

Collegiate Student-Athletes' Privacy Management Strategies and Their Impact on Twitter Usage Behaviors

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Abstract

This study examines collegiate student-athletes' privacy management strategies and the impact on their Twitter usage behaviors from Communication Privacy Management Theory (CPM). A questionnaire was used to recruit student-athletes from a national sample of NCAA Division 1 universities in the United States. Three hierarchical re-

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gression analyses conclude that collegiate student-athletes' privacy management strategies would affect their Twitter usage behaviors, such as frequency of checking Twitter, minutes spent on the platform and tweet content . This research extends CPM to the collegiate sports context. Implications are discussed.

Collegiate student-athletes are among the early adopters, as well as heavy users, of Twitter and other social media platforms (Browning & Sanderson, 2012; Sanderson, Snyder, Hull & Gramlich, 2015b; Watkins & Lewis, 2016). Sports organizations also increasingly rely on Twitter for marketing communication purposes (Pegoraro, 2010). For example, in 2014 the College Football Playoffs launched its website, which includes Twitter and other popular social media platforms such as Facebook, Instagram, Pinterest, and YouTube accounts (College Football Playoffs, 2014, cited in Sanderson et al., 2015b). According to SocialBakers (2015), the National Basketball Association (NBA), the National Football League (NFL), and the World Wrestling Entertainment, Inc. (WWE) are ranked as the top three sports organizations with the most Twitter followers. The NBA has 14.55 million followers, while the NFL has 11.50 million followers.

With Twitter's growing influence in sports communication activities, its applications and usage among both professional and collegiate student-athletes has started attracting greater interests among researchers and practitioners (Browning & Sanderson, 2012; Hambrick, Simmons, Greenhalgh, & Greenwell, 2010; Kassing & Sander-

son, 2010; Pegoraro, 2010; Sanderson & Traux, 2014; Watkins & Lewis, 2016). For example, Twitter and other social media platforms are found to enable professional athletes to demonstrate their personal lives and identity online (Hambrick et al., 2010). As a rapidly rising social platform, Twitter also enables athletes to address their communication needs to tweet about their personal and business lives (Pegoraro 2010). Twitter has been one of the fastest growing social network platforms on the Internet (Romero, Galuba, Asur, & Huberman, 2011). As the number of active Twitter users grows, it affects how information is created, distributed, discussed, and shared online among collegiate student-athletes. As a result, the usage behaviors of many Twitter users have increasingly drawn attention in recent years among sports communication researchers (Browning & Sanderson, 2012; Hambrick et al., 2010; Sanderson et al., 2015b; Sanderson & Truax, 2014; Watkins & Lewis, 2016).

However, the growing use of Twitter among collegiate student-athletes has also led to several unanticipated controversial incidents that generated negative publicity and are likely to affect the images of the collegiate student-athletes, their affiliated universities, and the National Collegiate Athletic Association (NCAA) (McCluskey, 2013; Sanderson & Truax, 2014; Sanderson et al., 2015b). Some examples of these incidents include, in October 2012, Western Kentucky University suspended running back Antonio Andrews after he tweeted critical comments about the team's fans (Paulson, 2012). In December 2012, Lehigh University wide receiver Ryan Spadola was also suspended for retweeting a racial slur (Paulson, 2012). Recent incidents include ex-Michigan State University and Norte

Dame player, Garrick Sherman, who tweeted his criticism of the NCAA and its failure to take action against common marijuana use among men's basketball players (Norlander, 2015). Repercussions from these controversies particularly pose severe financial harms to NCAA because of its contacts with media outlets and merchandising interests, which involves significant commercial interests (Miller & Washington, 2013; Smith, 2014).

This study aims to examine collegiate student-athletes' privacy management strategies and their impact on Twitter usage behaviors through a quantitative data collection method. Deriving from the Communication Privacy Management Theory (CPM), this research focuses on what privacy management strategies collegiate student-athletes have employed to influence their Twitter usage behaviors. Past qualitative studies have offered valuable insights into how collegiate student-athletes use Twitter (Browning & Sanderson, 2012; Sanderson et al., 2015b), but do not allow researchers to develop a predictive behavioral model to explore the relationship between privacy management strategies and actual Twitter usage behaviors.

The restrictive measures of collegiate student-athletes' Twitter usage behaviors have led to an increasing interest in the relationship between Twitter and users' rights to privacy and speech freedom (Penrose, 2013). Sanderson et al. (2015b) has surveyed the social media policies from 244 universities from NCAA Divisions I, II, and III and concludes that overall social media policies are perceived as restrictive. Conflicting messages were presented to collegiate student-athletes in these social media policies in terms of the ownership and control of private

information.

There exist two lines of thinking in terms of how to control collegiate student-athletes' social media usage to prevent any inappropriate behaviors and possible impact on affiliated athletic teams, universities, and even the NCAA. One theoretical perspective argues that the control of sharing personal thoughts on Twitter is likely to pose a potential infringement on collegiate student-athletes' rights to privacy and speech freedom (Penrose, 2013). Scholars are also concerned whether the top-down approaches from the school administrators would be effective to reduce Twitter incidents as described above. Another theoretical perspective focuses on the bottom-up approach to propose a student-centric social media education program. Sanderson et al. (2015a) observe that this approach is more effective when the training is tailored to collegiate student-athletes' usage behaviors and perceptions. College administrators have employed *FieldTrack* social media monitoring program to educate collegiate student-athletes to become aware of potential ramifications and risks of controversial tweets (FieldHouse Media, n.d.).

Browning and Sanderson (2012) observe that collegiate student-athletes often manage critical tweets through the following strategies: 1) disregarding; 2) self-motivating; 3) blocking the critics; and 4) providing a general response tweet. Their research implies that collegiate student-athletes are able to properly manage their Twitter usage behaviors to reduce controversial tweets—a point echoed in Sanderson et al. (2015b) after extensive review of top-down administrative policies on Twitter. Unfortunately, extant research on collegiate student-athletes' privacy management strategies has been scarce to better un-

derstand what these privacy management strategies are and what their impact will be on social media usage behaviors. In this quantitative study, we will rely on Communication Privacy Management Theory (CPM) to examine the relationships between collegiate student-athletes' privacy management strategies and their impact on Twitter usage behaviors.

Communication Privacy Management Theory

The management of users' privacy is related to the "boundary control process in which individuals regulate when, how, and to what extent information about them is communicated to others" (Garde-Perik, Markopoulos, Ruyter, Eggen, & Wijnand Ijsselsteijn, 2008, p. 21). The strategic management of privacy as the control of boundaries to share personal information has been attracting attention among sports communication researchers and practitioners to examine its practice on collegiate student-athletes' social media usage behaviors (Thompson, 2011; Sanderson et al., 2015a; Sanderson et al., 2015b; Watkins & Lewis, 2016). Among various social media platforms, collegiate student-athletes' Twitter usage has been on the constant spotlight, because it blurs the lines between the public and private domains when users are allowed to share personal thoughts quickly and easily (Gillen & Merchant, 2013). As described in many scandals related to student-athletes' Twitter usage behaviors, most incidents can be easily attributed to the failure to distinguish the boundaries between personal and public tweets (Cohen & Duchan, 2012). Incidents such as the controversial tweets from collegiate student-athletes have demonstrated ramifications and often grabbed the attention of the public and the me-

dia (Norlander, 2015; Paulson, 2012; Stephens, 2011).

CPM is an appropriate theoretical framework for our study because it has been extensively used to study social media issues related to collegiate student-athletes in the context of intercollegiate sports research (Browning & Sanderson, 2012; Hambrick et al., 2010; Kassing & Sanderson, 2010; Sanderson et al., 2015a; Sanderson, et al., 2015b; Sanderson & Truax, 2014). The theory intends to explain the decision to manage an individual's privacy as establishing metaphorical boundaries (Petronio, 2000, 2002). On the basis of CPM, collegiate student-athletes are likely to manage their private information by first establishing a metaphorical personal boundary to choose the extent, the amount, and the ownership of information that will be shared with others on Twitter. They subsequently proceed to choose whether private information should be shared and co-owned by granting access to cross privacy boundaries among their followers on the basis of privacy rules (Thompson, 2011). Once boundaries are mutually shared, linked, and co-managed between collegiate student-athletes and their followers on Twitter to become so-called "collective boundaries," co-owners of the shared private information will coordinate and negotiate with each other to develop a new set of privacy rules (Plander, 2013; Thompson, 2011). Plander (2013) thus concludes that the decision to share information with outside fans and followers is an example of external (i.e., collective) boundaries, in comparison to internal (i.e., personal) boundaries that regulate information-sharing with family members. If private information shared on Twitter is violated, misinterpreted, or criticized, boundary turbulence thus arises because the shared linkage has been broken (Plander, 2013).

CPM thus enables researchers to equate the causes of controversial tweets among collegiate student-athletes with their inability to make proper decisions due to the lack of privacy management strategies to control boundaries. Collegiate student-athletes need to develop better privacy management strategies and become aware that personal thoughts disclosed in tweets are disturbing the boundaries that should be established to protect their own private information. Collegiate student-athletes' ability to establish and to share their privacy boundaries constitutes an important strategy to decide who owns or co-owns personal information (Petronio, 2013). If the control and negotiation of private information are breached without proper management of said boundaries, privacy turbulence occurs as a result of boundary collapse (Petronio, 2013). We begin this study by reviewing a list of CPM-derived variables and Twitter usage behaviors below to justify the proposition of our research questions.

Operationalization of the Study Variables

CPM focuses on the development and employment of privacy management strategies to select who has control over individual private information through the selection of privacy rules that affect the establishment and management of these metaphorical privacy boundaries. Previous CPM literature (Plander, 2013) has observed the following theoretical constructs are most relevant of the boundary management strategies, and will be selected as our study variables: privacy ownership and control, privacy rules.

Privacy Ownership and Control

This predictor variable has been conceptually de-

defined as individuals believe that they have control and ownership of their private information to allow only authorized others to access and use the information (Petronio, 2013; Plander, 2013; Sanderson et al., 2015b; Thompson, Petronio, & Braithwaite, 2012). In the context of collegiate sports and social media, this variable can be used to explain how collegiate student-athletes believe they have control and ownership over what they have posted on Twitter and whether they grant access to allow their fans and followers to share their private thoughts on Twitter through the transition from personal/internal to collective/external privacy boundaries (Child, Pearson, & Petronio, 2009).

Privacy ownership and control decision as a privacy management strategy has been found to affect how individuals use Facebook and other social media platforms. Debatin, Lovejoy, Horn, and Hughes (2009) found that over 77% of the respondents had changed their Facebook setting to protect their own privacy by restricting personal information from public access through the removal of collective boundaries. O'Brien and Torres (2012) also note that individuals adjust their privacy settings (as an example of enhancing their personal privacy boundary) to ensure the control of third party's access to personal information when their privacy concerns increase. Similarly, Twitter offers functions such as *unfollow*, *filter notification*, *mute*, and *block* to control what other users can see. Other functions such as *photo tagging*, *discoverability*, *location-sharing*, and *media settings* are embedded to control what other users can see about individual users' personal information (Twitter, 2016a). User education programs are also part of the privacy management strategy

offered by Twitter (Twitter, 2016a). Sanderson et al. (2015a, b) also observe that, once collegiate student-athletes receive social media education, they are found to become more cautious when tweeting very personal information (such as body features, medical records, and financial situation) or controversial comments (such as racial or sexual slurs)—a clear example of how the understanding of privacy ownership and control affects Twitter usage behaviors. While privacy ownership and control is found to affect users' Twitter usage behaviors, the extent and the direction this strategy will cause remains unexplored. Therefore, on the basis of these studies, we proposed the following question.

RQ1: How will collegiate student-athletes' privacy ownership and control strategy affect their Twitter usage behaviors?

Privacy Rules

The second predictor variable is conceptually defined as the development of a set of rules to protect individual private information by establishing metaphorical privacy boundaries to choose the sharing and control of personal information (Petronio, 2002, 2013; Plander, 2013; Thompson et al., 2012). As a privacy management strategy, these rules often involve the decision “to delineate the context as well as the boundary lines of demarcation for information considered private” (Petronio, 2013, p. 9). Individuals decisions to create a variety of privacy rules is often affected by five criteria that are personally important to them, which include context, culture, gender, motivation, and risk-benefits (Petronio, 2002; Petronio & Reiersen, 2009). Once these privacy rules are established,

individual Twitter users will proceed to construct, negotiate metaphorical boundaries after considering relational context, cultural factors, personal factors, and risk benefit assessment (Petronio & Reiersen, 2009; Plander, 2013). The coordination and negotiation of privacy boundaries involve the development of privacy rules for linkages, ownership, and permeability (Petronio, 2002). These privacy rules will function as strategies to allow individuals to manage their private information in different contexts. Examples of pre-determined privacy rules include privacy policies from social media companies, such as Twitter, that establish their own privacy rules to protect users (Twitter, 2016a, b).

In addition to the decision to construct personal and collective privacy boundaries, one of the privacy rules is to determine “boundary permeability,” defined as when individuals make decisions about the amount, breadth, and depth of private information disclosure (Child et al., 2009). This rule also represents a coordinated decision to choose collectively among all communication parties about when and how the boundaries are opened or closed to allow others to access private information (Petronio & Reiersen, 2009). In the case of Twitter, access to private information can be granted to fans and followers. Twitter’s technical capabilities also allow its users to make an informed decision to set up permeability rules. A highly permeable privacy boundary will allow other users to access more personal and private information—a clear demonstration of more collective privacy boundary in a communication situation. To protect its users from unknowingly posting highly personal information, Twitter (2016b) considers it a violation of Twitter rules to post private infor-

mation such as credit card information, social security numbers, national identity numbers, personal phone numbers, videos and images, etc. As described, Twitter takes a more pro-active role in helping its users to establish a privacy boundary to make personal information less shareable and permeable.

Another privacy rule is called “boundary linkage,” defined as when individuals make decisions about granting other users the access to their private information to create linkage through the construction of collective boundaries (Child et al., 2009; Petronio, 2002; Thompson et al., 2012). Petronio and Reiersen (2009) note that this privacy rule helps individuals develop collectively agreed-upon rule, thus privacy boundaries, to choose who will be granted access and co-owned private information. Parameters to select whether linkage will be established are based on personality traits, social status, personal needs of control, legitimacy, etc. (Petronio & Reiersen, 2009).

In the context of collegiate sports, controversial tweets are due to the lack of clearly-set privacy rules to establish a clear-cut boundary between private and public domains (i.e., boundary permeability), or to decide who to share innermost personal thoughts (i.e., boundary linkage). Most collegiate student-athletes who are involved in these incidents are not aware that, when they allow fans to follow their tweets, they also grant access to their personal thoughts even without the negotiation of ownership, co-ownership, and boundary of private information that will be shared by others (Child et al., 2009). Educational programs are thus needed to develop collegiate student-athletes’ management strategies. Without proper privacy management strategies, collegiate student-athletes are

often not capable of choosing whether private thoughts should become public, shared, and co-owned by others; how boundaries should be established; and to whom access to their private information should be granted. Existing literature does not provide evidence to support the relationship between privacy rules and Twitter usage behaviors. Therefore, we propose the following research question and sub-questions.

RQ2: How will collegiate student-athletes' privacy rules affect their Twitter usage behaviors?

RQ2-1: How will collegiate student-athletes' boundary permeability rule affect their Twitter usage behaviors?

RQ2-2: How will collegiate student-athletes' boundary linkage rule affect their Twitter usage behaviors?

Twitter Usage Behaviors

As an outcome variable, Twitter usage behaviors are often conceptually defined as the intensity and frequency of Twitter use (Hughes, Rowe, Batey, & Lee, 2012). Previous research has found that concerns over privacy affects users' social media usage, either measured in qualitative or quantitative metrics (Child & Agyeman-Budu, 2010; Dwyer, Hiltz, & Passerini, 2007). Dwyer et al. (2007) observes that when users are concerned about their privacy, they are less likely to share/disclose private information, implying that usage behaviors will be adjusted as a result of different privacy management strategies. Two quantitative metrics from Debatin et al. (2009) has been selected to measure the amount of time (minutes) spent on Twitter and frequency of checking Twitter account.

Furthermore, Hambrick et al. (2010) also examines what collegiate student-athletes are tweeting. Using a content analysis method to categorize 1,962 tweets by professional athletes, they identify six types of tweet contents: content, diversion, fanship, interactivity, information sharing, and promotional (Hambrick et al., 2010). Their study finds that collegiate student-athletes often tweet to interact with their fans, to talk about team and sports-related topics, or diversion. This research also includes types of tweet as a dimension of collegiate student-athletes' Twitter usage behaviors.

Perceptions of University's Restrictive Measures

In response to the misuse of Twitter, college coaches have begun to monitor and impose restrictions on collegiate student-athletes' Twitter uses. These top-down and imposed social media policies are often perceived as restrictive (Sanderson et al., 2015a) and are likely to affect Twitter usage behaviors among collegiate student-athletes. These pre-determined privacy management strategies are likely to affect collegiate student-athletes' own boundary control strategies in addressing their Twitter usage. Given that there is paucity of literature on how student-athletes' perceptions of these externally imposed privacy management strategies will affect their Twitter usage behaviors, we proposed the following research and sub-research questions:

RQ3: Will collegiate student-athletes' perceptions of restrictive measures affect the relationship between privacy ownership and control strategy and their Twitter usage behaviors?

RQ4: Will collegiate student-athletes' perceptions of

restrictive measures affect the relationship between privacy rules and their Twitter usage behaviors?

RQ4-1: Will collegiate student-athletes' perceptions of restrictive measures affect the relationship between boundary permeability rule and their Twitter usage behaviors?

RQ4-2: Will collegiate student-athletes' perceptions of restrictive measures affect the relationship between boundary linkage rule and their Twitter usage behaviors?

Methods

This study has employed a self-administered online questionnaire. Past CPM research has often identified other benefits of questionnaire survey such as the ability to collect high quality data within a limited amount of budget and time (Child et al., 2009; Debatin et al., 2009; Fogel & Nehmad, 2009; Jin, 2013). The selection of an online survey is justified because collegiate student-athletes are asked about their privacy management strategies and are likely to contradict restrictive measures of the university administrators. Furthermore, because this study intends to collect data from 14 universities from NCAA Division 1, the online survey method provides cost effective benefits to make the data collection feasible nationwide.

Sampling Method, Procedures, and Sample Characteristics

A national sample of collegiate student-athletes on intercollegiate athletic teams was recruited after initial telephone contacts with the athletic departments to secure

email lists to deliver a recruitment flier through emails. A total of 14 universities from NCAA Division 1 were selected to take part in the study through a convenient sampling method. Three rounds of participation solicitation were done to recruit respondents from universities outside the host university. However, after the three-week data collection period in 2014, there were a total of 104 valid surveys from the host university. Combined with outside data and the host university, there were a total of 113 collegiate student-athletes surveyed. The small sample size is discussed in the research limitation section.

The characteristics of the sample (N=113) are outlined below. Average age of the collegiate student-athlete sample is 20.46 years old (SD=1.82) and gender division is 54.9% male (N=62) and 45.1% female (N=51). The majority of participants describes themselves as White (N=41, 36.3%) or Africa-American (N=31, 27.4%); 23.9% of the respondents (N=27) are Hispanics, while four of the respondents are Asian-American (3.5%). The majority of collegiate student-athletes in the sample belong to football (N=41, 37.6%), soccer (N=17, 15.6%), track and field (N=14, 12.8%), baseball (N=14, 12.8%), golf (N=5, 4.6%), volleyball (N=8, 7.6%), and basketball (N=4, 3.7%). Five of the respondents belong to either softball (N=2, 1.8%), tennis (N=2, 1.8%), outdoor (N=1, 0.9%), etc. In terms of participants' Twitter usage behaviors, on average, participants have owned Twitter accounts for 33.44 months (SD=17.55). In an ordinary week, participants have checked their Twitter account 41.27 times per week (SD=37.07), while they spent about 45.84 minutes (SD=38.84) in an ordinary day to check their Twitter accounts.

Instrumentation

Three faculty experts reviewed the questionnaire to ensure face and content validity and to remove any potential problems of wording and layout before its dissemination. The first part of the questionnaire includes an informed consent form approved by the Institutional Review Board. All participants must electronically sign their consent before continuing the study. A screening question is used to determine whether a participant is an active Twitter user, using the criterion if he/she has logged on to it to navigate Twitter within the last 30 days (Waters & Ackerman, 2011).

The first predictor variable, *Privacy Ownership and Control*, is measured by nine 5-point Likert statements (adapted from Spiekermann, 2005). Some examples of the statements are *I feel I can steer my Twitter activity in a way I feel is right; I have perfect control of my Twitter account; I have the choice to change my privacy setting; I determine who I follow*. Cronbach's alpha coefficient for this variable is .91.

The second predictor variable, *Boundary Linkage Rule*, is measured by two 5-point Likert statements from Child et al. (2009). These items include *I determine who follows me; I have the choice to accept followers*. Cronbach's alpha coefficient for this variable is .84.

The third predictor variable, *Boundary Permeability Rule*, is measured three 5-point Likert statements adapted from Child et al. (2009). These statements include *If the information I posted looks too private, I delete it; I don't tweet about certain topics because I worry who has access to my tweets; I have criteria for who I follow on Twitter*. Cronbach's alpha coefficient for this variable

is .79.

The control variable, *Perceptions of Restrictive Measures*, is measured by four 5-point Likert statements adapted from Sanderson et al. (2015a, b). The statements are as follows: *The athletic department should not dictate what I can say on Twitter; I feel it would be unfair to be punished for a tweet; Banning Twitter from student-athletes is a direct infringement of their personal privacy; I feel my privacy is violated when the athletic department monitors my Twitter account.* Cronbach's alpha coefficient for this variable is .78.

The dependent variable, *Twitter Usage Behaviors*, is measured by self-reported use frequency and time: (1) *In an ordinary week, I check my Twitter account: ___ times (per week)*; (2) *In an ordinary day, I spend about ___ minutes on Twitter* (Debatin et al., 2009; Johnson & Yang, 2009). Two 5-point Likert statements adapted from Hambrick et al. (2010) are used to measure the contents of collegiate student-athletes' tweets: *I discuss issues with the athletic department on my Twitter; I discuss team issues on Twitter.* Participants' demographics such as gender, age, race/ethnicity, and type of sport are also collected in the survey (Fogel & Nehmad, 2009; Jin, 2013; Sanderson & Browning, 2013).

Table 1 shows five extracted factors from an exploratory factor analysis with Varimax rotation (See Table 1).

Findings

First, preliminary data manipulations are used to create three composite scores from multi-item scales for collegiate student-athletes' privacy management strategies of *Privacy Control and Ownership* (Mean=4.22, SD=.75),

Boundary Linkage Rule (Mean=3.44, SD=1.38), *Boundary Permeability Rule* (Mean=3.82, SD=.73). Composite indices are also computed for *Perceptions of Restrictive Measures* (Mean=3.19, SD=.93) and *Tweet Contents* (Mean=1.58, SD=.75).

Second, to provide empirical data to answer four research questions, we conducted three hierarchical regression analyses to assess the relationships between collegiate student-athletes' privacy management strategies and Twitter usage behaviors when controlling their perceptions of restrictive measures. The discussions of these findings are divided into three sections to examine the questions in this study. To ensure that multi-collinearity will not become a problem in regression analyses (Mansfield & Helms, 1982), variance inflation factors (VIF) procedure was conducted. This analysis found that none of the VIF values surpassed the threshold of 5 in three hierarchical regression models as suggested by Bernstein (2001) that severe multi-collinearity exists if a VIF is larger than 5. As all VIFs in the hierarchical regression models range from 1.0 to 1.1, the initial analysis indicates that multi-collinearity is not a problem for these hierarchical regression models.

Third, this study examines whether collegiate student-athletes' privacy management strategies affect their Twitter usage behaviors as measured by daily use (measured by minutes) and weekly inquiry frequency (measured by the times) of Twitter (RQ1 and RQ2). Additionally, we also study whether privacy management strategies remain strong predictors when controlling collegiate student-athletes' perceptions of restrictive measures (RQ3 and RQ4). Hierarchical regression analyses were

Table 1

Exploratory Factor Analysis (Principal Component Analysis with Varimax Rotation)

	F1	F2	F3	F4	F5
F1: Privacy Control and Ownership					
I feel that I can steer my Twitter activity in a way I feel is right.	.87				
I have perfect control of my Twitter account.	.86				
I have the choice to change my privacy setting.	.86				
I determine who I follow.	.81				
I have the choice to interact with other users.	.75				
All the information I reveal on Twitter remains under my control.	.75				
I determine for myself who I interact with.	.74				
I have allowed the athletic department access to my tweets.	.57				
I have limited personal information on my Twitter.	.53				
F2: Perceptions of Restrictive Measures					
The athletic department should not dictate what I can say on Twitter.		.83			
I feel it would be unfair to be punished for a tweet.		.76			
Banning Twitter from student-athletes is a direct infringement of their personal privacy.		.71			
I feel my privacy is violated when the athletic department monitors my Twitter account.		.71			
F3: Boundary Linkage Rule					
I determine who follows me.			.91		
I have the choice to accept followers.			.86		
F4: Tweet Contents					
I discuss issues with the athletic department on my Twitter.				.82	
I discuss team issues on Twitter.				.76	
F5: Boundary Permeability Rule					
If the information I posted looks too private, I delete it.					.77
I don't tweet about certain topics because I worry who have access to my tweets.					.65
I have criteria for who I follow on Twitter.					.58

Table 2

Hierarchical Regression of Student-Athletes' Privacy Management Strategies, Perceptions of Restrictive Measures, and Twitter Usage Behaviors (Measured by Frequency of Checking Twitter Account)

	R square	Std β	t
Step 1			
Model 1: F= 1.88 , df= 3/102, p> .05			
Privacy Management Strategies			
Privacy Ownership and Control		.22	2.09*
Boundary Linkage Rule		-.13	-1.25
Boundary Permeability Rule		.09	.92
R after step 1	.23		
R square after step 1	.05		
Step 2			
Model 2: F=1.59, df=4/101, p> .05			
Privacy Management Strategies			
Privacy Ownership and Control		.23	2.17*
Boundary Linkage Rule		-.13	-1.26
Boundary Permeability Rule		.11	1.06
Perceptions of Restrictive Measures		.08	.85
Incremental R square for Step 2	.07		
R after step 2	.24		
R square after step 2	.06		

* $p < .05$ ** $p < .01$ *** $p < .001$

conducted to answer these four research questions.

The empirical results have found that one of the privacy management strategies, *Privacy Ownership and Control*, does predict collegiate student-athletes' Twitter

usage, as measured by how many times they checked their Twitter accounts in an ordinary week ($\beta=.22$, $t=2.09^*$), minutes spent on Twitter each day ($\beta=.23$, $t=2.59^*$), and tweet contents ($\beta=-.43$, $t=-4.75^{***}$). The positive β coefficients also indicate that the more collegiate student-athletes perceive they have control over private information on Twitter, the more they will use Twitter by checking their account more frequently and spend more minutes daily. In other words, when collegiate student-athletes feel comfortable with managing their private information and their Twitter activities, they choose who to interact with and follow. In addition, this helps the collegiate student-athletes make conscious decisions about who can access their private information and how much private information is made available on Twitter, they are more likely to use Twitter (See Table 2 and Table 3).

On the other hand, the negative β coefficient of *Tweet Contents* indicates that the more collegiate student-athletes perceive they should have control over private information on Twitter, the less likely they will discuss issues related to team and the athletic department on Twitter, demonstrating their conscious management strategy to establish a clearly-set privacy boundary. In other words, when collegiate student-athletes take an active role in managing their private information on Twitter, the less likely they will be using Twitter for that purpose (See Table 4).

Another privacy management strategy, *Privacy Rules*, is a less consistent predictor of collegiate student-athletes' Twitter usage behaviors. This strategy was found only to predict total minutes spent on Twitter each day, but not other usage behaviors. As one of the *Privacy Rules*

Table 3

Hierarchical Regression of Student-Athletes' Privacy Management Strategies, Perceptions of Restrictive Measures, and Twitter Usage Behaviors (Measured by Minutes Spent on Twitter)

	R	Std B	t
	square		
Step 1			
Model 1: F= 10.73 , df= 3/109, p<.001			
Privacy Management Strategies			
Privacy Ownership and Control		.23	2.59*
Boundary Linkage Rule		.20	2.28*
Boundary Permeability Rule		-.36	-4.25***
R after step 1	.48		
R square after step 1	.23		
Step 2			
Model 2: F=11.63, df=4/108, p<.001			
Privacy Management Strategies			
Privacy Ownership and Control		.28	3.21**
Boundary Linkage Rule		.19	2.18*
Boundary Permeability Rule		-.31	-3.71***
Perceptions of Restrictive Measures		.28	3.36**
Incremental R square for Step 2	.23		
R after step 2	.55		
R square after step 2	.30		

* $p < .05$ ** $p < .01$ *** $p < .001$

variable, *Boundary Linkage Rule*, has been found to positively predict collegiate student-athletes' minutes spent on Twitter each day ($\beta = .20$, $t = 2.28^*$), while *Boundary Permeability Rule* negatively predicts their minutes spent on Twitter each day ($\beta = -.36$, $t = -4.25^{***}$). The positive β coeffi-

Table 4

Hierarchical Regression of Student-Athletes' Privacy Management Strategies, Perceptions of Restrictive Measures, and Twitter Usage Behaviors (Measured by Tweet Contents)

	R	Std B	t
Step 1			
Model 1: F= 10.78 , df= 3/109, p<.001			
Privacy Management Strategies			
Privacy Ownership and Control		-.43	-4.75***
Boundary Linkage Rule		-.02	-.17
Boundary Permeability Rule		-.14	-1.68
R after step 1	.47		
R square after step 1	.22		
Step 2			
Model 2: F=9.85, df=4/108, p<.001			
Privacy Management Strategies			
Privacy Ownership and Control		.39	-4.40***
Boundary Linkage Rule		-.03	-.34
Boundary Permeability Rule		-.10	-1.17
Perceptions of Restrictive Measures		.23	2.72**
Incremental R square for Step 2	.22		
R after step 2	.52		
R square after step 2	.27		

* $p < .05$ ** $p < .01$ *** $p < .001$

cient of *Boundary Linkage Rule* indicates that the more collegiate student-athletes choose who can follow them and to whom access to private information will be granted by accepting followers, the more they will spend more minutes on Twitter each day. On the other hand, the nega-

tive β coefficient of *Boundary Permeability Rule* indicates that the more stringent strategy collegiate student-athletes adopt to control their private information on Twitter by deleting information deemed to be private, by controlling what topics to talk about, and by setting up criteria, they are likely to spend fewer minutes on Twitter each day.

Even after taking into consideration collegiate student-athletes' *Perceptions of Restrictive Measures*, the privacy management strategy, *Privacy Ownership and Control*, remains a consistent predictor of their Twitter usage behaviors as measured by frequency of checking their Twitter account ($\beta=.23$, $t=2.17^*$), daily minutes spent ($\beta=.28$, $t=3.21^{**}$), and tweet content ($\beta=-.39$, $t=-4.40^{***}$). Similarly, *Privacy Rules* also remains a consistent predictor to explain collegiate student-athletes' minutes spent on Twitter each day as measured by *Boundary Linkage Rule* ($\beta=.19$, $t=2.18^*$), while *Boundary Permeability Rule* ($\beta=-.31$, $t=-3.71^{***}$) negatively predicts whether collegiate student-athletes would discuss their personal thoughts with the athletic department about team issues (See Table 2, Table 3, and Table 4).

Discussion

Relationship between Privacy Ownership and Control Strategy and Twitter Usage

According to CPM, the coordination of privacy boundaries is chosen by permeability, ownership, and linkage of private information that constitute Twitter users' privacy management strategies. Among these strategies, privacy control and ownership strategy is extremely important because having control and ownership allows colle-

giate student-athletes to choose how their private information will be shared and disclosed on Twitter. The ability to decide who owns and controls private information within a metaphorical privacy boundary comes with rules that help to protect against privacy intrusion (Child et al., 2009). CPM suggests that users' ability to control their private information is critical to their own privacy management strategies. Control and ownership of private information is an important privacy management strategy for collegiate student-athletes and have been found to affect their Twitter usage behaviors. The positive β coefficients of this predictor in three hierarchical regression models suggest its resiliency to account for collegiate student-athletes' Twitter usage behaviors. The results also suggest that the more that collegiate student-athletes perceive they have control over and ownership of their private information on Twitter, the more times they will check their Twitter accounts and the more minutes. These findings are attributed to the following reasons.

First, the relationship between control and ownership of private information and increased Twitter usage is because collegiate student-athletes want to find out what others have been discussing about their teams and themselves (Browning & Sanderson, 2012). Browning and Sanderson (2012) confirm that collegiate student-athletes are motivated to use social media to meet three needs: 1) keeping in contact; 2) communicating with followers; and 3) assessing information. They argue that the disclosure of private information is closely linked to collegiate student-athletes' identity formation. As Hambrick et al. (2010) observes, collegiate student-athletes use Twitter as an embodiment of their identity online. Therefore, it is likely

that the drive for control over self-representation through disclosing private information leads to the need to use social media more often in order to limit and avoid misinterpretations of one's virtual self. Collegiate student-athletes make decision to choose privacy management strategies to control their private information to project a positive image in front of their fans. Browning and Sanderson (2012) reason if student-athletes feel that they can control their social media activities, their tweeting, the amount of personal information that they put on Twitter, who they interact with, and the changing of their privacy settings, the more likely that they will use Twitter more often. The empirical findings concur with previous studies to support when collegiate student-athletes feel more content with the control and ownership of their private information; they are more likely to use it more frequently.

Secondly, collegiate student-athletes' strategy to control and own private information on Twitter contributes to their perceptions of social media as a trustworthy platform to disclose private information, which subsequently leads to more usage as measured by frequency of checking Twitter accounts and daily minutes spent. Yang (2013) claims that collegiate student-athletes have often reported a high level of control over their personal Twitter accounts is likely to lead to a high level of trust in the social media, resulting in more usage. Yang's (2013) survey empirically examines these relationships by confirming that online information privacy concerns positively predict users' subsequent social media usage. Past studies on social media usage have consistently found the importance of ensuring personal privacy relies on generating a sense of trust (Shin, 2010; Valenzuela, Park, & Kee, 2009; Wu

Huang, Yen, & Popova, 2012). Trusting social media is likely to lead to higher levels of usage (Valenzuela et al., 2009). Valenzuela et al. (2009) has reported that college students' Facebook usage rely heavily on their social trust on this media. It is likely that collegiate student-athletes will use Twitter more often if they feel in control and trust Twitter, which appears to motivate them to use this social media more frequently (Yang, 2013).

Thirdly, the negative relationship between collegiate student-athletes' strategy to control and own private information on Twitter and tweet content suggest when they believe their private thoughts on team issues and athletic department should be controlled and owned by them, they are less likely to post them on Twitter. Concurred with previous studies on tweet content, collegiate student-athletes do not tweet about certain topics because they worry who has access to their tweets, supporting that control and ownership of private information is important to them. These empirical results also lent support to what Sanderson and Browning (2014) have recommended that educating collegiate student-athletes be responsible for their own tweets might be more effective than implementing software- or administrator-based restrictive measures to control their Twitter usage. On the basis of CPM, once collegiate student-athletes are made aware that they are solely responsible for their tweets and they should control their social media behaviors, and they are less likely to disclose sensitive team and athletic department issues to the public to avoid potential controversies.

Relationship between Privacy Rules and Twitter Usage

Privacy rules are often considered as one type of

boundary-setting practices to manage an individual's privacy. Creating boundaries over private information sets a precedent of what is expected from communication exchanges and thus minimizing risk to an unwanted exposure and disclosure of private information (Petronio, 2002). The establishment of privacy rules is based on the decision of private information owners to choose what constitutes a proper boundary for information disclosure among different participants in the communication process. It is important to understand that privacy boundaries are used to keep private information separate from public spheres as a communication privacy management practice. According to CPM, only owners of private information have the right to decide whether to allow private information into a public sphere by lessening boundary permeability and by expanding linkage rules, and whether or not they want a co-owner to their information (Petronio, 2002).

Two types of boundary management rules, boundary permeability and linkage, have been examined in this study, and their effects on Twitter usage behaviors among collegiate student-athletes are less consistent. Compared with the previous privacy management strategy, *Privacy Ownership and Control*, *Boundary Permeability* does not consistently predict collegiate student-athletes' Twitter usage behaviors. This predictor only negatively predicts total minutes spent on Twitter by collegiate student-athletes. In other words, when collegiate student-athletes have a less permeable privacy boundary to better protect their private information, they tend to use Twitter less as measured by total minutes spent on Twitter. On the other hand, *Boundary Linkage* positively predicts total minutes

spent on Twitter by collegiate student-athletes. We speculate the following to account for how privacy boundary rules are predictive to one particular dimension of Twitter usage behaviors; that is, total minutes spent on Twitter each day.

First, collegiate student-athletes who believe in the importance of establishing boundary rules to manage their privacy are likely to practice more self-monitoring on social media, which in turns affects the amount of time that they use Twitter (Child & Agyeman-Budu, 2010). In their study of blogs, Child and Agyeman-Budu (2010) attribute this positive relationship to the fact that bloggers with higher self-monitoring skills tend to have a more private orientation toward their blogging practices. In the context of collegiate student-athletes, when they self-monitor their actions on Twitter due to similar privacy concerns, they make a conscious decision to select the permeability and linkage of their privacy boundaries. Collegiate student-athletes' Twitter usage behaviors vary, depending on different privacy strategies employed to control private information. When collegiate student-athletes decide to establish a more stringent (less permeable) privacy boundary, they will share their private information less, leading to the decreased Twitter usage when few social interactions with their fans and followers occur. On the other hand, decision to allow others to access their Twitter account by accepting followers will lead to increased Twitter usage when overlapping collective boundaries are formed.

Secondly, boundary linkage rules identify who else owns and co-owns the information (Child et al., 2009) after access to private information is granted to others. Establishing such linkages helps identify who has rights to in-

formation and who does not. On the other hand, boundary permeability affects the openness of privacy boundaries (Plander, 2013). The inverse relationships among boundary linkage, permeability, and total minutes spent on Twitter affirms the importance of boundary rules in predicting collegiate student-athletes' usage behaviors by demonstrating that privacy management strategies affect the establishment of privacy boundaries and subsequent usage behaviors. Because social media users tend to focus on vulnerability of privacy breaches when boundary rules are broken, it is likely that the higher levels of Twitter usage are also based on users' strong beliefs that they are capable of managing their own privacy.

Conclusion

Twitter is at the forefront of revolutionizing sports communication research and practices; it has established a permanent role in collegiate athletics where most organizations are utilizing it for the promotion of their brands and teams through this social media platform (Browning & Sanderson, 2012). Social media researchers often argue that collegiate student-athletes, much like the rest of their peers, gravitate to social media in order to connect with their fans. Browning and Sanderson (2012) also argue that Twitter's rise in popularity corresponds to a need for sports organizations to proactively monitor its influence. Many stakeholders play their respective roles in shaping how Twitter can positively or negatively affect the communication of sports in various contexts (Browning & Sanderson, 2012).

Theoretical Implications

CPM has been a popular theory in studying users' privacy management among different social media platforms (Child & Agyeman-Budu, 2010; Child, Petronio, Agyeman-Budu, & Westermann, 2011; Petronio, 2013; Waters & Ackerman, 2011). However, its application to the intercollegiate sports context has been less programmatic to cover other emerging social media platforms. Despite a recent surge of research on privacy management in social media, the majority of these studies are qualitative and do not develop a predictive model between privacy management and subsequent social media usage behaviors (Debatin et al., 2009; Ellison, Steinfield, & Lampe, 2007; Kennedy-Lightsey et al., 2012; Tufekci, 2008). Similarly, while existing literature is rich in providing qualitative and descriptive narratives of Twitter controversies and administrators' responses (Sanderson et al., 2015a, b), there continues to be a lack of empirical assessment of how collegiate student-athletes' privacy management strategies may explain their Twitter usage behaviors.

Compared with other popular social media platforms such as Facebook, privacy issues related to Twitter are a rarely researched area among sports communication researchers in spite of their interest in Twitter usage among collegiate student-athletes (Browning & Sanderson, 2012; Hambrick et al., 2010; Kassing & Sanderson, 2010; Sanderson et al., 2015; Sanderson & Truax, 2014). There exists a gap in the current CPM literature, social media, and sports communication literatures. Thus, this CPM-derived study provides a better understanding of the importance of revealing and concealing information on Twitter when the phenomenon was conceptualized as a se-

quence of conscious decisions by collegiate student-athletes. CPM also allows scholars to explain why collegiate student-athletes disclose information and the reasoning behind it. Its fundamental theoretical assumptions are that a system of rules is used by individuals to manage boundaries and control related to their own information disclosure and sharing decisions. Wu et al.'s study (2012) best describes such decision-making process when they conclude that individuals "perform simple risk-benefit calculation when deciding whether or not to disclose their personal information," and "if the benefits of disclosure outweigh the risks," people are more likely to disclose information (p. 891). Furthermore, the selection of privacy management strategies among collegiate student-athletes is contingent on external environmental factors (such as their perceptions of the restrictive measures) that shape their perceived benefits and risks of personal information disclosure on Twitter. Therefore, future study should thoroughly examine the impact of these external factors on the privacy management decision-making process of collegiate student-athletes and professional athletes.

Limitations and Future Research Directions

Results of this study should be interpreted with caution due to several limitations in terms of sampling and research design. The sample of collegiate student-athletes in this study was relatively small and participants were recruited from mainly NCAA Division 1. While several attempts were made to recruit from other NCAA universities, the response rates were too small to generalize results from these participants to the whole collegiate student-athlete population. Therefore, future research

should attempt a more representative national sample of collegiate student-athletes from all three NCAA divisions to better represent collegiate student-athletes' privacy management strategies. A national sample will allow for more assumptions concerning privacy management strategies of the collegiate student-athletes. Future research should also differentiate non-scholarship from scholarship collegiate student-athletes.

In addition, measures of collegiate student-athletes' privacy management are based on a series of five-point Likert scales. Follow-up studies should be done by incorporating qualitative interview questions. Further, existing research suggests social media usage is related to motivations, consequences, crisis management, and self-monitoring (Child & Agyeman-Budu, 2010; Waters & Ackerman, 2011). Supplementary studies should incorporate these variables in developing a fuller model to explain other constructs of CPM on Twitter. Understanding motivations of collegiate student-athletes can better help grasp and interpret the management of privacy in social media.

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