User Characteristics of a Big Ten Football Twitter Feed: A Social Network Analysis

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Twitter, a new media technology, has rapidly increased in popularity since its introductions in the mid-2000s (Clavio, & Kian, 2010). In 2011, Twitter users are now sending approximately 200 million tweets per day (Tsukayama, 2011). In sports, Twitter use increased as the online social network allows connections between teams, athletes, and fans (Hambrick, Simmons, Greenhalgh, & Greenwell, 2010).

According to Crossley (2010) “Networks are what link the millions of “actors” in a complex structure, constituting them as a system” (p. 342). Emirbayer (1997) stated the concepts directing social network theory propose that the world is comprised of groups of individuals who are part of a system of relationships. Using Emirbayer’s (1997) idea of relational thinking social network analysis provides academics with a methodological approach to examine social relationships (Lusher, Robins, & Kremer, 2010). In an online environment, previous social network studies included the investigation of network structure in various online communities (e.g., Caiani, & Wagemann, 2009; Cobb, Graham, & Abrams, 2010; Gilpin, 2010). As Twitter is a social network that exists in an online environment, social network analysis is applicable the examination of networks in Twitter within a sport context.

Twitter is a form of microblogging, which allows users to post 140 character messages called ‘tweets’ on a feed that is distributed to a network of followers (Kassing, & Sanderson, 2010; Marwick, & Boyd; 2010; Pegoraro, 2010). Professional teams, athletes, and sport organizations are utilizing Twitter in order to communicate with fans. Previous studies have examined the increased potential for fan interaction on Twitter (Kassing, & Sanderson, Pegoraro, 2010), but fans of a particular Twitter feed may not be homogenous. Thus, studies have also examined the demographic profiles of fans on various forms of new media such as message boards (Clavio, 2008), and recently, a retired athletes’ Twitter feed (Clavio, & Kian, 2010) to better understand who is using the medium. Social network analysis of the followers of particular Twitter feed can be beneficial, as it will assist in identifying the various fan groups present on the feed. Additionally, social network analysis can also capture one dimension of gratification associated with online media use that was identified by Clavio (2008), which is interactivity. Examining the construction of a social network formed around a team, athlete, or sport organization is pertinent to the study of sport management as online media has been found to have the greatest impact on fan-athlete interaction (Phua, 2010) which, in turn, be used as a predictor of sport-fan behavior (Pegoraro, 2010).

The purpose of this study was to conduct a social network analysis of a Big Ten Football Twitter program to examine the various groups present within the network and the connections between fans to determine user interactivity. As such, to identify the various fans of the Big Ten Football program on Twitter, all tweets mentioning the school name and “football” or using the designated football hashtag from the school were collected during a one-week time period from September 1 through September 7, 2011, which included the first game of the 2011 season. The online collection software DiscoverText, a text analytic software that facilitates the import of data from various sources and formats such as Twitter, was used to collect tweets (DiscoverText, 2011). This resulted in the identification of 641 fans (N = 641), and created the social network for the Big Ten Football program. To capture the interactivity of the network, all tweets produced by the 641 fans were captured on October 11, 2011, during a Big Ten Football game. The total number of tweets gathered during this one-day timeframe was 2,219 (N = 2,219). An observational analysis of the 2,219 tweets was employed to identify the various fan categories. The observational analysis produced five fan categories including: team related users (i.e., athletes, coaches, sport information directors); traditional media users (i.e., reporters, network analysis personnel); non-traditional media users (i.e., bloggers, podcasts, independent media websites); fans, and; ancillary users (i.e., fake Twitter accounts).

In a social network analysis, researchers operationally define the actors within the network, which are represented visually as nodes, and the ties (i.e., relationships between actors) which are visually represented as lines (Quatman,
& Chelladurai, 2008a; Lusher, Robins, & Kremer, 2010). In this study, the actors were defined as the 641 fans, and the ties were defined as tweets between fans, indicated by the “@” symbol, or retweets from other fans. Additionally, ties between actors could be one directional or two directional. For example a tweet from actor A to actor B including the “@” symbol would be defined as outgoing to actor A and ingoing to actor B.

Once the social network was established and ties were defined, data were entered into a sociomatrix was for analysis (Lusher, Robins, & Kremer, 2010). A sociomatrix is a table that is n rows by n columns, in which n represents the total number of actors in the network. The rows and columns in this study were defined as present or non-present, with the binary values of 0 and 1 indicating a non-present (i.e., 0) or present (i.e., 1) tie. Importing the sociomatrix into the social network analysis program UCINET and Netdraw produced a visual representation of the network. After the network was created each user was color-coded to indicate their fan category (i.e., team related, traditional media, etc.) and the number of interactions between users was indicated to highlight “tie strength” and interactivity. Preliminary analysis points to several different and active central nodes of the network, with media accounts maintaining a higher degree of centrality than other actors. Further data analysis will be performed, in order to fully evaluate the nature of the ties and their theoretical implications.