point  
5 Likert-type scale, ranging from "not likely at all" (1) to "extreme likely" (7).

6 Researchers commonly agree that common method variance (CMV) is a potentially  
7 serious biasing threat in behavioural research, especially with single-informant surveys  
8 (Rodríguez-Pinto *et al.*, 2011). Following Podsakoff *et al.* (2003), procedural remedies were  
9 adopted by protecting respondent anonymity, improving item wording and separating the  
10 measurement of the predictor (i.e., items of fan engagement through SNS) and criterion  
11 variables (i.e., online and offline behavioural intentions). In addition, statistical resources  
12 were used to ensure convergent validity, discriminant validity, internal consistency of the  
13 items, and identify potential outliers (Byrne, 2000; Hair *et al.*, 2009; Fornell and Larcker,  
14 1981).

15 At this stage, data were collected from fans of one of the 'big three' Portuguese football  
16 professional teams that was ranked as the 36<sup>th</sup> best team in European football in the 2014-  
17 2015 season (FIFA, 2015). Through a partnership with the marketing department, a link to  
18 the questionnaire was posted on the team's official Facebook page inviting fans to participate  
19 in the study. Data were collected right after the end of the regular season for three  
20 consecutive days, resulting in a total of 509 questionnaires submitted. Questionnaires from  
21 participants under 16 years-old were eliminated. The remaining criteria for participant  
22 selection were similar to step 1 resulting in a total of 425 useable questionnaire responses.

23 The respondents were mainly males (86.4%) and ranged from 16 to 67 years old, with  
24 the majority (51%) in the 20-29 age bracket. More than three quarters (82.6%) of the  
25 respondents accessed the team's SNS daily for an average time of 30 minutes per visit.



1 Facebook (98.4%) was the most visited official SNS platform of the team. Respondents  
2 accessed SNS platforms predominately on mobile devices, with smartphones (83.1%) and  
3 notebooks (81.2%) being the dominating devices. Almost all participants reported that they  
4 access the team SNS platforms from home (98.8%).

#### 5 *Data analysis*

6 A CFA was first performed to confirm the proposed structure of fan engagement  
7 through SNS as described in step 1. Thereafter, a two-step maximum likelihood SEM was  
8 performed to verify the predictive role of the proposed scale on both online and offline  
9 behavioural intentions. In addition, both first-order and second-order structural models were  
10 tested to help at better understand the concept of fan engagement through SNS and its  
11 relationships with fans' behavioural intentions. We followed the procedures adopted by  
12 Cronin *et al.* (2000) and compared model fit, AIC and ECVI values, R<sup>2</sup>-values, and  $\chi^2$   
13 difference tests to compare the first and the second-order models. Each model was tested  
14 using the entire sample (n=425).

15

## 16 **Results**

### 17 *Step 1: Empirical assessment of the proposed scale*

18 In this study, we tested the construct validity of the first-order measurement model (i.e., fan-  
19 to-fan relationship, team-to-fan relationship and fan co-creation) and then the second-order  
20 measurement model. One of the items of fan co-creation showed a kurtosis value above the  
21 threshold of 7.0. Due to the empirical nature of this step (Churchill, 1979; Yoshida and  
22 James, 2011), the item was eliminated from the instrument (Kline, 1998) leaving 11 items for  
23 further analysis (see appendix). The remaining questionnaire items did not represent non-  
24 normality problems with skewness values ranging from -.84 to .64 and kurtosis values  
25 ranging from -1.19 to .39, and therefore these were retained. Mahalanobis distance results did

1 not point to violations of this assumption as all values were between 32.58 and 7.91 ( $p > .05$ )  
2 (Bagozzi and Yi, 1988). The  $Z$ -values ranged from 8.10 to 12.41 indicating that each item did  
3 load significantly on its constructs (see Appendix). Following this scale purification, the final  
4 instrument included a total of 11 items to measure fan engagement through SNS and further  
5 analysis was conducted. The results of CFA for the first-order measurement model  
6 [ $\chi^2(41)=53.66$  ( $p < .08$ );  $\chi^2/df=1.30$ ; CFI=.98; GFI=.93; TLI=.97; RMSEA=.04] indicated a  
7 good fit to the data. The  $\chi^2$  statistic was not significant and the ratio of  $\chi^2$  to its degree of  
8 freedom was within the usually accepted range of 3.0. Also, the CFI, GFI and TLI values  
9 were greater than the .90 criteria for good fit (Hair *et al.*, 2009). Furthermore, the RMSEA  
10 was indicative of good fit (Byrne, 2000).

11 As shown in Table 1, the factor loadings ranged from .65 to .88. The internal  
12 consistency of the measures was accepted as the composite reliability values ranged from .84  
13 (fan-to-fan relationship and fan co-creation) to .88 (team-to-fan relationship). The AVE  
14 values ranged from .58 (fan-to-fan relationship) to .64 (team-to-fan relationship and fan co-  
15 creation) indicating good convergent validity for all constructs. In addition, none of the  
16 squared correlations exceeded the AVE values for each associated construct, and thus,  
17 discriminant validity was accepted (Fornell and Larcker, 1981).

18 [Insert Table 1 around here]

19 The goodness-of-fit indices produced for the CFA of the second-order measurement  
20 model were similar to the ones for the first-order measurement model, also indicating a good  
21 fit to the data [ $\chi^2(41)=53.66$  ( $p < .08$ );  $\chi^2/df=1.30$ ; CFI=.98; GFI=.93; TLI=.97;  
22 RMSEA=.04]. The inspection of path coefficients indicates that all first-order constructs (fan-  
23 to-fan-relationship, team-to-fan relationship and fan co-creation) were significantly related ( $p$   
24  $< .01$ ) with the second-order construct (fan engagement through SNS), ranging from .58  
25 (team-to-fan relationship) to .87 (fan-to-fan relationship). In addition, the values of composite

1 reliability (CR=.81) and average variance extracted (AVE=.59) were indicative of internal  
2 consistency and convergent validity, respectively, for the second-order construct. A  
3 subsequent inspection of the Akaike Information Criterion (AIC) and the Expected Cross-  
4 Validation Index (ECVI) also indicated similar values for the first-order and second-order  
5 measurement models (AIC=103.66, ECVI=.75). Theoretical considerations should represent  
6 the basis when selecting competing models for the same data (Marôco, 2010). In the current  
7 study, considering it was a first attempt to conceptualize fan engagement through SNS, and  
8 that both models showed good and similar fit indices, the subsequent step aimed at testing  
9 structural relationships also included a comparison of the first-order and second-order  
10 measurement models.

11 *Step 2: Assessment of fan engagement through SNS and its predictive validity*

12 Similar to step 1, the construct validity was measured for both the first-order measurement  
13 model and then the second-order measurement model. The results of CFA for the first-order  
14 measurement model [ $\chi^2(41)=116.94$  ( $p < .01$ );  $\chi^2/df=2.85$ ; CFI=.96; GFI=.95; TLI=.95;  
15 RMSEA=.06] indicated a good fit to the data. The skewness values of the items ranged from  
16 -.99 to .20, kurtosis values ranged from -1.39 to .93, and Mahalanobis distance indicated its  
17 appropriateness for further analyses with values between 52.90 and 14.37 ( $p>.05$ ) (Bagozzi  
18 and Yi, 1988). The Z-value ranged from 14.43 to 21.22 indicating that all items did load  
19 significantly on its constructs. As reported in Table 2, the factor loadings for each construct  
20 of fan engagement through SNS ranged from .67 to .87. The composite reliability values  
21 ranged from .79 (fan co-creation) to .89 (team-to-fan relationship) and the AVE values  
22 ranged from .56 (fan co-creation) to .67 (team-to-fan relationship) indicating good internal  
23 consistency and convergent validity, respectively. Additionally, no correlations failed the  
24 AVE test of discriminant validity (Fornell and Larcker, 1981). Detailed item statistics are  
25 shown in the Appendix.

1 As for the first-order measurement model, the goodness-of-fit [ $\chi^2(41)=116.94$  ( $p < .01$ );  
2  $\chi^2/df=2.85$ ; CFI=.96; GFI=.95; TLI=.95; RMSEA=.06] produced for the second-order model  
3 indicated a good fit to the data. The path coefficients for fan-to-fan relationship ( $\gamma=.90$ ),  
4 team-to-fan relationship ( $\gamma=.49$ ) and fan co-creation ( $\gamma=.73$ ) all showed a significant  
5 relationship with fan engagement through SNS. Furthermore, internal consistency (CR=.76)  
6 and convergent validity (AVE=.53) were accepted for fan engagement through SNS. In  
7 addition, the AIC and the ECVI values were similar (AIC=168.35, ECVI=.39).

8 [Insert Table 2 around here]

9 *Predictive validity.* The measurement model including the first-order constructs of fan  
10 engagement through SNS and both online and offline behavioural intentions was examined to  
11 examine the psychometric properties. The goodness-of-fit indices indicated that the model  
12 showed an acceptable fit to the data [ $\chi^2(125)=285.81$  ( $p < .01$ ),  $\chi^2/df=2.11$ , CFI=.96,  
13 GFI=.94, TLI=.95, RMSEA=.05]. Composite reliability values for online behavioural  
14 intentions (.84) and offline behavioural intentions (.75) indicated good internal consistency,  
15 and convergent validity was accepted with AVE=.57 and AVE=.51, respectively. The AVE  
16 for both constructs was greater than the square correlation between them (.47). Similarly, the  
17 squared correlation between the constructs of both online and offline behavioural intentions  
18 and all constructs of fan engagement through SNS were indicative of discriminant validity  
19 (Fornell and Larcker, 1981).

20 Next, the comparison of the first-order structural model [ $\chi^2(129)=575.68$ ; ( $p < .01$ ),  
21  $\chi^2/df=4.46$ , CFI=.87, GFI=.88, TLI=.84, RMSEA=.08] and the second order structural model  
22 [ $\chi^2(130)=361.22$  ( $p < .01$ ),  $\chi^2/df=2.77$ , CFI=.93, GFI=.92, TLI=.92, RMSEA=.06]  
23 demonstrate a better fit for the later. Also, the  $\chi^2$  statistic revealed that these models were  
24 significantly different from one another [ $\Delta\chi^2(1)=214.46$ ;  $p < .01$ ]. Similarly, the AIC and  
25 ECVI values for the first-order structural model (AIC=659.68 and ECVI=1.55) and for the

1 second-order structural model (AIC=443.22 and ECVI=1.04) suggested the later to be more  
2 appropriate. Furthermore, the analysis of the path coefficients for both models (see Figure 1)  
3 indicate that the paths were all significant for both models. The second-order construct of fan  
4 engagement accounted for approximately 33% of the variance of online behavioural  
5 intentions ( $R^2=.33$ ) and 19% of the variance of offline behavioural intentions ( $R^2=.19$ ). In  
6 turn, the three first-order constructs all together only accounted for approximately 14% of the  
7 variance of online behavioural intentions ( $R^2=.14$ ) and 8% of the variance of offline  
8 behavioural intentions ( $R^2=.08$ ). From a statistical point a view, considering the results of  
9 steps 1 and 2, the second-order measurement was deemed to be more appropriate; yet, the  
10 results of the first-order model offer interesting theoretical and practical insights.

11 [Insert Figure 1 around here]

12

### 13 **Discussion and Implications**

14 The purpose of this study was to conceptualize and measure the construct of fan engagement  
15 through SNS. This study extends and contributes to the sport management literature by  
16 proposing and empirically examining a scale of fan engagement through SNS and testing its  
17 predictive effect on fans' behavioural intentions in both online and offline settings. In  
18 addition, the current study provides a number of managerial implications for sport managers  
19 involved in strategic decisions related to SNS.

20 The results of this study indicate that fan engagement through SNS could be measured  
21 as a second-order construct including the components of fan-to-fan relationship, team-to-fan  
22 relationship and fan co-creation. In addition, the examination of the first-order model  
23 contributed to develop an understanding of how each of the three components relates to  
24 online and offline sport consumption behaviours. These findings are consistent with previous  
25 studies in the sport scenario suggesting a multidimensional structure to measure fan

1 engagement (Yoshida *et al.*, 2014). Also, these findings provide empirical evidence that fan  
2 engagement through SNS is an interactive process, based on sharing personal experiences  
3 and influencing others, on interactivity created by the team in the SNS, and fans' co-creation  
4 behaviours that may aid to promote positive behaviours toward the teams in the SNS context  
5 (Brodie *et al.*, 2013).

6         The fan-to-fan relationship was identified as a component of fan engagement through  
7 SNS, and Johnson *et al.* (2013) indicated that when fans identify with a team, their  
8 relationship with other fans tends to lead to a sense of responsibility towards these fans. This  
9 is consistent with the idea of SNS having a critical role on transactions between fans within  
10 the sport context (Ahn *et al.*, 2014; Carlson and O’Cass, 2012; Filo *et al.*, 2015). Thus, the  
11 development of relationships among fans may promote engagement with their teams and  
12 reinforce reciprocity and interaction. As noted by Chan and Li (2010), fan-to-fan  
13 relationships in the SNS context may be associated with the development of reciprocal  
14 interactions, since fans who connect and help each other tend to optimize their time, reduce  
15 their effort, and increase their engagement with teams online (Thompson *et al.*, 2016).  
16 Accordingly, teams should boost certain features in their online platforms (e.g., sharing  
17 content about the pride of being a fan, or the importance to interact with other fans) to create  
18 social bonds between fans and allowing mutual support (Chan and Li, 2010). Teams should  
19 not just simply create opportunities for interaction, but also develop tools to increase the  
20 effectiveness of these interactions, as bonds between fans are fundamental for the continued  
21 relationship with the team (Hedlund, 2014; Yoshida *et al.*, 2015).

22         The results of the model presented herein also illustrate that the team-to-fan  
23 relationship is an important component of fan engagement through SNS. It means that SNS  
24 represent an important entertainment tool available for fans that contributes for enhancing  
25 their interaction and knowledge of the team (Filo *et al.*, 2015). Previous studies indicated that

1 the interactivity promoted by teams in online platforms could lead fans to have positive  
2 experiences (Hwang and McMillan, 2002). Consequently, such experiences of entertainment  
3 and information provision may increase fan engagement (Ahn *et al.*, 2014). Also, the  
4 interactivity created through SNS tends to strengthen the sense of belonging to a community  
5 (Habibi *et al.*, 2014). Therefore, teams should develop user-friendly platforms and/or use  
6 existing features of SNS to leverage entertainment and information opportunities. For  
7 example, by sharing real-time information, showing behind-the-scenes photos and videos of  
8 the team and players, providing opportunities for gamification, launching announcements of  
9 new signings or squad line-ups, and promoting team-related contests, managers may  
10 positively influence fans' opinions about the online channels and increase their levels of  
11 engagement (Ahn *et al.*, 2014). For example, the team involved in this study, after the data  
12 was collected, launched a campaign in its official Facebook page asking fans to vote for their  
13 favourite team blog (Sporting, 2015). The goal was to identify other relevant online platforms  
14 used by fans and to better understand how to promote fan interactions. In another example,  
15 Manchester United has developed a system that allows fans to view all content produced and  
16 shared by the team through different SNS (e.g., Facebook, Twitter, Instagram, Google+) in  
17 one single platform (DigitalSport, 2015) with the goal of facilitating fans' connections.

18 The results also indicate that fan co-creation is an important component of fan  
19 engagement. This finding is consistent with previous studies highlighting the importance of  
20 co-creation in sport environments (e.g., Biscaia *et al.*, 2012; Hedlund, 2014; Hedlund *et al.*,  
21 2018), and suggests that teams need to promote opportunities for fans to get involved in co-  
22 creating value through interactive practices (e.g., posting, sharing and dissemination of  
23 content, information, rituals and traditions of the team) (Chan and Li, 2010; Uhrich, 2014).  
24 Vernet and Hamdi-Kidar (2013) noted that the massive use of the Internet, and the  
25 development of interactive platforms offer the potential to co-create consumer services. Fans

1 committed to sharing content and experiences with the team and other fans (e.g., photos and  
2 videos to promote songs and knowledge of the team) often allow value creation for the team  
3 (Uhrich, 2014). Thus, sport organizations must ensure that fans perceive the benefits of their  
4 participation for both themselves and the team (Sawhney and Prandelli, 2000). An example  
5 of fan co-creation was the interaction created by AS Roma through an online platform that  
6 gave fans the opportunity to provide input into the redesign of the team's website after it was  
7 considered as one of the worst websites among the teams playing the UEFA Champions  
8 League (Sporttechie, 2015). When reciprocal behaviours are established, and interactivity  
9 occurs, fan engagement in the online environment should increase (Pronschinske *et al.*, 2012;  
10 Sawhney *et al.*, 2005).

11 The result of the structural equation analysis revealed that the second-order construct of  
12 fan engagement through SNS construct was a positive predictor of both online and offline  
13 behavioural intentions. Similarly, individual dimensions of fan engagement through SNS also  
14 showed significant relationships with fans' behavioural intentions in online and offline  
15 settings, but recommendations solely based on these individual dimensions should be taken  
16 with caution given that the analysis of the path coefficients indicates low effect sizes. Taken  
17 together, fan-to-fan relationship, team-to-fan relationship and fan co-creation all contribute to  
18 multidimensional construct of fan engagement through SNS that influence fans' subsequent  
19 behavioural intentions towards the team. This is consistent with previous research suggesting  
20 that consumers with higher levels of engagement through SNS are more willing to adopt  
21 behaviours that benefit organizations (Brodie *et al.*, 2011; Yoshida *et al.*, 2014). A study  
22 conducted by Catalyst (2013) reported that nearly 70% of fans that engage with or follow  
23 brands and sports organizations on SNS are willing to purchase, comment or share team's  
24 content. In the current study, fan-to-fan relationship, team-to-fan relationship and fan co-  
25 creation were all significantly related to positive online behavioural intentions. Therefore,



1 one may argue that the more a fan is engaged with the team via SNS, the more he/she will be  
2 willing to revisit the team's SNS, to support the team by engaging in positive word-of-mouth  
3 and to recommend the SNS to others. Even though through a low magnitude, team-to-fan  
4 relationship and fan co-creation were positive predictors of offline behavioural intentions.  
5 This means that interactions initiated by teams and the provision of opportunities for fans to  
6 participate in processes of co-creation contribute somehow to increase offline positive  
7 behaviours such as increased game attendance and recommendation of games to others.  
8 Therefore, by creating effective and superior experiences for fans in online contexts, teams  
9 create a fan base that promotes fan loyalty and increases purchase frequency by fans (Carlson  
10 and O'Cass, 2012) in different channels. The path coefficient from fan-to-fan relationship to  
11 offline behavioural intentions was not found to be significant, which may be related to how  
12 the team manages these interactions and how it leverages its products and services through  
13 SNS. As noted by Johnson *et al.* (2013), the more effective the communication and  
14 information sharing among online consumers, the greater the possibility of future positive  
15 intentions towards the organizations. Teams should have a strategic view of the features  
16 available in SNS so that the information generated through fans' interactions could be used to  
17 create superior experiences. The partnership between Real Madrid and Microsoft aimed at  
18 improving the quality of SNS and generating long-term benefits (CIO, 2015) is a practical  
19 example of that.

20 Overall, the findings from this study highlight the importance of SNS to engage fans  
21 and generate positive outcomes for sport teams. Thus, marketers should allocate resources for  
22 increasing fan engagement through SNS. This could be achieved by sharing real-time  
23 information, creating entertainment activities about the team on the official SNS, developing  
24 platforms to promote the interaction between fans, and facilitating fan co-creation processes.  
25 In doing so, teams are increasing their knowledge about fans and strengthening the

1 relationship between the team and its fans. From a practical point of view, the relationship  
2 developed by fans with the teams in the online context (Hedlund, 2014) tends to lead to  
3 increased engagement. In this sense, teams promoting SNS campaigns extolling its history  
4 and the pride of being fan of the team (e.g., photo sharing in match days, images and videos  
5 of the fans using team products, ticket discounts for creative fans) may generate higher levels  
6 of fan engagement. It is also important to consider the geographic projection of SNS as these  
7 platforms allow fans from all over the world to interact with their favourite teams and  
8 associated fans. Thus, the creation of profiles and publications in different languages is  
9 paramount to promote engagement. The use of social networks and geolocation of mobile  
10 devices in game days (i.e., aiming to gather fans at a certain meeting point, to promote  
11 information sharing, consumption of products and interaction with other fans) may also be  
12 important at increasing fan engagement and subsequent positive responses towards the teams.  
13 In addition, it is important to note that previous studies have suggested that fans with a strong  
14 connection to the team tend to react favourably to team associated sponsors (Biscaia *et al.*,  
15 2014; Madrigal, 2001). In this sense, increasing fan engagement through SNS may also be  
16 important for teams looking to attract and negotiate sponsorship deals.

17

### 18 **Limitations and Future Research**

19 As with any research, this study has limitations that should be acknowledged and considered.  
20 Firstly, data were collected through a single SNS (i.e., Facebook) and there are different  
21 online platforms that are used directly or indirectly by teams to promote fan engagement. For  
22 example, previous studies suggest that the characteristics of online platforms are important to  
23 understand a person's length of time and usage of sport websites (Ahn *et al.*, 2014). In  
24 addition to Facebook, collecting data using other team-related SNS (e.g., Instagram, Twitter  
25 Google+ or even blogs) may contribute to obtain a more representative sample of fans.

1           Secondly, this study was based on a sample of Portuguese football fans, thus limiting  
2 the generalizability of the findings. In addition, the final scale was only tested one moment in  
3 time (i.e., cross-sectional), which may question its reproducibility. Therefore, a longitudinal  
4 research design with samples of fans from other football teams, sports, leagues and countries  
5 should be collected to continuously investigate the appropriateness of the proposed model of  
6 fan engagement through SNS. A longitudinal study may also be important to better  
7 understand the stability of engagement levels throughout the season and how it is influenced  
8 by team performance.

9           Thirdly, while the current model of fan engagement is supported by the literature and  
10 focused on a behavioural perspective (Vivek *et al.*, 2012; Yoshida *et al.*, 2014), the inclusion  
11 of additional measures regarding cognitive and emotional aspects may contribute to a better  
12 understanding of the multidimensionality of fan engagement (Hollebeek and Chen, 2014)  
13 through SNS. Also, measuring fan engagement through SNS in different time periods (e.g.,  
14 after hiring a new player or an important match, in the pre-season, and/or during new online  
15 campaigns) may be important to manage engagement fluctuations and to understand the  
16 impact of team performance and managerial actions on engagement.

17           Lastly, although the multidimensional construct of fan engagement through SNS was  
18 significantly related to both online and offline behavioural intentions, a considerable amount  
19 of the variance still remains unexplained. Thus, future research could also include other  
20 measures suggested in the literature such as online trust and perception of the quality of  
21 shared content (Carlson and O'Cass, 2012) to better understand how to enhance a fan's  
22 evaluation of the team's SNS and subsequent behavioural intentions. In addition, self-  
23 enhancement by basking in reflected glory (BIRGing) and cutting off reflected failure  
24 (CORFing) have been suggested to be vital for help explaining fan reactions (Campbell *et al.*,  
25 2004; Jensen *et al.*, 2016) and may serve as useful control variables in future studies about

1 the role of fan engagement through SNS. Furthermore, examining the role of fan engagement  
2 through SNS on associated team sponsors may also be a fruitful line of research.

3 In summary, the current study was driven by important research questions, including  
4 how to assess fan engagement through SNS and its impact on both online and offline  
5 behavioural intentions. It addresses a call from previous studies highlighting the need for  
6 further research on social media and fan engagement (Stavros *et al.*, 2014, Vale and  
7 Fernandes, 2018). The findings indicate that fan engagement through SNS is a  
8 multidimensional construct including fan-to-fan-relationship, team-to-fan relationship, and  
9 fan co-creation, and this construct has a positive effect on both online and offline behavioural  
10 intentions. This study represents an initial effort to illustrate how fan engagement in online  
11 settings can be enhanced, and sport managers should consider the findings when developing  
12 marketing strategies aimed at building relationships with their fans and increasing favourable  
13 responses towards the team.

14

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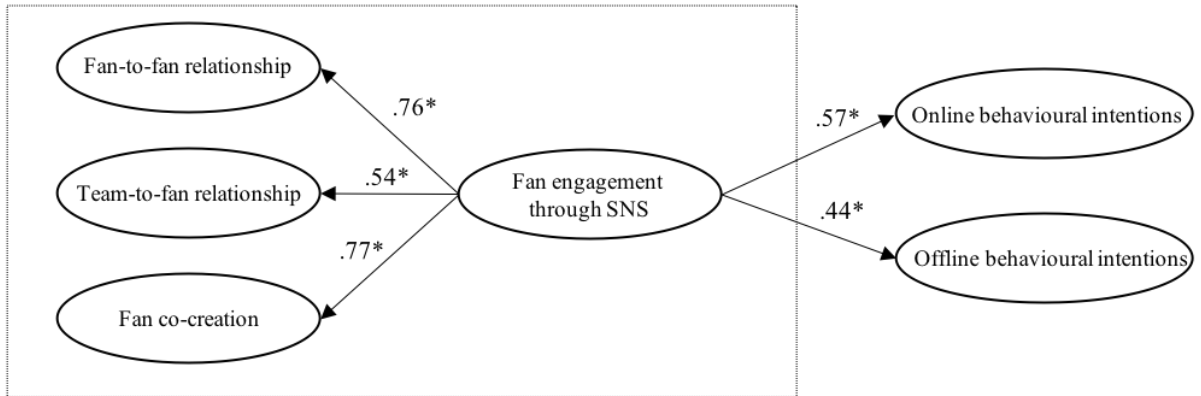
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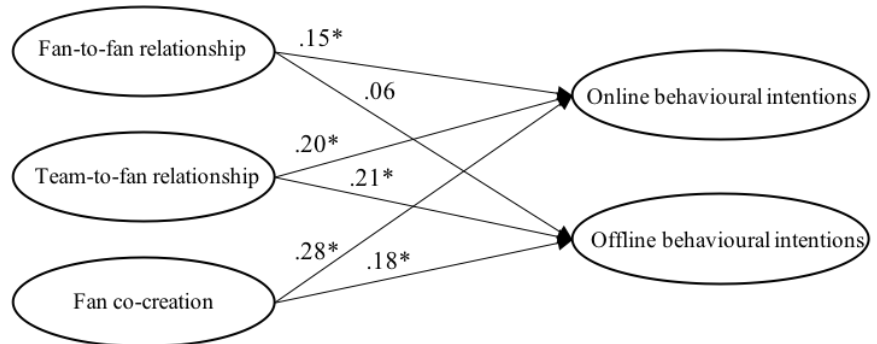
1 **figure 1.** Summary results of the structural model.

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*Second-order structural model*



*First-order structural model*



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Note: \* $p < .01$ .

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1 **Table 1.** Factor loading; construct reliability (CR); average variance extracted (AVE); and correlations among  
 2 constructs.

<b>Construct/Items</b>	<b>Loadings</b>	<b>CR</b>	<b>AVE</b>
<i>Fan-to-fan relationship</i>			
I am willing to help and share information with other users of the team's SNS	.77	.85	.58
Even if it may cost time and money, I am willing to assist other members of my team's SNS.	.72		
My team's SNS allows for the development of social bonds with other fans.	.65		
I feel great pleasure interacting with other fans through of my team's SNS.	.88		
<i>Team-to-fan relationship</i>			
I think my team's SNS are cool.	.83	.84	.64
My team's SNS have an exceptional design.	.75		
My team's SNS meets to my expectations.	.83		
I feel that the information on team's SNS is perfectly clear to me.	.79		
<i>Fan co-creation</i>			
I cooperate with my team through the SNS by posting photos/videos that show our superiority.	.87	.84	.64
I help my team in sharing information/comments/photos/videos through the SNS.	.84		
I help my team in disseminating songs/choreographies that are part of its history through SNS.	.70		

<b>Construct</b>	<b>Correlation matrix</b>		
	<b>1</b>	<b>2</b>	<b>3</b>
1. Fan-to-fan relationship	1.00		
2. Team-to-fan relationship	.26*	1.00	
3. Fan co-creation	.49*	.22*	1.00

4 **Notes:** No correlations failed the AVE test of discriminant validity; \* p<.01.  
 5  
 6

1 **Table 2.** Composite reliabilities, AVE (diagonal), squared correlations among constructs.

<i>Assessment of fan engagement through SNS</i>	<b>Loading</b>	<b>CR</b>	<b>1</b>	<b>2</b>	<b>3</b>
1. Fan-to-fan relationship	.69 - .87	.85	.59		
2. Team-to-fan relationship	.76 - .86	.89	.20*	.67	
3. Fan co-creation	.68 - .81	.79	.16*	.47*	.56

2  
3 **Note:** The AVE values for all components of the model are shown in boldface on the diagonal; No correlations failed the  
4 AVE test of discriminant validity; \* p<.01.  
5  
6  
7

**Appendix.** Survey items.

Constructs/Items	Step 1					Step 2				
	M(SD)	Loadings	Z-value	CR	AVE	M(SD)	Loadings	Z-value	CR	AVE
<i>Fan-to-fan relationship</i>	3.86(1.34)			.84	.58	4.32(1.42)			.85	.59
I am willing to help and share information with other users of the team's SNS	4.12(1.79)	.77	10.19			4.62(1.67)	.75	17.19		
Even if it may cost time and money, I am willing to assist other members of my team's SNS.	3.13(1.75)	.72	9.40			3.79(1.85)	.76	17.61		
My team's SNS allows for the development of social bonds with other fans.	4.29(1.34)	.65	8.17			4.56(1.48)	.69	15.30		
I feel great pleasure interacting with other fans through my team's SNS.	3.93(1.64)	.88	12.41			4.58(1.64)	.87	21.22		
<i>Team-to-fan relationship</i>	5.25(1.08)			.88	.64	5.32(1.12)			.89	.67
I think my team's SNS are cool.	5.42(1.33)	.83	11.40			5.55(1.30)	.85	20.99		
My team's SNS have an exceptional design.	5.11(1.31)	.75	9.90			4.99(1.42)	.76	17.80		
My team's SNS meets my expectations.	5.32(1.13)	.83	11.51			5.36(1.20)	.86	21.20		
I feel that the information on team's SNS is perfectly clear to me.	5.17(1.30)	.79	10.60			5.38(1.25)	.81	19.59		
<i>Fan co-creation</i>	2.98(1.67)			.84	.64	3.64(1.71)			.79	.56
I feel that I am a loyal fan by participating in my team's SNS <sup>a</sup>										
I cooperate with my team through the SNS by posting photos/videos that show our superiority.	2.85(2.00)	.87	11.99			3.50(2.11)	.81	17.88		
I help my team in sharing information/comments/photos/videos through the SNS.	3.23(1.88)	.84	11.40			3.84(1.94)	.76	16.71		
I help my team in disseminating songs/choreographies that are part of its history through SNS.	2.88(1.89)	.70	8.69			3.60(2.04)	.68	14.43		
<i>Online Behavioural Intentions</i>	-			-	-	5.44(1.25)			.84	.57
The probability that I will revisit the team's SNS in the future.		-	-			5.77(1.44)	.78	17.74		
The likelihood that I will support the team through the SNS.		-	-			6.13(1.30)	.76	17.06		
The likelihood that I would recommend my team's SNS to my friends.		-	-			4.68(1.79)	.77	17.58		
If I had to access my teams' SNS again, I would make same option.		-	-			5.19(1.60)	.68	14.50		
<i>Offline Behavioural Intentions</i>	-			-	-	5.84(1.18)			.75	.51
The probability that I will attend more games of my team.		-	-			5.39(1.75)	.61	11.34		
The likelihood that I would recommend my team's games to other people.		-	-			5.88(1.44)	.79	15.96		
If I had to attend my team's games again, I would make the same option.		-	-			6.26(1.23)	.74	12.65		

**Notes:** <sup>a</sup> Item eliminated after the scale-purification procedures after Step 2.