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Communication Goals of American Universities: A Social Media Content Analysis

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COMMUNICATION GOALS OF AMERICAN UNIVERSITIES: A SOCIAL
MEDIA CONTENT ANALYSIS

A Capstone Project Presented in Partial Fulfillment
of the Requirements for the Degree Bachelor of Arts in Political Science
and Bachelor of Science in Computer Science
with Honors College Graduate Distinction
at Western Kentucky University

By
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May 2019

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2019

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I would like to thank Dr. Scott Lasley for his guidance and humor.

ABSTRACT

Social media is a key communication tool for American universities. This research project is an exploratory look at how universities communicate with stakeholders via social media. In particular, the primary purpose is to explore potential emphasis on academic programs relative to the promotion of athletics as a marketing tool to bolster identity and recruit students. 3000 tweets were collected from 130 NCAA Division 1 American universities. In total, roughly 500,000 tweets have been scraped and classified using an automated script to assess tweet content. Particular emphasis was given to the concept of university rebranding as a broader marketing strategy for student enrollment. Analysis suggests a system of “have and have not” universities in which schools with more prestigious and profitable athletic programs are communicating less about athletics. Schools in less successful conferences, however, are paying significant sums to prop up their athletic programs in an attempt to recruit students and gain prestige through athletics. This research provides valuable insights into what role collegiate athletics plays in university communication strategies along with the value of athletics to a university more broadly.

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INTRODUCTION

University Branding as a Marketing Strategy

A pivotal question in recent years has been how universities are rebranding to compete for student enrollment. There is a widening gap between enrollment in highly selective schools and those of lower prestige, leading to an enrollment crisis for schools with the greatest financial concerns (Vedder 2018). In a competition for tuition dollars, universities have turned to rebranding as a means to attract students. Rumpakis, Bee, and Lee (2016) argue that “effective branding strategies can significantly affect institutional objectives such as student recruitment, corporate partnership searches, and the facilitation of other development prospects with stakeholders.” With these prospective financial gains, American universities are willing to direct a significant amount of attention to restructuring brand identity.

One approach to understanding this rebranding is to assess the direction of the college experience. Murray Sperber (2001) classifies American higher education as “beer and circus”, citing proliferation of athletic events, alcohol, and other campus-centric revelry as a means to distract students from deteriorating academic quality. Sperber argues that the need for tuition dollars has persuaded universities to adopt an all-in recruitment strategy on athletics. Increasing class sizes, rampant academic dishonesty, and other indicators of declining educational quality follow from this argument. Further studies draw similar conclusions, including an argument that universities are creating a “party pathway” of less

academic rigor for affluent students willing to pay full tuition dollars (Armstrong and Hamilton, 2015).

Athletics is often the central component of this rebranding. Some universities have made the transition from playing football in the FCS (Football Championship Subdivision), formerly called Division I-AA, to the more competitive Division I-A level, now known as the FBS (Football Bowl Subdivision). Universities often view this transition as a way to improve the reputation of a university, viewing FBS football as the sign of a “real university” (Kelly and Dixon 2011). This all-in approach to athletics has its potential merits for recruitment if students find great appeal in an athletics-driven university, particularly if it enhances Sperber’s perceived “beer and circus” environment which students find appealing. It is clear that universities may view athletics as a tool for reputational advancement.

There are significant issues with an all-in transition towards athletics, however. Many universities have taken on significant deficits and long-term debt to revitalize athletics to meet NCAA Division I standards and to attract students with impressive athletics facilities (Hobson and Rich 2015). Sperber has argued that there is an academic cost when tuition dollars are shifted towards athletic facilities and operations. Rising class sizes, outdated academic facilities, and the decrease of academic rigor to retain the academic standing of athletes are among these concerns. Sperber also demonstrates that profitable athletics programs rarely see excess revenue find its way into academics. Instead, he argues that profitable athletics programs cycle revenue back into athletics while academic programs

continue to deteriorate in many cases. Sperber argues that activities tangential to athletics, such as watching ESPN and participating in sports gambling, are becoming prominent components of the student experience to the detriment of academics as degree programs become easier to complete with minimal time commitment. If this “beer and circus” is accepted as a valid critique, it carries severe implications for the state of American higher education and the academic value of a degree in athletics-centric universities.

The Power Five and Group of Five Distinction

One method for understanding the contest for tuition dollars is in the reputational disparity between schools. The NCAA distinguishes FBS football between the Power Five and the Group of Five, the upper and lower tier of athletic conferences within the highest level of play. A number of characteristics distinguish these two levels of play, including the well-established athletics departments in the Power Five versus the more recent switches to the FBS in the Group of Five, the financial security in the Power Five versus deficits in the Group of Five, and the reputational advantage in these upper tier schools when compared to the lower tier. Power Five schools carry more leverage in the NCAA and extend their profitability through television network revenue, while the Group of Five does not have these advantages. These differences suggest that American universities exist in a “Have and Have Not” system with a large portion of schools struggling to gain reputational capital while the more established universities are riding a wave of athletic prestige that is already well established.

Power Five conferences are more established and secure in their reputational standing than the Group of Five, primarily due to the history of their academic programs. The Southeast Conference (SEC), for example, is a prominent Power Five conference regarded as one of the most successful conferences in winning athletic competitions. There are currently 14 member schools, ten of which joined the SEC when it was first established in 1932. Similar trends exist in roughly all five Power Five conferences. The majority of schools in these conferences have membership dating back at least several decades with a significant portion of membership dating back to the founding of the conference. By contrast, Group of Five conferences are often newer with a prevalence of more recent members. Conference USA, for example, was founded in 1995, newer than any Power Five conference. The majority of its schools also joined in the most recent decade, including schools such as Western Kentucky University which joined in 2014 and eight other schools which joined in 2013. Most other Group of Five conferences show similar patterns, indicating the more established nature of the Power Five compared to the Group of Five. Upper tier schools are more secure in their athletic performance, primarily due to a history which has solidified their placement as an elite institution in terms of athletics such as football. It is difficult for Group of Five schools to break into the Power Five, suggesting a high barrier for entry to the advantages of these programs.

Another difference worth noting is the financial value of athletics in these schools. There is substantial evidence of the financial burden athletics brings upon universities, observable by NCAA finance data (Berkowitz and Varney, 2019).

This data includes both FBS and FCS universities. In the 2016-2017 school year, only 14 public universities allocated zero dollars from allocated university funds to athletics expenses. These 14 universities include the University of Texas, University of Kentucky, and other leading Power Five programs. These schools demonstrate moderate to high profit margins on athletic events, and they are considered self-sustaining programs. The remaining 216 schools for which data was available, however, have allocated some amount of university funds to athletics. While some of these programs could be self-sustaining but for minor reasons have allocated a small amount of funds from the university, the majority of university allocations are for substantial percentages of athletics budgets. 144 out of the 230 universities (roughly 63 percent) allocated more than half of the athletics department budget from the university budget and not from athletics revenue. It is clear that the majority of university athletics programs are far from self-sustaining when considering the direct financial situation of the athletics departments. Western Kentucky University, for example, loses roughly 17 million dollars a year on athletics, reimbursing 55.37 percent of its athletics budget that was not generated in athletic revenue. When considered more broadly, this revenue could be generated by the enrollment benefit that comes from robust athletics programs. When evaluated directly, however, the program is far from self-sustaining. Similar trends can be observed in the majority of public universities in the Group of Five.

The following graph illustrates the disparity in how Power Five schools versus Group of Five schools allocate funds from their university budget to

athletics programs (Berkowitz and Varney, 2019). The graph indicates the mean percent of a school's athletics budget that was allocated from university funds. Power Five schools, which have far greater prestige and support for their athletic programs, lose very little money on athletics with roughly five percent of athletics funding coming from the school. Group of Five schools, however, are incredibly dependent on university funds to support athletics. These schools show an average of roughly 58 percent of their athletics budgets allocated from the university. Power Fives schools allocate almost no funds towards athletics from other university revenue, while the Group of Five is reliant on external revenue to survive with more than half of their budgets coming from these sources on average. It is clear that the Power Five is self-sufficient while the Group of Five is far from this characterization.

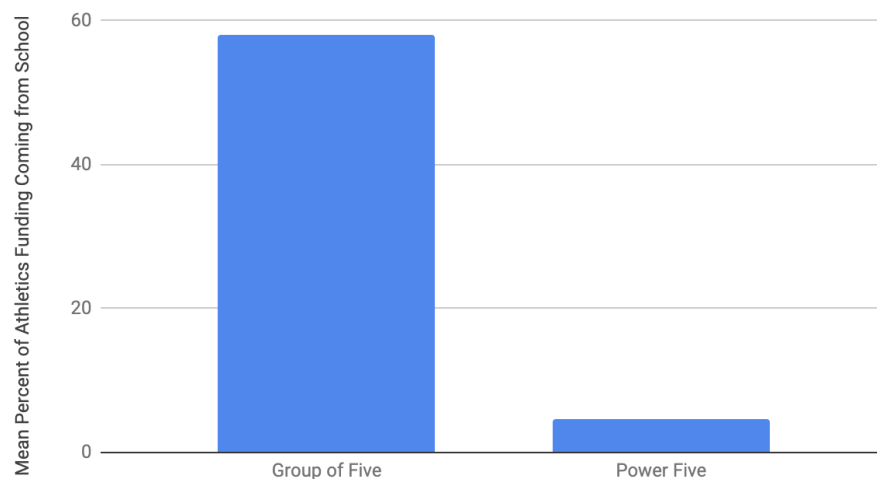


Figure 1: Mean percent of athletic funding from school for Group of Five and Power Five schools

One source of this economic disparity is in television revenues between Power Five and Group of Five sports. The SEC, a top Power Five conference, generated roughly \$596.9 million in revenue for the 2016-2017. This was a record

high season with a payoff of \$40.9 million per school, with other Power Five conferences such as the Big Ten following closely behind in revenue. The majority of this revenue comes from “the conference’s standard channels like television deals, ticket sales, and the College Football Playoff” (Kirshner 2018). By contrast, Conference USA generated only \$2.8 million total revenue for the same school year (Minium 2016) with the remaining Group of Five conferences showing similar ratings. When these small sums are split evenly between member schools, there is no significant sum remaining for each school to address its budgetary concerns. Collegiate athletics is heavily reliant on television revenue, and the division between top tier and lesser programs is clearly indicated by this disparity in revenue. Several Power Five conferences even run their own television networks, with top channels such as the SEC Network profiting extensively through these platforms, while lesser conferences do not have this luxury option, furthering the economic and reputational divide between conferences.

This raises the issue of what benefit Group of Five schools gain from this financial deficit that coincides with propping up athletics. The benefit of athletics are likely to be understood more indirectly. Enrollment is the primary financial resource of a school, so university identity could be utilized as a tool to increase enrollment. Athletics can be viewed as a symbol of the university experience, one of several components for building a school’s image that drives the decision for students to attend (Landrum, Turrisi, and Harless, 1998). Promoting athletics, then, is an indirect mechanism to increase enrollment through the process of

bolstering university identity. Through the use of athletics as a symbol of university identity and also a literal component of Sperber's "beer and circus" approach to the college experience, the shifting focus of the American university as a means to compete for enrollment numbers is well worth examining with athletics as the central component.

Evaluating University Identity Through Social Media

An important question is whether Sperber's "beer and circus" claims are relevant today. Many of Sperber's observed trends have grown stronger, including the rise of television revenue from college sports and the proliferation of sports gambling which was recently legalized in a number of states in 2018. Nearly twenty years have passed since Sperber's original work, however, and his arguments are often anecdotal and speculative, especially relating to how students view the college experience. The shifting focus of the American university in the recent decade could follow Sperber's claims and indicate even more "beer and circus", or these claims could be deemed outdated or overstated once further examined. An empirical solution would be to assess the communication interests of a large sample of American universities to arrive at a conclusion about self-image and branding of higher education. This research posits that one approach is to examine social media.

University social media can be viewed as a reflection of a university's institutional goals. An active social media community (Facebook groups, Twitter engagement) can strengthen a targeted sense of university identity while promoting trust and loyalty in an institution for prospective students (Nezvat et al.

2016). This research aims to use social media as a means to understand university identity, viewing it as a reflection of the most recent communication strategies of a university. By examining social media content, insight can be gained into the modern strategy for American universities, particularly struggling FCS schools. If the shift towards athletics is to be supported, social media should reflect this content. Social media can be evaluated for recency in communication strategies, and it will reveal biases in the communication strategies of universities. More specifically, social media could be evaluated to determine if universities are attempting to bolster their reputations through athletics.

Social media is a key communication tool of recent decades, allowing many institutions to more directly communicate with individuals. American universities are an important unit of analysis for analyzing this communication. Because universities have a number of stakeholders including prospective students, current students, alumni, and other stakeholders, social media is an obvious tool for maintaining relations with constituents. From a communication perspective, analyzing university social media content provides insight into the communication priorities of universities and benefits of using social media to promote their message. There is also evidence that higher levels of engagement on social media (more followers and more interaction with constituents) indicates higher reputational ranking for Division I universities (McCoy, Nelson, and Weigle 2017), suggesting an obvious interest in social media usage for schools looking to increase their reputational capital.

Recruitment is an obvious component of a university's social media goals. Just as corporations have adopted social media as a platform to raise brand awareness, universities have done the same. In viewing universities as competing brands, there is evidence that institutions with lower reputational capital can compete for student enrollment by bolstering social media presence (Rutter, Roper, and Lettice 2015). Many universities create unique accounts on social media such as Facebook and Twitter for the sole purpose of recruiting. While this approach is more direct, universities also operate accounts for sports, academics and honors organizations, and more niche categories to spread brand awareness through different facets of the university experience. The convenience and low cost of social media marketing provides an obvious medium for recruiting students, and universities have taken advantage of this opportunity.

Social media is not only used for recruiting. Universities interact with a number of other stakeholders. Social media can serve as a source of news and information for current students and employees. Alumni and community members can also benefit from subscribing to a university's social media platform. Therefore, it can be argued that social media is a general-purpose tool for communication. A content analysis from 113 universities supports this claim, finding that social media is being employed "primarily as an institutional news feed to a general audience" (Linvill, McGee, and Hicks 2012).

While an information feed is an obvious use for social media, the question of how universities have branded themselves using social media is potentially of greater importance. Through the content they choose to emphasize, university

social media could serve as a mechanism for exploring brand identity. A thorough analysis of the online presence of leading American universities would reveal institutional goals, biases, and successes or failures of university branding. This research aims to use social media to identify what messages universities are promoting relative to one another, particularly as it relates to how universities are rebranding themselves through athletics.

RESEARCH DESIGN

Research Question

This research serves an exploratory function to discover what universities are tweeting about in a general sense and to what degree, but the primary research question is whether universities with less reputational capital are attempting to use athletics to bolster their reputation through social media. This is testable by evaluating whether universities with different levels of athletic prestige (as indicated by the success of their athletic conference) are tweeting more or less about athletics and academics.

The hypothesis of this research is that universities with lower athletic budgets (Group of Five schools) are using social media to communicate about athletics more frequently than schools with more successful athletic programs (Power Five). The reason is that schools with more successful athletics programs are not engaging in a rebranding strategy to the same degree. These schools are more secure in their athletic success and the reputational prestige it carries, and they can afford to communicate about academics, the arts, and other on-campus issues. Lesser athletic programs, however, could be using social media to gain

prestige and strengthen identity through rebranding. These Group of Five schools could be using social media as one strategy to get ahead. Many of these schools have recently made the transition from FCS to FBS football as part of this marketing strategy and have undertaken expensive athletics renovations. If these schools tweet more about athletics, it would signify a communication strategy coinciding with the switch to Division-I football, an attempt to use athletics to rebrand the university and gain reputational capital. These schools are attempting to define their universities in terms of athletics, ensuring their communicating is signaling this rebranding.

Research Design

Twitter was selected as the social media platform for analysis. Founded in 2006 and one of the most widely used platforms today, Twitter is a key contender in the field of social media marketing and acting as a news feed for institutions. The ease of collecting and analyzing data also makes Twitter appealing for this research. Twitter provides the opportunity for developers to access and manipulate their data, often providing resources to researchers for their work as it relates to the platform, and these tools proved beneficial in the research. Other platforms such as Facebook, Instagram, and Snapchat were deemed unacceptable for gathering large amounts of data from a large number of schools. Every university in the sample had an official Twitter account with at least moderate activity in the last school year, with every school having at least 3,000 total tweets to assess. Twitter's 280 character limit is also conducive to more succinct ideas, making it easier to classify messages coming from the institution into simple

categories, a task that would be more difficult on a platform with longer messages (Facebook) or mostly images (Instagram).

Universities were chosen based on their participation in the NCAA Football Bowl Subdivision (FBS), meaning they participate in the top level of collegiate football. Every university in this category was examined, totaling 130 schools. These schools were chosen because of their similar degree of athletic competition with notable distinction between the Power Five and Group of Five. Data was also assessed from all eight Ivy League universities for comparison with an entirely different class of schools in Division I with a clear academic bias.

The variables generated from the Twitter data are percentages: what percent of a university's most recent 3000 tweets related to a certain topic (academics, athletics, or the arts). These are classified as "academic percent," "athletic percent," and "arts percent". These percentages can be viewed relative to one another to examine emphasis on certain topics in social media content. Because this research is particularly interested in athletics and academics, another metric will also be used. This metric will be the difference between total athletics percent and total academic percent, and this will be discussed as the "net athletic difference" or simply "athletic difference." This difference can be used as a dependent variable to compare the degree to which one school favors athletics over academics to another school. A higher athletic difference signifies a stronger preference towards athletics, with a positive value indicating more tweets about athletics over academics and a negative value indicating a greater focus on academics.

A number of keywords were selected to classify the content of a tweet (see Appendix). A manual evaluation of various university Twitter accounts was used to generate this list. Only official university accounts were considered, and these accounts only included the central Twitter account for a university. Subsidiary accounts such as recruitment or athletics were not considered.. Terms common to online discourse about each subject were selected to isolate only the relevant categories. For example, the word “stands” could mean the audience of an athletic event, but the word is a homonym that could easily result in false negative flags. Thus, the word was not chosen to classify athletic tweets. Care was also taken to ensure that words would not be flagged when used as subsets of other words. The word “art,” for example, is only considered when surrounded by spaces. This avoids flagging a tweet with the word “cart” as a tweet about the arts. One university, Ball State, was completely removed from the sample because the word “ball” is used as an athletic keyword, and this produces significant error in the flagging process due to “ball” being in the title of the university.

The difficulty of deriving topics from keywords is the greatest challenge to research of this nature. There is an obvious, unmeasurable margin of error in the classification of tweets. False positives could exist due to keywords used in irrelevant contexts. More often, though, false negatives are prevalent because it is not feasible for a succinct list of keywords to classify all tweets of a given topic. Universities may often tweet a single image of a football player or a musician with no text, and these tweets are not captured by this research. Future work could

involve the use of neural networks to classify these images and sort them into categories, but this level of machine learning is beyond the scope of this work.

In acknowledging the shortcomings of this research design, the benefit of this method is the large number of tweets and schools included in the study. This would not be feasible without automation and its faults. Determining the rate of false negatives and false positives would require a manual examination of over 500,000 tweets, which is not feasible and would defeat the purpose of the automated flagging. It can be fairly assumed, however, that false categorizations would occur in equal proportions among the topics assessed in the research. If a university were to tweet the word “football” twice as often as the word “volleyball,” a football bias could still be assumed, and keyword-specific error could be ignored under the assumption that it occurs evenly between both sorts of tweets. The deficit would be in the number of tweets classified correctly, not in the proportion, which is more significant from a research perspective.

It should also be acknowledged that most Twitter accounts only have a small amount of their tweets captured in the research (roughly one quarter to one third for each university). In the bulk of the tweets that aren’t captured by these keywords, a number of categories emerge. Universities often tweet photos with simple captions which aren’t captured by the research. Other information not captured also includes information about alumni, on-campus events, retweets of campus-affiliated organizations, and a wide variety of other campus-related topics. A more exhaustive list of keywords would only increase the rate of false positives and would still fail to capture a large number of tweets, so the number of

keywords chosen for each category (roughly ten to 15) was determined to be the most effective, striking a reasonable balance.

Software Design

For this research, I developed a custom software tool to solve the challenges associated with the early stages of research. The software needed to perform two functions: to collect a large amount of Twitter data (over 500,000 tweets) from hundreds of American universities (N=130 for FBS schools and N=8 for the Ivy League) and to automate the process of classifying tweets into given categories. I also attempted to follow industry best practices of software development in building and using this tool, particularly in the system architecture of the project.

The first task was to collect data. Preliminary research was done to explore the feasibility of amassing hundreds of thousands of tweets from a wide array of Twitter accounts and storing them locally on a machine. One option was to use a web scraper in the browser, scrolling through the pages of Twitter accounts and parsing HTML to interpret the text of various tweets. This method would use an automated tool such as Selenium to simulate a browsing experience in the web browser while also collecting HTML data from thousands of pages on Twitter's web interface. The process, however, violates Twitter's terms of service and was deemed too inefficient and unreliable due to the inherent performance issues in browser-based scraping and the potential for issues in the web browser to corrupt the consistency of data retrieved.

Eventually, I concluded that Twitter's official API would be the only feasible option to collect a large number of tweets. An API (Application Programming Interface) is a set of tools that allow programmers to perform tasks easily in a program such as collecting or processing data. Twitter has created an API which is made available to certain developers that can be used to ask for data, automate tweets from a given account, and perform a number of other programming-related functions to interact with Twitter. Specifically, Twitter's Tweet API is an endpoint that allows developers to gather tweets from the platform and metadata about them from searching by keywords or from user accounts. The API provides full access to Twitter's entire history of tweets with some minor restrictions. The endpoint is guarded by an access key, requiring users to be part of the Twitter Developer program. I applied for an access key for research purposes and was granted access to a low-tier version of the endpoint with a rate limit of roughly 15,000 tweets per 15 minutes.

A significant challenge was posed by this rate limit. Every 15 minutes, the API refuses to provide a response once the allocated amount of tweets has been collected in that time period. The target amount of tweets was between 400,000 and 500,000 total with roughly another 100,000 for an exploratory comparison with other universities, totaling between 500,000 and 600,000 tweets which can be collected 15,000 at a time in increments of 15 minutes. This would take ten hours of perfect manual collection, so I created a Bash shell script to automate this process. The input for this script was a CSV file with each university's name and Twitter handle. Each school's official Twitter handle was collected manually

through an exhaustive search because this process could not be automated. This script, which was run on a local machine, uses an HTTP request to hit the API with a university's handle and scrape the most recent 3,000 tweets from a given school. Then the script waits four minutes before repeating with another school. This allowed me to automate the process of collecting data while never exceeding the allotted amount of data collection. Once this script was finished, I was able to collect a large amount of data within one day.

Tweets were stored on the local machine in JSON format. Twitter provides substantial metadata about each tweet including tweet text, number of likes and retweets, location information, device or software used for tweeting, associated URLs, links to all images, and various other attributes. For purposes of this research, only the tweet text was evaluated. Retweets were considered along with original tweets. This decision was made because many universities were found to have specific accounts for athletics, academics, and arts programs, and the function of the primary account was to retweet these other accounts. If retweets were not examined, a large degree of variance could be expected due to content from these subsidiary accounts no longer considered. Another decision was that tweets would only be assessed from primary Twitter accounts which have been verified by Twitter. Recruitment accounts, athletics accounts, and other tangential accounts were not considered due to inconsistent practices between universities which would make comparison difficult.

For each university in the sample, tweets were analyzed using a Python script. This analysis function pulls the university's tweet data in JSON format and

uses boolean flags to determine if each tweet falls under certain categories. Tweet text was taken as a Javascript String and converted to lowercase to match lowercase keywords. The built-in Javascript “contains” function was used to assess tweet content. If any tweet contains text in a given list of keywords (stored in an array) for some category, the flag is triggered, and the university’s count for that flag is incremented. An intentional side effect of this algorithm is that flags are not independent of each other, and multiple flags could be triggered for a given tweet. For example, a tweet containing the keywords “ball” and “study” would be flagged as both an athletic and an academic tweet. This was an attempt to make the flags more inclusive than exclusive because false negatives were a greater concern to research than false positives, and there could also be examples where both academics and athletics are promoted in the same tweet.

The results of each analysis were converted into a row of an output CSV file. Therefore, the final data used for regression analysis was one CSV file with 130 entries, one for each university. The fields in this file represent both independent and dependent variables used for analysis. Independent variables include athletic conference and academic quality measures for the school. Dependent variables take the form of percentages from the total sample where certain flags were raised. A university in which 25 percent of tweets related to athletics would have an “athletics percent” value of 25.0000. These percents were rounded to four decimal places where necessary. Later in the research process, these percents were re-coded as net differences between athletics and academics, or “athletics difference”. For example, a university with 20 percent tweets about

athletics and 15 percent tweets about academics would be re-coded to an “athletics difference” of 5.000.

This software design was a significant component of the research process with the intention of enhancing it as a cross-platform research experience. Software development best practices were followed including modularity of design in which components were broken down into reusable functions. These components abide by the single-responsibility principle (Martin 2014), each performing one function in order to maintain the clarity and maintainability of the code. Other practices followed included clear variable naming, consistent indentation practices, internal documentation (code commenting), and thoughtful use of looping and other logical operations for a simple, efficient execution.

RESULTS

Data analysis was conducted using simple means comparison and single-variable linear regression. This was done to attempt to find meaningful correlations between independent variables and the social media habits of universities in the sample. SPSS Software was used for regression analysis and chart construction.

A simple means comparison of the data for all 130 schools reveals relatively similar degrees of tweeting about academics and athletics with a severe drop in content about the arts. Roughly 12 percent of university tweets related to athletics, while roughly 11 percent were related to academics, with the arts only appearing in roughly 3 percent of tweets. One interpretation is a clear emphasis on athletics and academics with a relative lack of emphasis for university arts. There

could be a clear recruitment strategy to promote universities as centers of sports and learning. These two fields could be seen as more important for recruitment than the arts, which are potentially more interpersonal and less institutional.

	Academics Percent	Athletics Percent	Arts Percent
Mean	11.0598	12.0778	3.0058
Standard Deviation	5.2976	4.3366	1.5153

Table 1: Means comparison of tweet content for all universities in sample

(N=130)

It is also possible that the arts are underrepresented in these findings. One could view the arts as a more difficult subject to capture with fewer keywords due to a wide range of mediums. Similar numbers of keywords were used to capture all three categories, and the arts could be argued to manifest in more nuanced ways through social media content such as in the title of artistic works as opposed to more direct descriptions such as the word “art”. Athletic events, by contrast, are more likely to be directly named and categorized such as the word “football”. The arts could also be closely tied to academics, with topics such as literature and theatre being represented in tweets about coursework or other topics that are captured under the “academics” category. Despite these possibilities, such a clear distinction between categories would almost certainly indicate some degree of preference towards athletic and academic over content about the arts.

The important trend for hypothesis-testing becomes apparent when directly comparing Power Five and Group of Five by grouping. Group of Five

(and conference-independent) schools showed a mean 13.3059 percent of tweets about athletics versus a mean 9.9760 tweets about academics, a net difference of 3.3299 percent in favor of athletics. Power Five schools, however, demonstrated a 10.8497 percent of tweets about athletics versus 12.1436 about academics, an athletics deficit of 1.2939. This results in an overall difference of 4.6238 in the net differences between athletics and academics for Power Five versus Group of Five schools, indicating a greater tendency to promote athletics for schools with lower athletic performance. This difference in athletics difference between Power Five and Group of Five is statistically significant with a significance value of .01.

Conference Category		Athletics Percent	Academics Percent	Arts Percent
Power Five (N=65)	Mean	10.8497	12.1436	2.7000
	Std. Deviation	4.3554	4.4666	1.2005
Group of Five and Independent (N=66)	Mean	13.3059	9.9760	3.3117
	Std. Deviation	5.8766	3.9458	1.7312

Table 2: Means comparison of tweet content for Power Five and Group of Five and Independent Schools

One way to view this distinction is comparison between the conferences themselves. The below table indicates mean tweet content for each conference, with additional separation for Power Five and Group of Five. There is a unique degree of variance between all conferences in the FBS. Each conference tweets about athletics in a range of roughly 10 to 17 percent with academic tweets in a

range of roughly 8 to 15 percent. When examining net differences of athletics versus academics, results vary significantly. The Sun Belt, for example, tweets about athletics roughly 15.064 percent of the time while only tweeting about academics at 8.538 percent, a net “athletics difference” of 6.526. The Mid-American Conference shows another wide margin, with an athletics difference of 4.1697. These conferences from the Group of Five tend to show a high preference for athletic content on social media, while other schools in the Power Five have results in the opposite direction. The ACC (Power Five) shows a 2.35 percent advantage for academic content, with the Big 10 showing a 5.057 percent advantage for academics as well. Three conferences in the Power Five show higher degrees of tweeting relating to academics over athletics (ACC, Big Ten, PAC-12).

Conference		Athletics Percent	Academics Percent	Arts Percent
ACC (N=14)	Mean	10.3190	12.6690	2.5429
	Std. Deviation	3.9858	3.9312	.8061
Big Ten (N=14)	Mean	9.3452	14.4024	3.4524
	Std. Deviation	3.1705	4.3226	1.1536
Big 12 (N=10)	Mean	10.7167	9.8200	2.7500
	Std. Deviation	4.8090	4.4426	1.6309
PAC-12 (N=12)	Mean	10.4306	11.9806	2.2305
	Std. Deviation	5.5421	3.6272	1.0061
SEC (N=14)	Mean	13.3619	10.7452	2.3262
	Std. Deviation	3.9662	4.9628	1.0518

Table 3: Means comparison of tweet content for Power Five schools

Conference		Athletics Percent	Academics Percent	Arts Percent
AAC (N=12)	Mean	13.7194	10.4889	3.2694
	Std. Deviation	6.3783	5.1016	2.0724
Conference USA (N=14)	Mean	11.3073	10.7217	3.6344
	Std. Deviation	3.7648	2.9063	1.9000
Independent (N=6)	Mean	12.9573	9.9886	3.2529
	Std. Deviation	7.9458	4.9404	2.3490
MAC (N=11)	Mean	13.3091	9.1394	2.8970
	Std. Deviation	6.6251	4.1891	1.0500
Mountain West (N=12)	Mean	13.5528	11.5000	3.1278
	Std. Deviation	4.8321	4.7427	1.9620
Sun Belt (N=11)	Mean	15.0641	8.3583	3.7237
	Std. Deviation	6.9373	2.0835	1.1419

Table 4: Means comparison of tweet content for Group of Five and Independent schools

For comparison, the following table indicates results from the Ivy League schools. There is an expected high degree of academics relative to athletics at these schools. The reputational strategy of the Ivy League schools has been to focus on academic content, and their social media activity follows this strategy with an academics percent at 19.8958 percent. There is still a noteworthy focus on

athletics (5.9292 percent for Ivy League schools), indicating that Division I schools are not completing ignoring athletics even when their reputational focus is on other means. It is also worth noting that Ivy League schools tend to tweet about the arts in higher numbers than other schools observed (4.1833 percent), indicating a possibility that a focus on athletics tends to replace focus on academics, whereas academics and the arts can more easily coincide for the attention of an institution.

Classification		Academics Percent	Athletics Percent	Arts Percent
Football Bowl Subdivision (N=130)	Mean	11.0598	12.0778	3.0058
	Std. Deviation	5.2976	4.3366	1.5153
Ivy League (N=8)	Mean	19.8958	5.9292	4.1833
	Std. Deviation	1.6693	5.2715	1.8315

Table 5: Means comparison of tweet content for Football Bowl Subdivision and Ivy League schools

This indicates that schools of lower athletic prestige tend to communicate more about athletics on social media. These results support the idea that schools with lower reputational capital are using athletics as a means to bolster university identity. Assuming that social media can be understood as a recruitment tool for schools, the use of athletics as a rebranding strategy is supported by these findings. Schools with more secure athletic success and higher athletics budgets are tweeting more about academics instead. This could simply be a corollary to

the decrease in athletics tweets, the assumption that schools tweet about academics by default when they are not tweeting about athletics. It could also indicate that these schools are attempting to bolster their reputation academically, focusing on research and honors programs in conjunction with their already profitable athletics programs.

The most significant trend in the results is the tendency for less prestigious athletic programs to tweet more about athletics. If “beer and circus” is an accurate explanation for this trend, it should follow that schools striving for gain through athletics are showing poorer results academically. One way to measure academic performance is through Peer Assessment Rankings (U.S. News and World Report 2019), a metric that relates how academic peers view a university’s educational quality from a scale of one to five. Another meaningful metric is acceptance rate. This could be viewed as a measure of university prestige and academic quality. Schools with higher acceptance rates are less selective and likely more invested in bolstering their recruitment through athletics to improve enrollment. These schools would be more interested in Sperber’s “beer and circus” approach to enrollment, and they would be expected to show higher communication about athletics as a result. Therefore, one could expect lower peer assessment rankings and higher acceptance rates for schools tweeting more about athletics.

The following table indicates correlation values between athletics difference (the tendency to tweet more about athletics), peer assessment rankings, and acceptance rates for every university in the sample. Three universities had no available data for peer assessment ranking and acceptance rate, so they have not

been included. The correlation values support the relationship between a university's lower athletic quality and greater tweeting about athletics. This is indicated by peer assessment rankings decreasing, with a $-.378$ correlation with athletics difference. Acceptance rate also correlates positively with athletics difference, suggesting a higher acceptance rates for schools communicating more about athletics as well. The correlation between peer rankings and athletics difference are significant at the $.000$ level, while the correlation with acceptance rate is significant at the $.01$ level.

		Athletics Difference	Peer Ranking	Acceptance Rate
Athletics Difference	Correlation	1	$-.378$	$.228$
	Significance (2-tailed)		$.000$	$.010$
Peer Ranking	Correlation	$-.378$	1	$-.591$
	Significance (2-tailed)	$.000$		$.000$
Acceptance Rate	Correlation	$.228$	$-.591$	1
	Significance (2-tailed)	$.010$	$.000$	

Table 6: Correlation between athletic difference, peer evaluation rankings, and acceptance rates for all universities in sample with available data. (N=127)

Multivariate linear regression was also performed with each of these academic quality variables to consider the impact of being in the Power Five or Group of Five. Table 7 contains the results of this regression. The dependent variable is the athletics difference with the independent variables being inclusion

in the Power Five, inclusion in the SEC, and peer evaluation ranking. Table 8 contains the same operation considering acceptance rate in place of peer evaluation rankings. The SEC was included to control for its impact based on research suggesting the greater importance of sports to Southern culture which could skew results about university communication for Southern schools. Erin Bain-Selbo argues that college football is akin to religion in the South and that there is a cultural importance for college football that does not exist in the same degree to other American regions (Bain-Selbo, 2012). In acknowledgement of this cultural context, the SEC was considered a control variable.

The regression results continue to support the trend that schools with weaker academic quality communicate more about athletics on social media. Table 7 indicates a statistically significant ($p=.007$) impact of peer evaluation ratings on degree of athletics tweeting, indicating that higher peer rankings will indicate significantly decreased athletics tweeting. On average, a one point increase in peer evaluation ratings leads to a 3.6 percent decrease in athletics tweeting. Inclusion in the SEC has the opposite effect on athletics tweeting. Supporting Bain-Selbo's research, being a member of the SEC leads to a 4 percent shift in the athletics difference variable, with a p value of .085. Inclusion in the Power Five, when accounting for these other variables, does indicate a noteworthy coefficient of -2.426 on athletics tweeting. However, traditional significance is not obtained due to a p value of .172, suggesting that academic quality and SEC inclusion are stronger indicators of athletics tweeting than Power Five inclusion in this model. It is also important to consider that Power Five

inclusion may correlate with academic quality measures, so poorer significance in these models may be attributed to “double counting” where the relation between Power Five schools and academic performance is already strong.

	B (Unstandardized)	Std. Error	Standardized Coeff.	t	Significance
(Constant)	12.930	3.662		3.531	.001
Power Five	-2.426	1.768	-.155	-1.373	.172
SEC	3.867	2.225	.155	1.738	.085
Peer Eval.	-3.617	1.310	-.294	-2.762	.007

Table 7: Multivariate regression considering athletics difference (dependent), Power Five inclusion, SEC inclusion, and peer evaluation rankings. (N=127, R-Squared=.167)

Significance of Power Five inclusion is far stronger when considering acceptance rates in place of peer evaluation rankings with a p value of .001 and a stronger coefficient of -4.842. Acceptance rate in this model is only significant has a p value of .119 with a coefficient of .048, signifying a lower degree of confidence that higher acceptance rates indicate higher degrees of athletics tweeting. This positive correlation would support the notion that schools more desperate for student enrollment (higher acceptance rates) would be more interested in rebranding themselves through athletics. SEC has a coefficient of 4.347 with a p value of .058.

	B (Unstandardized)	Std. Error	Standardized Coeff.	t	Significance
(Constant)	-.074	2.255		-.033	.974
Power Five	-4.842	1.462	-.310	-3.312	.001
SEC	4.347	2.269	.174	1.916	.058
Acceptance	.048	.030	.138	1.569	.119

Table 8: Multivariate regression considering athletics difference (dependent), Power Five inclusion, SEC inclusion, and acceptance rate. (N=127, R-Squared=.133)

Taken together, these regression models indicate that there is a negative relationship between academic quality and likelihood to communicate about athletics on social media. There is also evidence that Power Five or Group of Five inclusion is a worthy indicator of whether or not universities are attempting to bolster their identities through athletics, even when considering academic quality metrics. This research suggests that poorer academic reputation could be connected to the athletics-centric strategy being adopted by some universities. Athletics can be seen as a way to enhance the reputation of these schools. However, the relationship should continue to be assessed in future research, potentially with other measures of academic quality.

Conclusion

The research suggests two classes of universities: the winners and losers of American higher education. There are top tier schools with profitable athletics programs. These schools are nearly or entirely self-sufficient in terms of athletic events. Lesser schools, however, are struggling to improve enrollment numbers.

These schools are pursuing a rebranding strategy with athletics at its core. Higher acceptance rates and a decreased focus on academics indicates that these schools are appealing more directly to student interest in on-campus activities and symbols related to athletics. The disparity between “have and have not” universities is evident by their level of competition in NCAA conferences, their wide margin of financial success in athletics, and the topics they choose to emphasize on social media.

If Sperber and similar research are accepted to have valid conclusions, there are severe consequences for a university’s transition to an athletics-centric institution. Sperber suggests that even profitable athletics programs do not necessarily lead to stronger academics programs and that profits from athletics are typically funneled back into athletics and not into other areas of the university experience. Athletics could be understood to exist separately from (and perhaps detrimental towards) academics, being subsidized by tuition dollars when it runs a deficit but rarely serving as a tool to subsidize academic programs. The social media analysis of this research is further evidence that universities are not hesitating to define their identity in terms of athletics, especially when the athletics department is struggling financially. The academic impact of this strategy would need to be evaluated in future research to assess Sperber’s claims of academic deterioration.

When public universities reimburse athletics programs and devote significant resources to rebranding the university, it should be considered public policy. Even as state funding decreases for many public universities, there is still

a significant public investment in schools with struggling athletics programs striving for stronger reputations through athletics regardless of these deficits. Taxpayers have a clear investment in the strategies of these schools and their successes and failures, both financially and in their academic impact on individuals. Future research could evaluate these strategies more thoroughly. It would be important to determine if an “all-in” approach to collegiate athletics is benefitting universities or worsening the divide between the winners and losers due to the financial burden of athletics and the potential deterioration of academic programs as a result. If Group of Five schools show consistently poor enrollment relative to Power Five schools along with programs outputting less educated students and significantly higher losses in athletics programs, it would be clear that this rebranding strategy is a failure. If enrollment does increase significantly due to a direct connection with athletics, and if academic quality remains consistent, there could be merit to this rebranding strategy that would be worth understanding further. The key challenge to this work is directly connecting the effects of rebranding to enrollment numbers.

American universities are facing a key moment in their history, and the consequences of rebranding have widespread implications for higher education. The academic quality and financial stability of schools is dependent on the success of an “all-in” approach on athletics which must continue to be assessed. The current “winner and loser” system could be challenged, maintained, or bolstered depending on the success of this rebranding moving into the future.

Appendix

Keywords Used for Analysis

Category	Keywords
Athletics	ball, sport, athletic, athlete, soccer, hockey, field, score, game, tennis, lacrosse, bowling, rugby, mascot, stadium, game, point, NCAA
Academics	academic, science, intern, honors, research, study, paper, book, journal, publish, exam, library
Arts	artist, theatre, theater, music, paint, gallery, performance, orchestra, band, actor, singer, vocal, art

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