Identifying Influential Users of College Sports Teams’ Social Media Accounts

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Abstract This study tried to identify the influential users of college sports teams’ Twitter accounts and categorize them into three groups including an official account, media account, and layperson account. A total of 14 Twitter accounts at NCAA Division 1 universities were selected through convenience sampling method. In men’s sports, the greatest number of influential users was layperson account followed by media account and official account. In women’s sports, the greatest number of influential users was layperson account followed by official account and media account. The results provided the insight of college sports online social network and will expand the growing literature on social media in sport and will offer practical data for marketers to use social media more effectively.

Key Words : College sports, Influential user, Social media

1. Introduction

Social media is the internet-based application that is the technological foundation of Web 2.0, allowing users to exchange useful information, pictures, and the video[1,2]. Based on a report from PEW Internet and the American Life Project, 75 percent of adults use social media[3]. Twitter is one of the most popular social media platforms worldwide. Used by 36 percent of all internet users worldwide, Twitter possesses several distinctive features including brevity, mobility, and pervasive access[2,4,5].

Twitter allows users to post a message, called a “tweet”, which is limited to 140 or fewer characters. By choosing the “follow” function, users can read and subscribe to the tweets from other users[6].

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“Following” is referred to users or brands that an individual chooses to follow, while a “follower” refers to users that choose to follow an individual. Thought of another way, a follower is a subscriber of tweets and the more followers an individual has, the more audience that individual has. Fans of athletes often follow athletes’ Twitter accounts. As Kassing and Sanderson[7] suggested, online communication between athletes and fans through social media can develop the close relationship and affect fans’ actual behavior on offline. For example, famous cyclist Lance Armstrong tweeted an invitation to followers to join him for a ride. Amazingly, over 1,000 people showed up to join him within a few hours[8]. Thus, many famous athletes and sports organizations, as well as collegiate athletic departments, actively adopt Twitter for their marketing and public relations strategy[7,9-16].

Meanwhile, the process of identifying influential users on Twitter through social network analysis is important for sport communicators to establish a more effective public relations and marketing strategy since information diffusion on social media is supported by a few influential users[6,17,18]. Prior studies employing social network analysis have allowed researchers to visualize the patterns of information diffusion and analyze the relationship between users in a broad population, as well as identify various user aspects on social media[6,17-21].

According to Mitchell[22], a social network is defined as “a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behavior of the persons involved” (p. 2). Previous studies suggested many different dimensions for conducting social network analysis including transactional content, nature of links, and structural characteristics[23]. Centrality explains the importance and influence of network members and can be measured by several different criteria, such as betweenness centrality, closeness centrality, eigenvector centrality, and degree centrality[20]. Each centrality criterion has pros and cons based on different algorithms[20,24]. Degree centrality measures a total number of connections directed to the network member and it indicates the popularity of a member[20,25]. In sport, degree centrality was used by previous studies to identify influential users on Twitter[6,17]. Therefore, the user with a high level of degree centrality indicates that a lot of information passes through that user in the information diffusion process[20]. In Twitter, the number of followers that a user has is referred to degree centrality[6,17].

Hambrick[17] tried to identify how sporting event organizers and users spread information through a social network by examining two bicycle race organizers’ Twitter accounts. Results revealed that a few influential users with a greater number of followers helped race organizers spread information through their respective followers. Thus, Hambrick[17] suggested that sporting event organizers can leverage Twitter and influential users to share information and promote the events. Hambrick and Sanderson[7] analyzed sport journalists’ social network on Twitter. They also found that a few influential journalists having a greater number of followers drew the issues from the offline to online and spread it to peers. In addition, Hambrick and Sanderson[7] suggested that Twitter is an essential platform for journalist to talk about sport stories. Similarly, Sanderson and Hambrick[26] found the active ways of Twitter usage in sports journalists including offering commentary, breaking news, interactivity, linking to content, and promotion. They also suggested that journalists use Twitter to spread the sport issues by undermining the professional and personal boundaries of journalists. On the other hand, Clavio and his colleagues[19] analyzed a college football social network on Twitter by applying systems theory constructs of input, transformation, and output components. They focused on the Big Ten Conference football teams’ Twitter accounts. A total of 139 users were identified and analyzed from teams’ Twitter accounts. The
researchers analyzed the re-tweet, which is similar function to forwarding in email, pattern to see the interaction between users. They found that only 21.5% of the users interacted with each other. Fans tended to communicate only with fans, and there was not a lot of direct feedback from the teams’ official Twitter account. Media accounts also tended to interact only with other media accounts. Based on these results, it seems that the role of teams’ official Twitter account needs to be emphasized to link fans and media.

Therefore, based on the detail above, Twitter has become one of the more effective methods for college sports teams to interact with fans and distribute information through fans, and the media[6,7,9,10,17–19,26,27]. However, the study of social network analysis and influential users are relatively limited in spite of the importance of this emerging area. Thus, this study tried to analyze the college sports teams’ social network with following research objective. First, this study tried to identify the influential users of college sports teams’ social media. Second, current study tried to categorize influential users into three groups including teams’ official account, media account, and layperson account.

2. Methods

The current study utilized social network analysis and content analysis. This study focused on a single university to provide fundamental data and description for further research as a case study since little academic research has been conducted in this field[28]. Through a discussion with expertise in college sports and social media analysis, a total of 14 college sports teams’ Twitter accounts at NCAA Division 1 university were identified from the official athletic websites, including athletic department (n = 1), men’s sports (n = 5) and women’s sports (n = 8) with convenience sampling method. This NCAA Division 1 university was selected for this study since it actively uses social media for public relations and marketing strategies with the internal social media use policy and regulations for athletes and various promotional event on social media.

NodeXL and SPSS 20.0 were used to collect and analyze the data. NodeXL is an open source social media network analysis program add-in for Microsoft Excel[20]. NodeXL was used by previous study examining online social network [18]. Descriptive statistics included the total number of followers,
followings, tweets, and signup date. Complete lists of users from each Twitter were drawn through NodeXL on November 27, 2013. Top 10 influential users from each Twitter were identified by ranking the number of their followers. Next, type of influential users was categorized into three groups: (1) official accounts: University of Arkansas official Twitter, (2) media accounts: journalists, reporters, and other media related Twitter (e.g., magazine, news channel), and (3) layperson accounts: Twitter that is categorized into neither group 1 nor group 2. User profiles on Twitter were primarily used to categorize the influential users. Twitter provides a service, called profile verification, which authenticates the identities of users. Most official and media accounts were verified with a blue verified badge on their Twitter profile. However, to ensure the reliability of coding with non-verified profile, each researcher analyzed and categorized all influential users separately. Inter-coder reliability between researchers ranged from 89% to 96%, which exceeds the acceptable level of 80%[29]. Discordant codings between researchers were re-coded through repeated discussion.

### Table 2: Correlations for the Number of Followers, Followings, Tweets, and Signup Date

<table>
<thead>
<tr>
<th>Measure</th>
<th>Followers</th>
<th>Followings</th>
<th>Tweets</th>
</tr>
</thead>
<tbody>
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<td>Followers</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Followings</td>
<td>0.80*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Tweets</td>
<td>0.88*</td>
<td>0.75*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*p < .05

### 3. Results

Descriptive statistics of college sports teams’ Twitters are presented in Table 1. The mean ratio of following to followers was about 1:97. Athletic department had the greatest number of followers (n = 54,140) followed by men’s football (n = 28,629) and men’s baseball (n = 20,657). On the contrary, women’s tennis had the fewest number of followers (n = 206). In addition, the total number of followers from men’s sports (n = 110,823) was greater than women’s sports (n = 6,932). The Athletic Department joined Twitter in 2008, which was earlier than others.

![Fig. 1] Visualization of influential users’ network from men’s sports

The correlations between the numbers of followings, followers, and tweets were presented in Table 2. In detail, the number of followings was significantly correlated with the number of followers (r = 0.80, p < .05). In addition, the number of tweets was significantly correlated with the number of followers (r = 0.88, p < .05) and followings (r = 0.75, p < .05).

A complete list of users from each college sports teams’ Twitters was drawn through NodeXL. Top 10 influential users by the number of their followers in each Twitter were identified (Table 3 and 4). FoodNetwork (layperson account: n = 1,815,382), had the greatest number of followers followed by mortreport (media account: n = 1,225,133) and NCAA (layperson account: n = 989,493). On the other hand, UGAtennis (layperson account: n = 2,464) had the fewest number of followers.

More specifically, in men’s sports, 26% (n = 13) of influential users were media accounts, 18% (n = 9) were official accounts, and 56% (n = 28) were layperson accounts excluding overlapped users. In women’s sports, 26% (n = 21) of influential users were
### Table 3: Influential users in Men’s Sports

<table>
<thead>
<tr>
<th>Athletic Department</th>
<th>Men’s Tennis</th>
<th>Men’s Football</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts</td>
<td>Followers</td>
<td>Accounts</td>
</tr>
<tr>
<td>FoodNetwork</td>
<td>1,815,382</td>
<td>CollegeGameDay</td>
</tr>
<tr>
<td>mortreport</td>
<td>1,235,121</td>
<td>Bottom2thatop</td>
</tr>
<tr>
<td>NCAA</td>
<td>989,103</td>
<td>ESPNCFB</td>
</tr>
<tr>
<td>AnthonyGemma</td>
<td>843,556</td>
<td>CountryMusic</td>
</tr>
<tr>
<td>NOHSCampaign</td>
<td>569,987</td>
<td>usnikofootball</td>
</tr>
<tr>
<td>CollegeGameDay</td>
<td>525,353</td>
<td>Pappychrist</td>
</tr>
<tr>
<td>PublicInterests</td>
<td>418,697</td>
<td>schadjoee</td>
</tr>
<tr>
<td>Bottom2thatop</td>
<td>300,572</td>
<td>JoeNichols</td>
</tr>
<tr>
<td>ESPNCFB</td>
<td>355,914</td>
<td>countryradiocom</td>
</tr>
<tr>
<td>PGA_JohnDaly</td>
<td>340,969</td>
<td>ESPNU</td>
</tr>
</tbody>
</table>

- Official account, əMedia account, ʌLayperson account

For reference, Fig. 1 and Fig. 2 present the visualization of influential users’ network from men’s and women’s sports. In the figure, each node indicates influential user, each edge indicates follower or following relationship between influential users. In addition, size of the node was decided by the number of followers that influential user has.

### 4. Discussion

The purpose of this study was to identify the influential users of college sports teams’ social media accounts and categorize them into three groups including official account, media account, and layperson account. First, descriptive statistics indicated that the total number of followers from men’s sports was greater than women’s sports. It supports prior research from Fink, Trail and Anderson[30] who analyzed spectators from men’s and women’s college basketball games. They found that spectators from men’s game showed stronger feelings about following their teams in the media than spectators from women’s game. This study’s finding suggests organizers of college sports teams need to put more effort into attracting spectators from women’s sports to social media through various
An examination into the relationship among Twitter variables revealed the number of followings was significantly correlated with the number of followers. In addition, the number of tweets was significantly correlated with the number of followers and followings. This result supports prior studies[17,31]. Thus, the organizers of college sports teams’ Twitter should post tweets regularly and follow more users to drive more return followers. Furukawa, Ishizuka, Matsuo, Ohmukai, and Uchiyama[32] suggested that regular subscription to other users’ social media increases the possibility of information diffusion. Therefore, having more followers on Twitter can boost the dissemination of information which college sports teams provide. Furthermore, tweets need to be focused on providing unique insight into teams since the purpose of followers from a college sports teams’ Twitter account is for an affinity for an aspect of the athlete’s persona[33].

Based on the degree centrality, the number of followers, top 10 influential users from each sports team’s Twitter were identified. Layperson accounts indicated greatest percentage of influential users in both men’s (56%) and women’s sports (41%). It supports previous from Blaszka, Burch, Frederick, Clavio, and Walsh[34] who analyzed the usage of Twitter hashtags, simple descriptive keywords allowing people to find specific interests easily, during the 2011 World Series. They concluded hashtags were mainly used by laypersons to express fandom and interact with others. Thus, they suggested that laypersons take an important role for information diffusion on Twitter[34]. Subsequently, Clavio and his colleagues[19] noted that official Twitter accounts need to link fans, media, and teams for more effective information diffusion on social media. In this study, 18% of influential users from men’s sports and 33% of influential users from women’s sports were official accounts. Some college sports teams’ official Twitter accounts were influential users of another official

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### Table 4: Influential users in Women’s Sports

<table>
<thead>
<tr>
<th>Women’s Basketball Accounts</th>
<th>Followers</th>
<th>Women’s Golf Accounts</th>
<th>Followers</th>
<th>Women’s Softball Accounts</th>
<th>Followers</th>
<th>Women’s Volleyball Accounts</th>
<th>Followers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPN3 M</td>
<td>75,045</td>
<td>ArkRazorbacks O</td>
<td>50,723</td>
<td>JohnKrok_ESPN M</td>
<td>172,947</td>
<td>WordsOf_Emotion L</td>
<td>502,225</td>
</tr>
<tr>
<td>ArkRazorbacks O</td>
<td>50,724</td>
<td>BunkerShotGolf M</td>
<td>21,908</td>
<td>12Talent L</td>
<td>103,753</td>
<td>ArkRazorbacks O</td>
<td>54,146</td>
</tr>
<tr>
<td>RazorbackBSB O</td>
<td>20,137</td>
<td>RazorbackFB O</td>
<td>21,738</td>
<td>NCAASoftball L</td>
<td>61,101</td>
<td>espnWM L</td>
<td>50,279</td>
</tr>
<tr>
<td>FullCountWBBall M</td>
<td>18,783</td>
<td>RazorbackBSB O</td>
<td>20,135</td>
<td>OU_Softball L</td>
<td>21,397</td>
<td>avpeach L</td>
<td>12,660</td>
</tr>
<tr>
<td>Buzzer M</td>
<td>13,967</td>
<td>Xigolf L</td>
<td>13,144</td>
<td>OU_Softball L</td>
<td>21,397</td>
<td>avpeach L</td>
<td>12,660</td>
</tr>
<tr>
<td>NWAMatt M</td>
<td>11,114</td>
<td>StacyLewis_KPMG L</td>
<td>10,439</td>
<td>RazorbackBSB O</td>
<td>20,639</td>
<td>Volleyw00d L</td>
<td>11,796</td>
</tr>
<tr>
<td>RazorbackMBB M</td>
<td>6,897</td>
<td>AJGA_Golf L</td>
<td>7,728</td>
<td>clipperdarrell L</td>
<td>13,103</td>
<td>PatBradley23 M</td>
<td>8,438</td>
</tr>
<tr>
<td>Cccsports M</td>
<td>6,592</td>
<td>RazorbackMBB M</td>
<td>6,895</td>
<td>PlayBall2020 L</td>
<td>11,108</td>
<td>RazorbackMBB M</td>
<td>8,533</td>
</tr>
<tr>
<td>TheRealAPeters M</td>
<td>6,022</td>
<td>TheRealAPeters M</td>
<td>6,022</td>
<td>AllTeamz L</td>
<td>9,081</td>
<td>KentuckyVB L</td>
<td>7,466</td>
</tr>
<tr>
<td>Freedomwarrior M</td>
<td>4,768</td>
<td>RICOHWomenSBr L</td>
<td>4,471</td>
<td>RazorbackMBB M</td>
<td>8,333</td>
<td>GatorZoneVB L</td>
<td>6,572</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Women’s Tennis Accounts</th>
<th>Followers</th>
<th>Women’s Soccer Accounts</th>
<th>Followers</th>
<th>Women’s Swimming &amp; Diving Accounts</th>
<th>Followers</th>
<th>Women’s Gymnastics Accounts</th>
<th>Followers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArkRazorbacks O</td>
<td>50,724</td>
<td>ArkRazorbacks O</td>
<td>54,146</td>
<td>ArkRazorbacks O</td>
<td>54,146</td>
<td>InsideGym M</td>
<td>26,325</td>
</tr>
<tr>
<td>RazorbackBSB O</td>
<td>20,137</td>
<td>espnW M</td>
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<td>SwimmingWorld M</td>
<td>24,987</td>
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<td>22,330</td>
</tr>
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<td>BrunySurin L</td>
<td>14,035</td>
<td>RazorbackBSB DM</td>
<td>20,639</td>
<td>swimswamnews M</td>
<td>19,081</td>
<td>GymnasticsLife L</td>
<td>22,330</td>
</tr>
<tr>
<td>ITATennis L</td>
<td>7,945</td>
<td>chasinDM</td>
<td>10,406</td>
<td>swimswamnews M</td>
<td>19,081</td>
<td>GymnasticsLife L</td>
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</tr>
<tr>
<td>RazorbackMBB O</td>
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<td>RazorbackMBB M</td>
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<td>RazorbackMBB M</td>
<td>8,333</td>
<td>gymnastik D</td>
<td>15,938</td>
</tr>
<tr>
<td>RazorbackEquipm M</td>
<td>4,394</td>
<td>DFIocene165 M</td>
<td>7,237</td>
<td>bluesevenyt M</td>
<td>7,967</td>
<td>RazorbackMBB M</td>
<td>8,533</td>
</tr>
<tr>
<td>TedDub M</td>
<td>3,678</td>
<td>TheRealAPeters M</td>
<td>6,966</td>
<td>TheRealAPeters M</td>
<td>6,966</td>
<td>Gymnasticsfans M</td>
<td>7,705</td>
</tr>
<tr>
<td>RazorbackRules M</td>
<td>3,430</td>
<td>UofA_BruE8aHawg L</td>
<td>5,661</td>
<td>nycswim L</td>
<td>6,097</td>
<td>TheRealAPeters M</td>
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<td>SportingLifeArk M</td>
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<td>RazorbackEquipm M</td>
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<td>AuburnSwimming L</td>
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<td>UofA_BruE8aHawg M</td>
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</tr>
<tr>
<td>Jockosports M</td>
<td>2,819</td>
<td>Arkansas_Lego L</td>
<td>4,486</td>
<td>YourSwimBook M</td>
<td>5,127</td>
<td>RulesofGymnast L</td>
<td>5,294</td>
</tr>
</tbody>
</table>

*Official account, "Media account, "Layperson account
Twitter accounts. For instance, the official Twitter of men’s baseball was an influential user in men’s golf and men’s football. Moreover, men’s baseball was also influential users in women’s sports (e.g., women’s gymnastics and tennis). It indicates that each sport teams’ Twitter account needs to increase its visibility and link to other sports by sharing tweets or generating conversations. Men’s sports can mention women’s sport and vice versa. Lastly, 26% (n = 13) of influential users from men’s sports and 26% (n = 21) of influential users from women’s sports were media accounts. Media accounts included journalists, reporters, and other media related Twitter accounts (e.g., magazine and sport channel). Having journalists as a follower on Twitter could be advantageous for sports teams to provide information and casual statements directly to the media which could then be spread through journalists’ social network. Sheffer and Schultz[35] also suggested that “younger and broadcast journalists were more likely to see Twitter as having stand-alone value and use it in forward-thinking ways” (p. 480). Therefore, sport teams need to use Twitter as one of several public relations strategies since journalists frequently adopt it for an informal information exchange method.

In terms of practical implication, the marketers of college sports could establish more effective marketing and public relations strategy through a more targeted use of Twitter. This study provided evidence of influential users by sport and team gender. Influential users refers to individuals who have greater numbers of followers. In other word, messages on these influential users’ Twitter accounts have a higher possibility of reaching greater audiences. Therefore, communicators of college sports teams can directly request influential users to re-tweet team related message or try to make a conversation with influential users since most conversation on Twitter is opened to the public. This will increase visibility and awareness of the teams, as Funk and James [36] stated that media is an effective way of increasing team awareness. Team awareness is one of important factors related to fans’ perception of teams[37]. Tajfel[37] suggested that team awareness is the first step of team identification process. In addition, Twitter hastags are mainly used by laypersons and hashtags usage is positively related to team identification[34,38]. Thus, the marketers can encourage influential users with layperson accounts to use hashtags more actively through various promotional events or give away. Ultimately, marketers can develop fans’ team identification through increased team awareness on Twitter. In addition, marketers would get opinions from these active and influential users about the games or media usage that can increase the quality of teams’ social media and the games.

5. Conclusion

In conclusion, this study was a first attempt to analyze the college sports teams’ Twitter accounts in the context of influential users since influential users play a vital role in various marketing areas with information diffusion. This study tried to identify the influential users of a single college sports teams’ Twitter accounts and categorize them into three groups. In men’s sports, the greatest number of influential users were layperson accounts followed by media accounts and official accounts. In women’s sports, the greatest number of influential users were layperson accounts followed by official accounts and media accounts. We found that most of influential users were laypersons and many influential users overlapped between men’s and women’s sports. These users could be mobilized to connect the men’s and women’s sport teams Twitter accounts. Results of this study provide insight into a college sports online social network that will expand the growing literature on social media in sport and offer practical data for marketers to use social media more effectively. In addition, this study will widen the research methods of sport research field,
Identifying Influential Users of College Sports Teams’ Social Media Accounts

6. Limitations and Future Studies

The first limitation of this study was the limited categories of account type. The current study used only three groups including layperson account, media accounts, and official accounts. Especially, layperson accounts were defined as Twitter users that are categorized into neither official accounts nor media accounts. However, some layperson accounts need to be re-categorized with more detailed categories. For example, although NCAA is one of the biggest organizations in college sports, it was categorized into layperson. Moreover, there was athlete celebrity that is hard to be seen as layperson. Therefore, future studies need to include more diverse categories to define influential users. In addition, this study did not analyze what messages are exchanged or posted by influential users. Thus, further research should analyze the Twitter messages generated by influential users. It will provide more valuable data for both markers and researchers.

A second limitation is the study was focused on the case of one university, and attempts to generalize this study’s findings to other universities should be undertaken with caution. Future studies should consider a broader sample of university athletic department Twitter accounts to build a stronger knowledge base regarding influential users within college athletics.

Third, in terms of gender difference, this study didn’t match the number of sports teams and Twitter accounts by gender. Thus, future study needs to include the same number of sports teams by gender to analyze the gender difference more clearly.

Fourth, this study identified who influential users are in college sports teams’ online social media. However, current study didn’t focus on actual message what they are interested in or exchanged each other. Thus, future study could employ the content analysis to provide more in-depth data.

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