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A STUDY OF DIGITAL COMMUNICATIONS
BETWEEN UNIVERSITIES AND STUDENTS

by

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Submitted to the Graduate School of the

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in

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ABSTRACT

This study examined the digital and social media communication practices of nine urban universities including UMSL and compared those to known corporate best practices.

The purpose of this study was to (1) research how these universities are using social/digital communications to engage with students and prospective students; (2) compare the executional tactics of universities to corporate best practices; (3) determine if by applying corporate best practices universities reap the same benefits as corporate in terms of higher engagement rates with their customers; and (4) determine if a correlation exists between a university's Forbes ranking and its use of social media communications best practices.

This research employed a case study and correlational analytical approach. All content on Facebook and Twitter for the nine universities under study was examined for a 4-week evaluation period. Adherence to social and digital media corporate best practices were observed and noted. Metrics were created. These metrics were then correlated with overall engagement rates on the various social media platforms.

The results of this study did show that those universities better at applying corporate best practices did see higher engagement rates with statistical significance. This indicates that best practices as determined by corporations for engaging with customers and potential customers also apply for universities in dealing with students.

Additionally, this study sought to understand issues that may hinder a university from being able to quickly adopt to the technological needs of students and the platforms they use for communications. This was done via an extensive review of the literature and various industry journals. There were found to be many reasons why a university may be incapable of implementing cutting edge communication platforms quickly including the fact that universities (1) may be slower in adoption of technology (2) must adhere to FERPA rules and regulations (3) have difficulty in operating strategically (4) are known to be very “siloes” or compartmentalized in structure (5) have limited resources that cannot be easily redeployed as needed, and (6) are confused about their customers.

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CHAPTER 1: INTRODUCTION

1.1 Introduction to the Chapter

The chapter will begin by discussing the researcher's background, which will help the reader understand his interest in this study. Discussed next will be the details of research problem, theoretical framework, purpose, research questions, the significance of the study and finally delimitations, limitations, and assumptions. It will end with a summary.

1.2 Author Background

The researcher's passion is education, digital / social media marketing, and communications. He has been involved in higher education for 19 years, teaching innovative marketing and communications classes. Fourteen of those years were as an assistant professor at New York University, teaching in the Integrated Marketing Master's Degree program and in the Digital Marketing Certification program. Not only did he teach New York University's very first "web analytics" class in 2006, but Time Out Magazine listed his online version of that class in 2011 as one of the top four online courses offered.

Before his role in academia, he was a marketing executive at the Reader's Digest Association, known for being a premier publisher and database marketer. While in this role for 11 years, he gained vast knowledge in taking risks, looking forward and understanding the importance of testing and measurement. Upon leaving the Reader's Digest Association in 1997 and beginning his teaching career at NYU, he also embarked on writing a book for those in the marketing and analytics fields, titled "Optimal

Database Marketing” which was published by Sage Publications in 2001 and is still used today by universities all over the world.

Today, all of his classes at UMSL incorporate a variety of digital communications tools, including the Bonfyre app, YouTube, Twitter, LinkedIn, Facebook, Slack, SMS and podcasting. He was responsible for the introduction of Bonfyre at UMSL, which is now a part of GOAL (Gateway for Online and Adult Learners) located on the UMSL Campus.

1.3 Research Problem

1.3.1 A Major Disruption is Occurring

A major disruption is taking place in every field including education, marketing, transportation, entertainment, travel, farming, and retail, due to advances in technology and specifically mobile technology. It is even difficult for experts in these areas to stay current. Munoz and Wood (2015) assert that the changing and evolving landscape of social media present challenges to instructors as changes in consumer usage happen and the diffusion of mobile technology increases. Instruction materials must also be reviewed and updated every semester to keep current with the new technologies. Additionally, Brocato et al (2015) note the very nature of social media and its constant evolution and changes “challenge educators to stay current to deliver relevant content with speed and accuracy.” (p. 81)

1.3.2 The Millennial Generation

In the U.S. and most developed countries, Millennials (born 1980-1999) are digital natives (Prensky, 2001). They have grown up in a world of technology. These individuals cannot remember a time before the Internet existed and expect to receive

communications in particular ways. Millennials view technology such as smartphones, and communication platforms such as Facebook, Twitter, Instagram and Snapchat as part of the natural order of things. Borrowing from Adams (1979) on the rules of how humans react to technology, this is merely how the world works. Each year the technology evolves making individuals change how they do things regardless of the field including education, biotech, and security. For example, Microsoft commissioned a study from Forrester Research (2015) that examined the evolution of the finance role and the technology needs of finance professionals to remain effective in their roles. The major technology changes today are driven by mobile advances. In the span of nine years (2007-2016), online research company Business Intelligence (2015) reports that Apple is on forecast to sell 1.5 billion smartphones. This shift to mobile is a massive disruption, causing significant changes in the way humans conduct their lives. When a mobile device serves as is an Internet connection, Walters (2012, p.1) calls the digital connection “ubiquitous” since the user is never far from his mobile device. Any device or technology considered ubiquitous will necessarily affect many aspects of society.

Additionally, each new generation of smartphones represents a new generation of technology containing chips with higher orders of computing capabilities. Bonnington (2015) reports that advancements in technology bring greater speed and satisfaction to smartphone users: faster networks, larger screen sizes, improved battery life, more powerful microchips. Milanesi (as cited in Bonnington, 2015, para. 4), Chief Researcher at Kantar Worldwide believes many of us will not even have a desktop PC and be solely reliant on mobile devices in the near future.

According to comScore (2015), basic statistics regarding the use of smartphones

to access the Internet show that, 191.1 million individuals in the U.S. owned smartphones and this translated into 77.1% of the mobile market. Pew Research (2015) estimates that 68% of all United States citizens have Smartphones, and of the segment known as Millennials (aged 18-29), the ownership of Smartphones is nearing saturation at 86%. Additionally, 45% of all citizens own a tablet.

Millennials account for 83.1 million in population or more than one-quarter of the US population. In comparison, the Baby Boomer generation numbers 75.4 million according to the US Census (2015). Experian Marketing Services (2014), reports Millennials and Baby Boomers differ in their adoption and usage of technology, and consumption of media. Millennials spend more time with media than any previous generation, and the majority of their time spent with media is with digital media. Millennials spend 35 hours and 32 hours per week with digital and traditional media respectively. This fact compares to Baby Boomers at 23 hours per week for digital media and 37 hours per week for traditional media. Moreover, Millennials spend a disproportionately large amount of time using their smartphones. On average, these Millennial smartphone owners spend about 14.5 hours a week using their phone. That equates to 41 % of the total time all U.S. citizens use smartphones despite the fact that Millennials only represent 29% of the population

Digital natives are hyper-connected. Four out of five Millennials sleep with their cell phone, 41% have no landline. Solomon (2014) characterized Millennials and their relationship to technology in the following way: "In this generation that rarely smokes, cell phones have replaced smoking as the thing to do in those lonely moments when existential angst threatens to encroach." (p. 6) In addition to being hyper-connected,

Millennials are also hyper-social. A shopping habit that sets Millennials apart from others is the behavior of shopping in groups and seeking opinions from friends before finalizing their purchase. According to Fromm, as quoted by Solomon (2014), "More than two-thirds of Millennials don't make a major decision until they have discussed it with a few people they trust." (p. 7). This fact compares to half of all those not considered Millennials. According to research conducted by Millennial Branding (2014) and cited in Business Insider (2015), fewer than 3 percent of Millennials rank television news, magazines and books as influencing their purchase decisions and only 1 percent said a compelling advertisement would make them trust a brand more. Finally, research shows that Millennials want to collaborate with each other, and with brands. Quoted by Solomon (2014), Castellarnau (from Dropbox) described the connection of Millennials to brands as follows: "Millennials are a generation that wants to co-create the product with the brand. Companies that understand this and figure out how to engage in co-creation relationships will have an edge." (p. 10)

1.3.3 University Usage of Social Media and Digital Communications

Do Millennials want to engage with their university on social and digital media the same way they desire to engage with brands? How are universities doing today in comparison to corporate social media best practices? Is there an opportunity for a university to better connect with their students? Are any universities engaging Millennials to the level of co-creation? In addition, how might issues regarding the diffusion of technology innovation within universities hinder their ability to enact and react quickly to new digital and social media communication tools that the students desire to use?

A conundrum for universities is that students have a dual relationship with them. On the one hand, the university represents the entire institution, the receiver of their tuition, the administrators that create the rules and regulations of their study program, a kind of disciplinarian and enforcer. On the other hand, the university represents a collection of educators, the professors who nurture the learning and motivate the students to achieve and reach their maximum potential. The challenge for universities within social media is not so different from corporations. The university administrators operate at a top or corporate executive level, while the professors and faculty operate more at the customer service or experiential level.

Any university or educational institution must establish its voice or brand via social media, and simultaneously, faculty members may be leveraging social media in the engagement of students in a particular area of study.

Ahlquist (2013), for example, has compiled a list of ten best practices for universities to develop a virtual community, which she created for student affairs professionals. She summarizes the underlying principles of her best practices as being thoughtful in posting strategy and respecting the purpose of the community. Ahlquist (2013), however, advocates that upon the acceptance of a student at a university, an introduction and inculcation of values and expectations should begin.

Research that exists for the furtherance of academic goals via social media platforms reveals that concerning best practices, in general teachers need to align their methods with their students. In an era of technology and more specifically communication platforms rooted in technology, Kukulska-Hulme (2012) asserts that faculty and curriculum appear outmoded to students if the new platforms are not used.

Koehler and Mishra (2009) more broadly stress that the key to effective teaching with technology must include three components: content, pedagogy, and technology.

Regarding the effectiveness of social media in gaining engagement or improving learning outcomes, research exists in the use of platforms such as Twitter and Facebook.

Many policies in place such as FERPA protect students and universities but can cause roadblocks in social media adoption. Some would agree these laws are outdated and no longer relevant. Higher education consultant Greenfield (2010) states in a blog post entitled, Higher Ed, Social Media and the Law, that "Current federal law, state law, and university policies are painfully outdated."

1.3.4 Social Media Usage for Brand Building

For any business engaging in social and digital marketing communications, it is important they understand who their audience is and what communication platforms they use. That is also true for universities.

For example, if the average age of an audience or customer base is over 50, then Instagram should be a lower priority versus Facebook or LinkedIn when designing your communication strategy. According to ComScore (2015), Snapchat users are the youngest, followed by Vine, Tumblr, and Instagram respectively (See Figure 1 below).

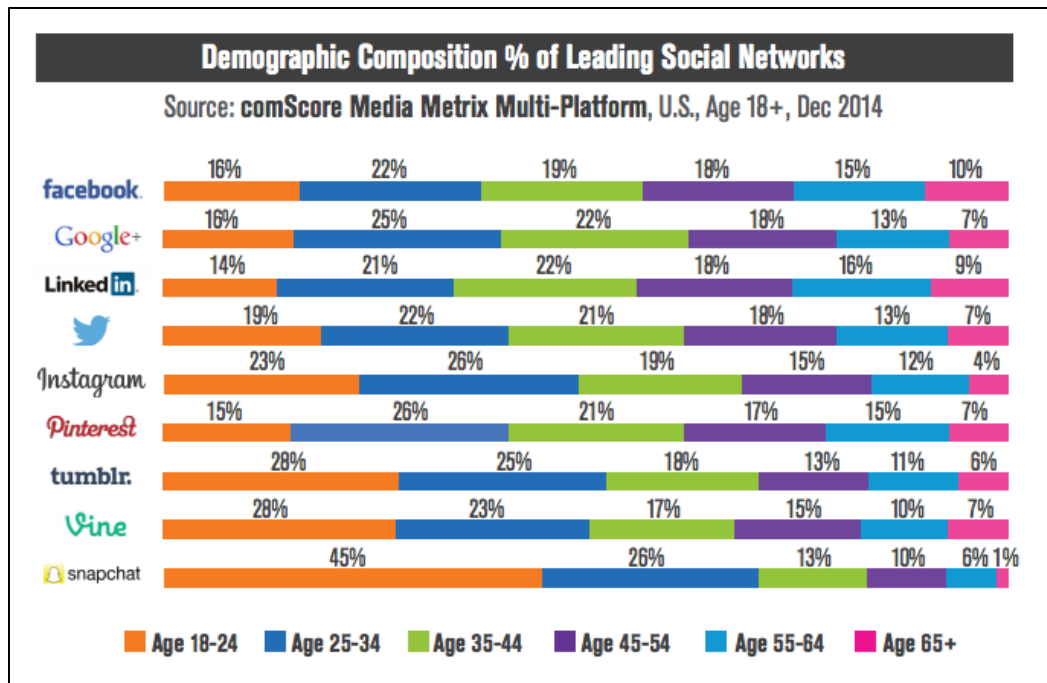


Figure 1. Age Distribution by Social Media. Adapted from *U.S. Digital Future in Focus 2015*. Retrieved on February 24, 2016 from <https://www.comscore.com/Insights/Market-Rankings/comScore-Reports-August-2015-US-Smartphone-Subscriber-Market-Share>.

According to Becker (2015), the Director of Content for Social Media Week, the content a business pushes out on each active social media network should relate to its key demographic. He goes on to state that posting the same copy on Twitter or Facebook will not perform the same nor maximize the engagement on each platform.

Forant (2013), a senior community manager at Salesforce.com, states you must follow back and interact with your audience. Responding to all feedback, negative and positive, is a requirement. Consumers want to know that the brand has heard them.

Hussain (2014), the author of *Twitter for Dummies* and a well-known industry speaker, has compiled a list of 30 best practices for LinkedIn, Twitter and Facebook. She lays out simple rules to maximize engagement such as keeping link descriptions in LinkedIn under 250 characters, tag users in Instagram photos, and on Facebook remove

links from copy. In addition, Zarrella (2014) an award-winning social media scientist and author of many books has analyzed over 200,000 tweets containing links and determined engagement is highest when the link is embedded 25% of the way in the text of the tweet.

Posting more than one time per day on Facebook yields a deterioration in engagement on all posts (TrackSocial, 2012) as shown in Figure 2 below.

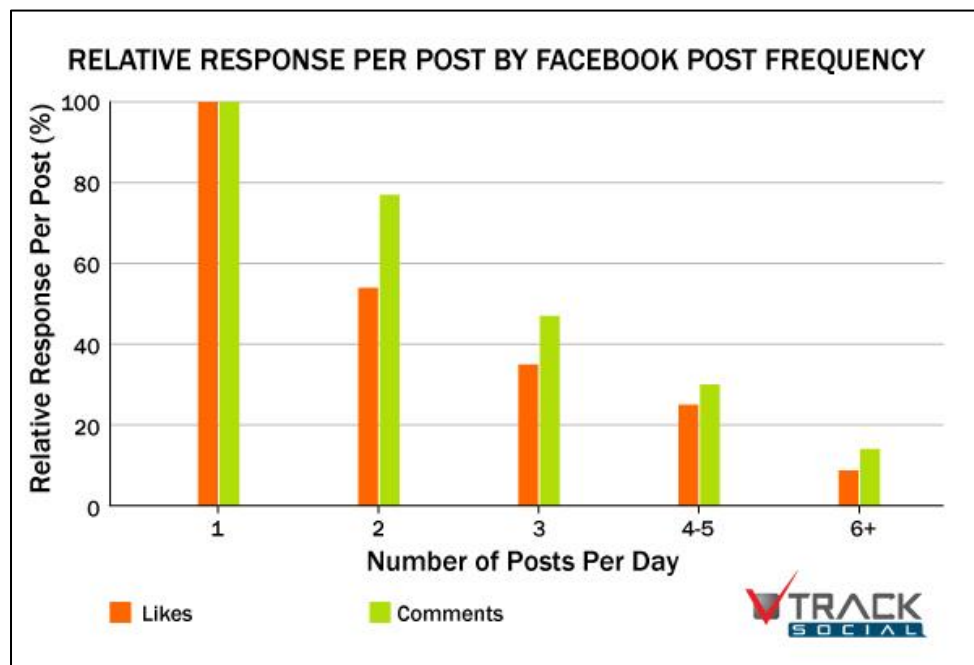


Figure 2. Adapted from Optimizing Facebook Engagement – Part 2: How Frequently To Post. Track Social Blog. Retrieved on February 23, 2016, from <http://tracksocial.com/blog/2012/06/optimizing-facebook-engagement-part-2-how-frequently-to-post/>.

And as TrackSocial (2012) goes on to state, “response per post is important because it will ultimately impact your engagement levels, Edgerank score, and hence the visibility of future posts.” (p. 2)

Hubspot (2015), a leader in Customer Relationship Management (CRM) software solutions, compiled a list of 17 universities doing Instagram well. Among those cited were Colorado State University and Dartmouth University. In Chapters 3 and 4, a

complete compilation of social media best practices across platforms was compiled based on the known literature and a comparison made to what universities are doing today.

1.4 Theoretical / Conceptual Framework

The literature will show that universities are similar to any business model and are capable of setting strategic goals and missions, but not without difficulties.

Kotler and Murphy (October 1982) feel universities are not equipped to create a strategic plan and are better at operations. They go on to state that certain strategies require certain structures to succeed and organizational structures in higher education are often hard to change, and growth opportunities are limited because of the need to satisfy internal constituents.

Another problem lies in the complex business model of a university and the various thoughts regarding who is the customer and what is the product. Another reason why universities have a difficult time in creating a strategic plan is that many do not know who their customers are. Is it the student, the faculty, the employers, or government agencies? In fact, many published in this field such as Cuthbert (1989) and Johnston (1988) do not even mention students in the mission of a university.

However, the literature will show, universities can operate strategically, and students are customers of universities. Hence, it makes sense that the marketing of higher education and engaging with students should be beneficial to the institution.

1.5 Purpose Statement

The purpose of this study is to first research how universities are using social/digital communications, including strategies to engage with students and

prospective students. The second area of study will be to compare the executional tactics of universities to corporate best practices. And Lastly, this study will seek to prove if a correlation exists between university rankings based on Forbes and their effectiveness in the use of social and digital strategy.

1.6 Research Questions and Hypotheses

The hypothesis being made is that the universities under study are not all interacting fully with students via digital and social media communication tools in meaningful ways. Nor are they fully using industry best practices regarding posting strategies. If that is the case, then that begs the question, why? Are there issues with the diffusion of technology innovation at the university level? The exact research questions to be addressed within this study include the following:

- How much are universities using the various social and digital media tools?
- How effective are they in using these tools?
- How do these practices compare to corporate best practices?
- Is there any correlation between college ranking and how well the various colleges uses social media to engage students?

Other questions of relevance, but outside of the scope of this study, include the following:

- What do students expect regarding digital and social engagement from their universities? Can a gap be identified between student expectations of social engagement with universities and the actual engagement levels?

- Where gaps exist, is it possible to determine possible causes? Is it attributable to the differential diffusion of technology between universities and other institutions, such as for-profit corporations? Or might the potential gaps be caused due to legal concerns such as FERPA?
- And, lastly what is the benefit relative to the cost to a university by engaging with potential students, current students and alumni through digital and social communications—and how do these cost/benefit metrics compare to for-profit corporations?

1.7 Significance of the Study

The significance of this study lies in what universities will learn regarding how others in the same space are leveraging digital and social media communications with students and prospective students. This study will also help assess how successful universities are in using the digital and social media tools based on methods employed by other businesses, both for-profit and not for profit. Additionally it may highlight missed opportunities by the university regarding their practices. For example, many businesses have community managers on staff that do nothing but cultivate customer relationships in the digital world.

Additional issues that are pertinent but outside of the scope of this study include understanding what students expect in terms of a universities use of digital and social communication tools; determining what might prohibit a university from quickly reacting to the latest digital and social media tools for communication purposes; and, identifying the impact this might have on the student/university relationship and the formation of a longer-term relationship.

Many studies in the literature show engaging students in the classroom with the use of digital and social media tools help with their overall performance for all types of curriculum including math, science, and marketing. While studying first-year students, Junco, Heiberger, and Lokent (2010) found that the GPAs of the experimental group, which employed the use of Twitter, were significantly higher than the GPAs of the control group. Gualtieri, Javetski, and Corless (2012) concluded that the use of social media in the classroom provided useful ways for students to collaborate with their peers, faculty and outside researchers. Unfortunately, there is little in the literature regarding the use of social and digital marketing tools to engage with students by the university itself and the impact that might have on the overall student/university relationship. That is what this study will begin to explore.

1.8 Delimitations

This study will examine UMSL and eight other universities defined as being Urban universities. Considering private or larger city universities within this sample would potentially introduce other variables, such as school budget and staffing levels, increasing the complexity of the analysis and making interpretation of the findings difficult. It was decided to focus on nine schools including UMSL, to help keep the project's scope within reason and manageable. The details of how these schools were chosen are discussed in Chapter 3.

1.9 Assumptions

The researcher is making three assumptions in this study.

1. The research will assume that universities can act strategically and are

capable of enacting plans to communicate with students in an effective and timely manner.

2. In addition, the researcher will assume that universities understand that students are their customers.
3. Lastly, this paper will assume that academic institutions are capable of adopting new technology as quickly as any other sector. Again, this could be the topic of a future research question but is not within the scope of this thesis.

Later chapters will discuss these assumptions in more detail.

1.10 Summary

More than two-thirds of United States citizens own smartphones, and the power and capability of the devices increase each year. As consumers and businesses find new ways to use these devices, one particularly relevant segment of the population could already be considered technology power-users: Millennials. Millennials could be considered a segment of power users because the mobile smartphone technology was available for as long as they can remember, and unlike their older-generational counterparts, the Baby Boomers, they not only are comfortable with the technology but with the communication and collaboration platforms that run on the technology.

To Millennials it is perfectly natural to have your smartphone by your side always. The connection to friends, or the world, never needs to be broken and gives Millennials a unique worldview. Millennials are not only using their smartphones for communication, but they are using them to share and collaborate, with their friends and the world. They seek out information before making a purchase decision and share

information following the transaction. When they forge relationships with brands, they approach those relationships collaboratively as well. Trend observers in marketing predict that brands who understand that Millennials strive to be co-creators will have the edge in winning the loyalty of this important consumer segment.

The interest and research surrounding Millennials, technology and communication platforms is whether colleges and universities are recognizing this unique aspect of the Millennial worldview and if institutions of higher learning are applying technology and social networking practices like their corporate counterparts.

This study will delve into the ideas surrounding how colleges and universities are connecting with Millennials, comparing institutions of higher learning to for-profit corporations, and assess how Millennials regard their relationship with higher education institutions.

CHAPTER 2: Literature Review

2.1 Introduction to the Chapter

The purpose of this study is to investigate how universities are using social/digital communications, including strategies to engage with students and prospective students. Concomitantly, this paper will compare the executional tactics of universities to corporate best practices.

Before beginning, the researcher will examine how new technologies in communications are affecting every aspect of life (known as the disruption). Once understood, this paper will then examine how these disruptive technologies are being embraced by those called “digital natives” or the Millennial generation, of which most all college students are considered.

Once understood, an examination in the gap in usage of these technologies by universities and other institutions of higher education will be conducted. This gap will reveal the disconnect with how schools communicate with students today. Additionally, the researcher will look to see if there exists any correlation between university rankings according to Forbes and their usage of social media for purposes of communicating with students.

Most companies and non-profits understand the importance of digital and social media communications with consumers and prospective customers for purposes of engaging with them and creating communities or brand advocates. To make the leap that students are customers of a university and that a university can be viewed similarly to any other business capable of setting strategy and acting on that strategy a review of literature in these areas will be conducted to help validate this hypothesis. Once considered, the

paper will examine the use of these technologies, including documented best practices, by industry and compare to that of academic institutions and recommendations made.

Lastly, the researcher will explore what those in the literature have shown or proven regarding a universities ability to incorporate new technologies with the same ease, willingness, and speed as any other non-profit or for-profit business model. In particular, the researcher will examine the diffusion of technology innovation by industry to look for similarities or differences by industry.

2.2 A Major Disruption is Occurring

Prensky (2001) and Pew (2014) discuss how the proliferation of mobile technology and social media communication platforms has driven great changes in the world. The fact that consumers are constantly connected to the Internet has transformed many different industries in various ways. Further, the fact that the Millennial Generation is the most comfortable in its seamless use to connect, communicate and collaborate is readily evident. Walters (2012) discusses the ubiquity of social technology, and how organizations must adapt functions of consumer needs to mobile-oriented activities, which can accomplish specific goals. He stresses that the mobile movement is additive to the existing online channel of the desktop/laptop connection and that digital natives rely heavily on the usage of smartphone technology as a platform for social connectedness. American Press Institute (2015) reported that 91% of Millennials are active on Facebook and 88% use Facebook as one of their main sources for news. The disruptive influence of mobile technology is manifested in the manner that it has brought about change to so many industries as apps have been developed to allow consumers to leverage the ever-present Internet connection to accomplish more. Price comparisons in retail shops,

instant credit scores, streamlined mortgage applications, video streaming, and television programming streamed to your handheld device are but a few of the disruptions brought about by this technology.

In the field of higher education, the disruption brought about by cell phones is present as well. New Media Consortium (2015) identifies several trends, which are accelerating the technology adoption in higher education. In the near term, the trend of blended learning that utilize both in person and online technologies have been identified. Blended learning shifts some of the lessons to be available to students to access online, whereas other lessons are tackled in the classroom. A key component of blended learning is the students can access lessons on their own, and frequently this translates to accessing a lesson on a mobile device. According to New Media Consortium (2015), many instructors couple the blended learning curricula with social media participation to reinforce the lessons.

2.3 The Millennial Generation

Pew Research (2014) defines Millennials as those born between 1980 and 2000. They are sometimes referred to as digital natives (Prenkys, 2001) since in their lifetime they have only known a world connected via the Internet. As such, these digital natives use and envision the use of technology to seamlessly improve their lives and to connect to the world around them.

Experian Marketing Services (2014) provides a comparison of Millennials to Baby Boomers and other generations on the dimensions of media usage, device usage, and other demographics that are related to lifestyle. Of particular interest is the insights on the differential consumption of media by Millennials versus other generations.

Millennials spend more time than previous generations on traditional and digital media, reinforcing the concept that they have embraced these new technologies as a part of their day-to-day life more than other demographic segments as seen in Figure 3.

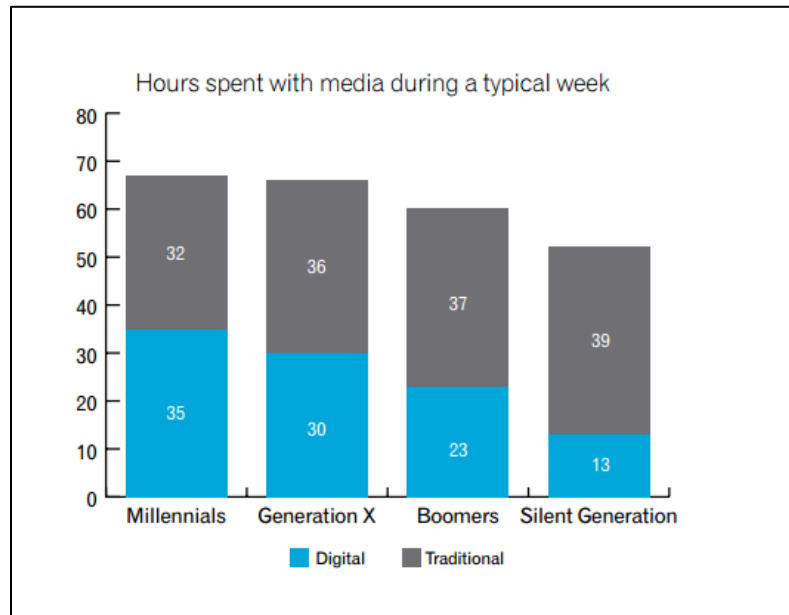


Figure 3. Hours Spent with Media per Week by Generation. Adapted from *Millennials come of age*. Retrieved on February 24, 2016, from <http://www.experian.com/assets/marketing-services/reports/ems-ci-millennials-come-of-age-wp.pdf>.

Solomon (2014) provides insights on specific behaviors that the Millennial generation display in their usage of technology and the manner in which they relate to brands. In particular, he compares the usage of smartphones and the place they take in the life of a Millennial, as similar to a cigarette break for previous generations -- a kind of soothing pause, providing a moment for reflection, and a mental break. Further, because of their attachment to mobile technology, they are incredibly social in their connections to the world, including shopping, and interacting with brands.

Barton et al. (2014) discuss the transformational nature of the Millennial generation. The authors refer to them as "leading indicators of large-scale changes in

future customer behavior." (para. 4). They advise that connections with the Millennial segment will require finding and communicating with them "wherever they are" (para. 8) meaning that since Millennials are connected to various devices throughout the day, a cross-channeled marketing and communication approach will be the most effective in influencing their behavior and purchase decisions. This also underscores the concept that Millennials are hyper-connected.

American Press Institute (2015) indicates that over 55% of the population uses Facebook daily for news as seen in Figure 4 below. For Millennials that percent jumps to 88%.

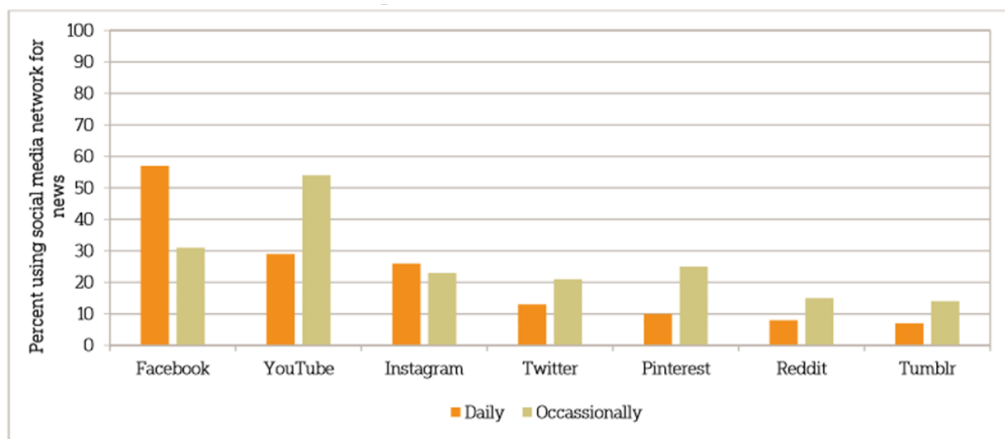


Figure 4. Percent Seeking News Daily by Social Media. Adapted from *How Millennials use and control social media*. Retrieved on February 13, 2016, from <https://www.americanpressinstitute.org/publications/reports/survey-research/millennials-social-media/>.

With Facebook, Millennials can consume, share and interact with news stories that have been posted by friends within their circle. Twitter is an important news source as well. However, Millennials use Twitter to understand what the broader world is talking about and finds newsworthy outside of their circle. See Figure 5 below for details.

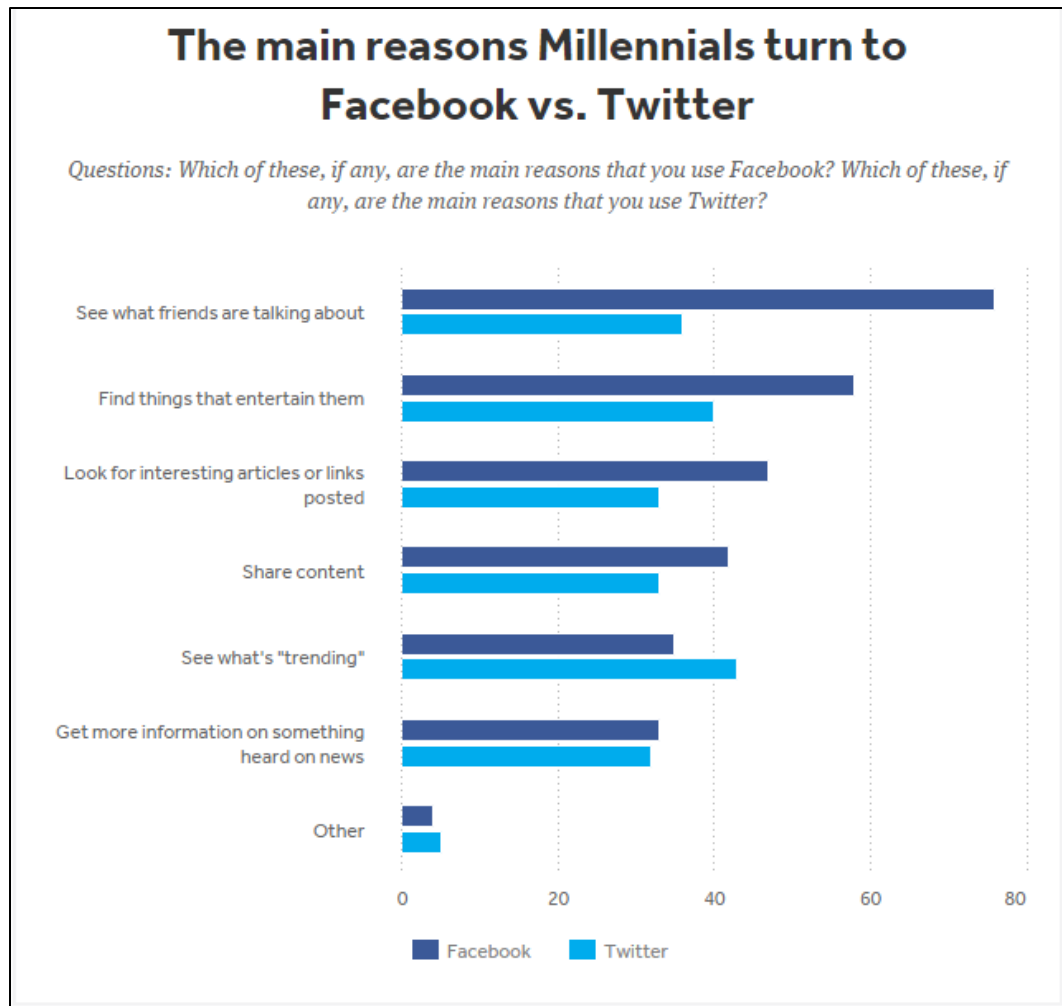


Figure 5: Reasons Millennials Use Facebook and Twitter. Adapted from *How Millennials use and control social media*. Retrieved on February 13, 2016, from <https://www.americanpressinstitute.org/publications/reports/survey-research/millennials-social-media/>

In addition to the fact that their age is consistent with the college entrance and graduate studies, the U.S. Chamber of Commerce Foundation (2013) also notes the Millennial generation is poised to be the most degreed generation in history. Following college graduation, the Millennials, according to the U.S. Chamber of Commerce (2013) will:

- Seek employment in the private sector (29%)
- Seek professions in non-profit or teaching (17%)

- Become employed in the Federal Government (2%)
- Continue on to Graduate School (27%)
- Remainder are considering military or other options.

Millennials are also highly attuned to entrepreneurship. (Research varies on the exact numbers. However, half to two-thirds are interested in entrepreneurship and 27% are presently self-employed.) The U.S. Chamber of Commerce Foundations reveals that in 2011 29% of all entrepreneurs were 20 to 34 years old. Part of the interest in starting a business is the dissatisfaction with the current workplace scenario. Millennials have seen instability, business scandals and their parents being victims of corporate layoffs. Simultaneously they have seen the rise of the young entrepreneurs such as Mark Zuckerberg, Jeff Bezos and Bill Gates.

In addition to being digital natives, and having come of age when the Internet was already developed, Moore (2007), Strass (2005) and Oblinger (2003) provides additional historical context on the Millennial life experience and what they expect. In particular, they each discuss the need for immediate access to everything including information and service by the Millennials. They go on to state that there is zero tolerance for delays by this generation and they expect service will be 24x7 via a variety of modes including technology. In particular, Moore states that for universities to be successful in the future, they must embrace the new marketing strategies that appeal to this generation.

2.4 University Usage of Social Media and Digital Communications

In this section, the paper will attempt to understand how universities are using digital and social media to communicate with students. Unfortunately, little is in the literature on the use of social media at the overall university level for purposes of

engaging with students. However, the usage of social media in the classroom is a fairly rich topic, as much has been written as many university and college educators have sought to explore the possibilities and outline best practices of social media usage in the classroom. Thomas and Thomas (2012) found that within business schools there has been some resistance to utilizing social media platforms, but they concluded the benefits outweigh the problems associated with the disruption and it is inevitable that these platforms will over time be integrated into the learning curriculum. FERPA issues regarding "student-generated content," such as blogging as well as accessibility issues for visually disabled when using social media in the classroom have been some reasons cited by Rodriguez (2011) as to the slowness in adoption of these technologies within universities. However, Dabbagh and Kitsantas (2012) assert that learning experiences are a combination of both formal and informal learning and that blogging provides an outlet for students to think about class topics outside of the organized classroom setting, thus providing a forum for them to direct their own learning. In other instances, universities recognize that social media is an excellent forum for establishing your own personal reputation or brand. According to O'Keefe (2013), Mississippi State University Department of Communications, some professors at his university highlight the importance of personal contributions in the social space by having their students take part in in-class Twitter sessions. However, he goes on to state that there is a concern among some academics that social media presents a distraction to students, but states most believe the benefits outweigh the drawbacks.

Also, found in the literature, is a study that has been done on understanding the connection between social media platforms enabled by the technological proliferation and

the improvement in student engagement and the extension of learning outside of the classroom setting. Junco, Heiberger, and Lokent (2010) found quantitatively social media usage correlates with higher grade point averages. Kent (2013) examined the qualitative content of posts in semesters where only the usage of Blackboard was available to students for discussion forums, as compared to other semesters where the usage of Blackboard as a discussion forum was coupled with Facebook as an additional discussion forum. He found the group with access to Facebook had a nearly 400 percent greater level of activity than the group who posted in Blackboard alone. Kent (2013) attributes the lift in activity among the group using Facebook to the availability of the platform on mobile devices. He recognized the connection students have with their mobile devices and the nearly universal usage of smartphones. Kukulska-Hulme (2012) considers the migration of study material directly to mobile devices and finds that a key barrier is that educators have difficulty envisioning the steps and structure for their course content to be translated to the mobile platform. Duffy and Ney (2015) explored the state of digital media usage for practitioners, students, and educators, endeavoring to benchmark the level of usage and make recommendations on how digital media can be integrated into institutions of higher learning. However, they found a gap with respect to the university being able to make the requisite changes to adopt new technologies for learning. This, of course, begs the question of whether academic institutions are slower in the diffusion of technology innovation than other sectors and if so why.

Of course, Social Media is so widely used in corporate settings that it has become a curriculum topic, for example, in a marketing or communications program of study. In fact, the researcher of this paper teaches four different 3-credit classes at both the

undergraduate and graduate levels at the University of Missouri – St. Louis on these various topics. At UMSL, there is a minor in Digital and Social Media Marketing at the undergraduate level and a Certificate in Digital and Social Media Marketing at the MBA level. Munoz and Wood (2015) discuss the teaching of the topic of Social Media and provide a review of textbooks available and the unique challenges attendant to faculty who embark on teaching in a field like social media, which is so rapidly evolving. Another key challenge is the potential to have students in the class who are already active in the space and who may have more practical experience than the instructor. Brocato, White, Bartkus, and Brocato, (2015) endeavor to identify how the topic of social media is being taught in institutions of higher education. Their analysis includes assessing metadata: course titles; learning objectives; class topics; and, tools. The objective of the study is to gain a perspective of the course specifics when the subject matter of social media is as a course topic. Relevant to the idea of students having a higher level of expertise in a topic such as social media than their instructors, Kukulska-Hulme (2012) addresses how educators should adapt to advancements for improvements in teaching. In particular, Kukulska-Hulme recognizes that the technologies in question are being used in the students' day-to-day lives, but are less common in the classroom setting. Kukulska-Hulme also suggests that ultimately the technology will allow educators and students to collaborate and “co-create” course materials.

Finally, it is important that as social media platforms represent online communities, that one manner of leveraging these platforms at institutions of higher education is to create virtual campus communities in social media. These communities can address student concerns/problems, connect students with each other, promote

campus events, and assist incoming freshmen in adjusting to a new world. Among the institutional level of communications for universities, Davis et al. (2014) provide benchmarks based on survey data regarding how key personnel (presidents, chief academic and student affairs officer, marketing director, admissions director, etc.) at community colleges rated the value of social media on various tasks. The top-ranked perceived usage of social media among top administrators and officials was delivering information about college events to current students, followed by student interactions with peers. It is interesting to note that problem-solving of administrative issues within the institution was not on the list, yet this is a key usage of social media in industry. See Figure 6 below.

<i>Perceptions</i>	<i>Mean</i>	<i>Std Dev</i>
1. Delivering information about college events to current students	3.66	.57
2. Student interactions with peers	3.61	.62
3. Delivering information about college to prospective students	3.57	.63
4. Delivering information about college services to current students	3.56	.63
5. Marketing and promotion	3.54	.67
6. Campus announcements	3.52	.66
7. Promotion of campus or online student activities	3.50	.66
8. Student engagement	3.46	.67
9. Building campus community	3.42	.70
10. Student recruitment and admissions	3.34	.72
11. Delivering information about college to alumni	3.21	.80
12. Student providing feedback to institution	3.03	.82
13. Student interaction with faculty	2.96	.78
14. Student interaction with staff	2.81	.81
15. Students providing feedback to division	2.73	.89
16. Student learning	2.73	.80
17. Improving student outcomes	2.57	.82

Note. 1 = No Value; 2 = Minimal Value; 3 = Moderate Value; 4 = Great Value

Figure 6. Community College Leader’s Perceptions on the Value of Social Media. Adapted from “Social Media, Higher Education, and Community Colleges: A Research Synthesis and Implications for the Study of Two-Year Institutions,” by Davis, C. H. F., Deil-Amen, R., Rios-Aguilar, C., & Canche, Manuel S. G., 2014, *Community College Journal of Research and Practice* 00:1-14.

To answer the question of how effective social media is in changing outcomes of student assimilation when employed at the institutional level, DeAndrea et al. (2011)

provide evidence related to a campus website at the University of Michigan that provided calendar reminders and other communications to students as part of their university digital experience. Students were organized into groups based on their residence hall and given an opportunity to connect with other students who were enrolled. The data collected measuring the use of the website was regressed against data drawn from student surveys to see if the website activity predicted either bridging self-efficacy (ability to form social connections) and academic self-efficacy (GPA, staying current in classes, effective time management). The findings were that a student's usage of the website predicted their perceptions of their own ability to form social connections, and this, in turn, predicted academic efficacy. Logan (2013) who blogged on the topic that online universities need strong online communities to combat rampant attrition, argues that the problem of feeling connected and a part of an institution is greatest among institutions who have Online study programs. Additionally, Logan argues that given the financial pressure on institutions, the online delivery of content to students is sure to grow and that the best way to curb the high attrition rates seen in online universities is to create a sense of community for students via social media. From the Sprout Social Media blog, Washenko (2013) discusses what she learned from interviews with the communications directors at two different universities (Drake and Loyola) about how they employ digital and social media marketing best practices. Washenko's conclusion is that both universities were using social media best practices that would be familiar to any practitioner in the space. In particular, Drake University has a wide array of social profiles across the academic departments, and although there are rules and legislation to abide by, the most important rule is to be attentive, be conversational and build

relationships. Students particularly enjoy that their Facebook pages are redesigned annually for each new incoming freshman class. At Loyola, the focus is on transparency, and use various communications depending on what is required for instance short messages or conversations would occur on Twitter, with longer messages and less need for conversing on Facebook.

Foulger (2014), in a blog for Hootsuite, provides three interesting case studies on the effective use of social media, including acquiring students through innovatively profiling different dorm rooms on social media for USC, constructing a cohesive social media welcome strategy to new students as was done at Ryerson University in Toronto, and using social media for building strong alumni relationships, an initiative at Ohio State.

Ahlquist (2013) discusses the melding of social media communication with in-real-life experiences to build a strong community on campus. The benefits to an integration of social media with traditional communication platforms have numerous benefits to students, among them, giving practical experience in integration of the technology in their daily lives; as well as providing students with ongoing channels for feedback and connection directly to the university.

Ahlquist (2013) also uses her experience at Loyola Marymount University leading a group of student affairs professionals to develop a comprehensive strategy of best practices for universities. One area that she stresses is the need to develop a strategy. She believes strategy development is the foundation of a good social media program and is an advocate on measuring the social media interaction with students so that successes and failures can be identified. However, as will be discussed in Section 2.6, many

scholars in the literature feel universities are not overly capable of setting strategy because the various colleges and departments within a university are very compartmentalized and typically do not share information, goals, priorities and resources with each other. In the business world, this is called a “siloes” structure (Gleeson, 2013).

2.5 Social Media Usage for Brand Building

Within this section, the researcher will examine social media usage best practices by the industry. This knowledge will help in determining if gaps in the use of social media by the universities under study, regarding these best practices, exist. Upon collection of usages of social media for this section, some data were specifically available for non-profits and academic institutions as well.

2.5.1 Posts per Day

An important question in best practices revolves around the number of posts per day. Track Social (2012) indicates that in Facebook there are diminishing returns in the response level among the audience past a single post (see Figure 2, Section 1.3.4). They also point out, that it is the response of the audience that is the most critical metric to measure since this is the engagement level that a post generates. Lee (2015) indicates the favorable number of posts for Facebook is no more than two. In a study of several selected major brands posting on Facebook, Social Bakers, as reported by eClincher (2015) found that posting 3 or more times per day negatively impacted engagement and diminished page likes. One complexity is that Facebook utilizes an algorithm of who sees a post by a brand. Consumers may like a brand, and a like on a Facebook page should allow a follower to see the posts, however if a follower fails to engage with the brand, then the algorithm puts the posts into an ever lower rotation in the followers

newsfeed, until, s/he doesn't see posts from the brand at all. Hence, this is why it is so important to maximize engagement with the consumer.

Hutchins (2015) provides a new viewpoint on the favorable number of posts for all social media platforms, including Facebook saying the favorable number of posts are in part driven by the number of followers. Thus, he provides a range based on the number of fans: If less than 1,000 followers, posts should occur roughly once every four days. If fans exceed 10 million, then, posts occur roughly five times a day.

Hubspot (2015) also looked at the issue of ideal number of posts for engagement in a unique way, which was to compare by industry. One industry that they found to have the highest number of posts per week was the Real Estate industry (see Figure 7 below). This finding makes sense when one considers that communication with their target audience, consumers who are in the market for a home, is a very tight window and the objective would be to have ample communications to motivate those in the market.

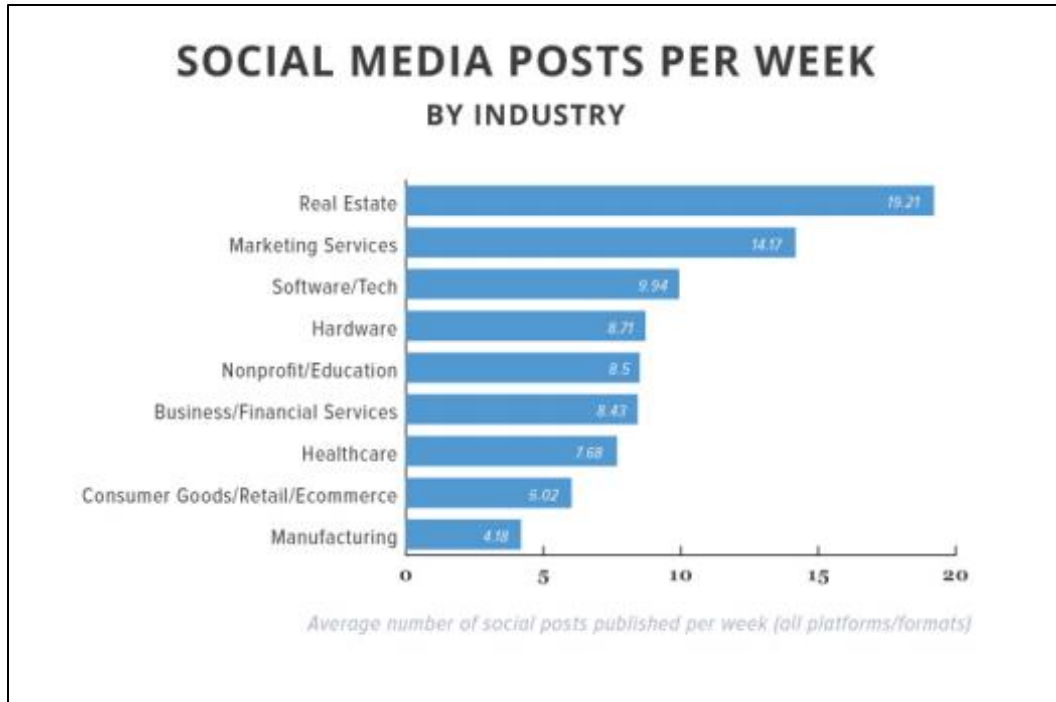


Figure 7. Social Media Posts per Week across all Social Media by Industry. Adapted from 2015 Social Media Benchmarks Report. Retrieved on March 6, 2016, from http://cdn2.hubspot.net/hub/53/file-2415418647-pdf/00-OFFERS-HIDDEN/social-media-benchmarks-2015.pdf?t=1457315543905&_hstc=20629287.9a3ef1693de0fb286f752823aba3391e.1457318606216.1457318606216.1457323194332.2&_hssc=20629287.2.1457323194332&_hsfp=2405861585.

Looking at just Facebook posts per week, again Real Estate is at the top of this list, but for this view, it can be seen that Nonprofit/Education come in fifth (see Figure 8 below).

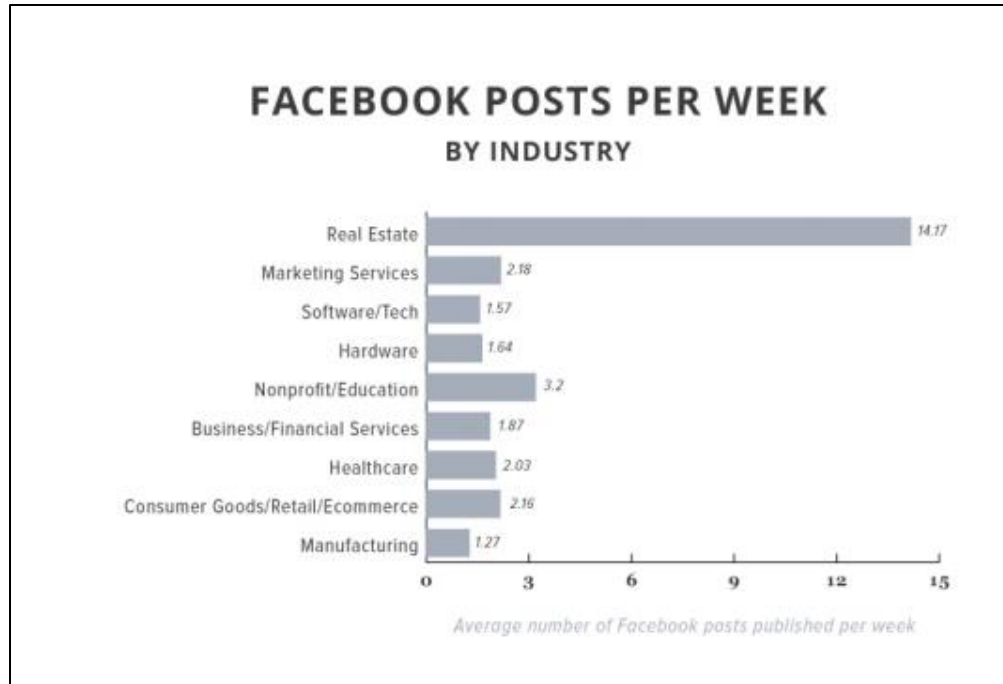


Figure 8. Facebook Posts per Week by Industry. Adapted from 2015 Social Media Benchmarks Report. Retrieved on March 6, 2016, from http://cdn2.hubspot.net/hub/53/file-2415418647-pdf/00-OFFERS-HIDDEN/social-media-benchmarks-2015.pdf?t=1457315543905&_hstc=20629287.9a3ef1693de0fb286f752823aba3391e.1457318606216.1457318606216.1457323194332.2&_hssc=20629287.2.1457323194332&_hsfp=2405861585

For the Twitter network, Lee (2015) reports research from Social Bakers that shows engagement decreases slightly after the third tweet within a day. However, given the nature of Twitter where tweets disappear into the Twitter stream rather quickly, the recommendation is three tweets or more per day. eClincher (2015) advises experimenting with what is right for each business. A business with a localized following might find tweeting four times a day to be ideal, for a global business it may require 10-15 tweets per day to cater to all consumer time zones.

Hutchins (2015) provides best practices based on the number of followers on the Twitter network. If the brand in question has less than 1,000 followers, he prescribes 1.1 tweets per day as the most favorable. If there are more than 10 million followers in a franchise, then the most favorable tweets per day are 10.6.

Regarding the Hubspot (2015) benchmarking report, Real Estate, although in the top position on posts per week on Facebook does not rank highest regarding Twitter posts. The lesson is that Real Estate relies heavily on the images associated with the messages, and Facebook is a better platform for pictures. In addition, homes are highly socialized, and individuals are likely to get more socially interactive with posts about a home. Figure 9 shows the tweets for Marketing Services are much higher than for other segments; however in fifth place is Nonprofit/Education, which is a segment of interest for the study.

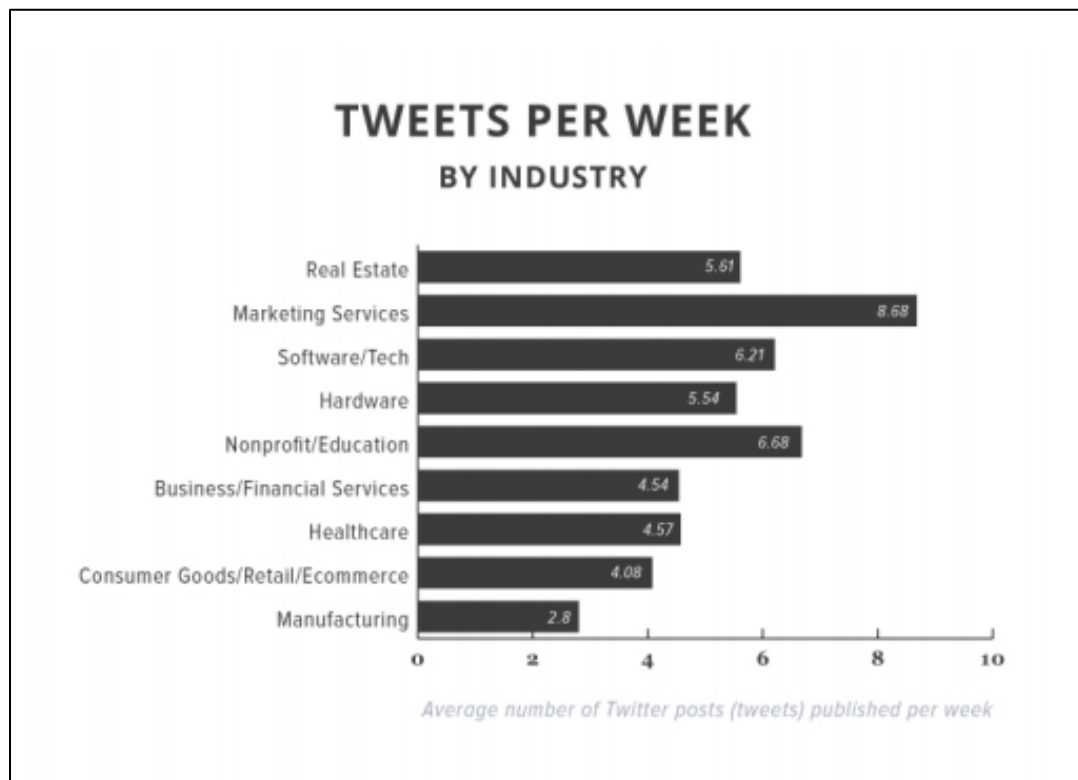


Figure 9. Tweet Per Week by Industry. Adapted from 2015 Social Media Benchmarks Report. Retrieved on March 6, 2016, from http://cdn2.hubspot.net/hub/53/file-2415418647-pdf/00-OFFERS-HIDDEN/social-media-benchmarks-2015.pdf?t=1457315543905&_hstc=20629287.9a3ef1693de0fb286f752823aba3391e.1457318606216.1457318606216.1457323194332.2&_hssc=20629287.2.1457323194332&_hsfp=2405861585.

Lee (2015) reports research from Union Metrics that Instagram did not show a falloff in engagement associated with more posts. That being said, they also reported most brands post on average 1.5 times per day. eClincher (2015) states that the network norm is once per day, and although more posts are not forbidden, they contend there is an unspoken rule about more frequent posts on Instagram.

Hutchins (2015), once again, provides a variable scale for the ideal number of Instagram posts based on the number of followers for the brand or entity. If there are less than 1,000 followers, then .33 times per day or once every three days. For an audience of greater than 10 million, then the ideal number of posts for Instagram would be 2.47 times per day.

For the professional social media platform, LinkedIn reaches the highest level of engagement when posts occur once per business day according to Lee (2015). eClincher (2015) concurs with the optimized number of posts on LinkedIn to be once per workday. The best posting strategy tends to be highly correlated with the workday schedule.

Using this data, the study will compare the corporate practices regarding the frequency of posts to the universities under investigation and call out any discrepancies or trends that are noticed.

2.5.2 Length of Posts

Based on a study by TrackMaven (2014) and quoted by Hussain (2014), they show that Facebook users are readers and as such, posts of 80 words or more are best for engagement (see Figure 10 below).

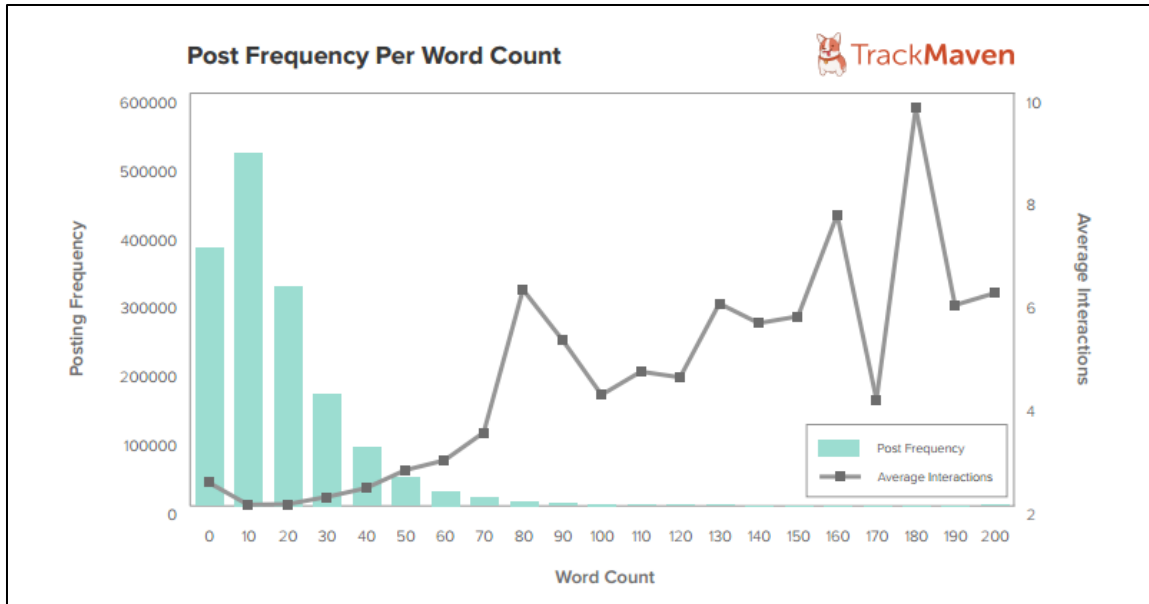


Figure 10. Facebook Post Frequency vs. Post Engagement. Adapted from Facebook Report 2014. Retrieved on March 6, 2016, from http://pages.trackmaven.com/rs/251-LXF-778/images/TrackMaven_Facebook_Report_2014.pdf.

Based on a study by BlitzLocal (2012) and quoted by Kubar (2012), they found that the highest interaction was seen from posts between 100-119 characters. Lee (2014) cites research by blogger Jeff Bullas that states that less than 40 characters yield the best engagement rates on Facebook.

For Twitter, a message tweeted (rather than a direct message to another user) is limited to 140 characters. Zarella (2014) has analyzed over 200,000 tweets containing links and found that the best length of a tweet to gain interaction in the form of a “clickthrough” is between 120 and 130 as can be seen in Figure 11.

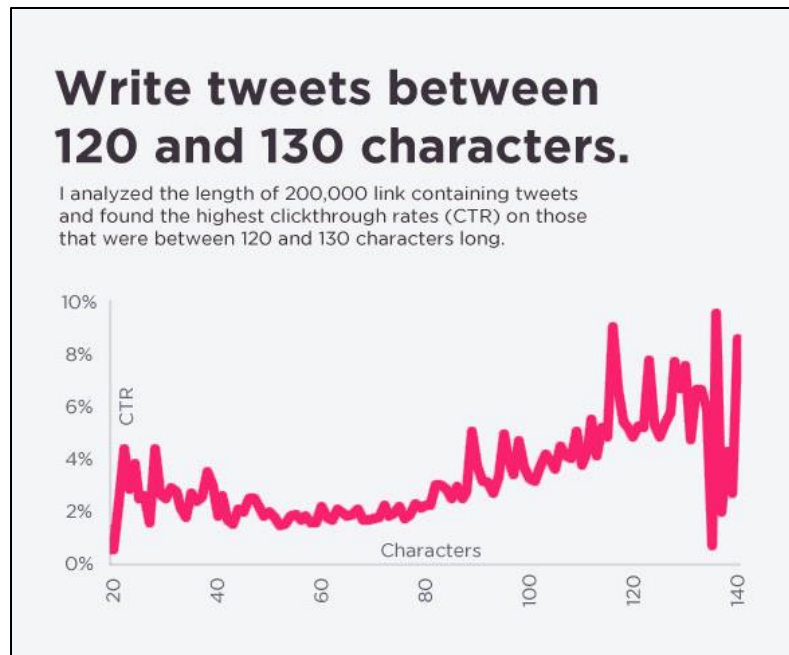


Figure 11. Tweet Engagement Rate by Character Count. Adapted from *How to Get More Clicks on Twitter*, by Zarella, D., 2012. Retrieved on February 23, 2016, from <http://danzarrella.com/infographic-how-to-get-more-clicks-on-twitter/>

Salesforce (2013), who focused solely on large brands, found that the best character length for tweets was less than 100. They found a 17% higher level of engagement for tweets following this convention. Lee (2014) also cites work by Track Social (2014) reporting that tweets with 100 or fewer characters are best.

Again, using this data, this study will compare the corporate practices regarding the length of posts to that the universities under investigation and call out any discrepancies or trends that are noticed.

2.5.3 Content Classification Rules

Social media operates on the idea that the platforms that support the interaction are a virtual conversation of listening and sharing. Thus, the content classification rules revolve around the proportion of content that falls into particular categories. It is well documented by many sources including Rallyverse (2014) that brands that focus too

heavily on promotional messaging to followers are quickly unfollowed and find very low levels of engagement. Thus, various entities came forward with rules to maintain engagement, but also to provide some level of promotion or selling to the interactions. Rallyverse (2014) introduced their golden rule of social media, one of the most quoted by the industry, based on the 60/30/10 rule where 60% of the content is curated or shared from third parties, 30% is owned or originated from the entity who is posting, and 10% is promotional. Their rule is devised to minimize the negative impact of creating either an overly self-centered or promotional social media persona. Other practitioners in the space recommend different ratios and even different content classifications.

Another popular ratio for sharing content on social media is the 5-3-2 rule. This rule originated with TA McCann of Gist.com (as cited in Thou, 2015), states for every ten posts in social media, five are posts with content from others, three are posts with content from you, and two posts should be unrelated to your company, but of interest to your audience.

Andrew Davis, of Tippingpoint Labs, and Joe Pulizzi, founder of Content Marketing Institute, coined the 4-1-1 rule, which was reported by Lawton (2012). The rule states for every self-serving tweet/post/status update, a brand should share four new pieces of content and engage in one re-share. The rule was designed to keep a conversation in a give and take style, without appearing too self-focused.

Shai Coggins of Vervely, a Social Media agency in Australia is attributed to the 5-5-5 rule as reported by Lee (2014), which states that the appropriate ratio should be equal (in increments of five) for updates about you, updates about others, and responses and replies. Therefore, the unique aspect of Coggin's rule is that the replies and

responses should be as large as the component of posts about yourself. Millbrath (2014) also advocates a balanced approach with a component dedicated to personal interactions, but calls her approach a Rule of Thirds. She adheres to one-third of social content should be focused on promoting your business and converting followers for profit generation; one-third should be focused on industry topics, from other thought leaders in your space including direct competitors; and one-third should be personal interactions to build your personal brand.

For this section, the researcher will examine the corporate practices regarding the rules of content creation to that the universities under investigation and once again call out any discrepancies or trends that are noticed.

2.5.4 Use of Images and Video

TrackMaven (2014) reports that posts with pictures on Facebook receive 37% more interactions than posts without and 88% of all posts on Facebook are made with a picture. Twitter gets a similar lift in engagement from photographs (Rogers 2014). Tweets with photographic content get 35% more retweets on average.

With respect to videos, Adobe Digital Index (2014) reveals in Figure 12 the relative Facebook engagement levels based on the elements in the post. This fact indicates a video drives a 100% increase in interaction over just a post with a link.

Facebook Engagement Rate by Post Type		
	Q1 2013	Q1 2014
Image	5.0%	4.4%
Link	2.3%	1.4%
Text	1.7%	0.6%
Video	2.4%	3.0%

ADOBE DIGITAL INDEX | The Social Intelligence Report - Q1 2014

Figure 12. Average Facebook Engagement Rate by Post Element. Adapted from *Social Intelligence Report*. Retrieved on March 6, 2016, from http://www.cmo.com/content/dam/CMO_Other/ADI/SocialIntelligence_Q12014/Q1_2014_social_intelligence_report.pdf.

The lift provided by videos in Twitter is not as impressive as the lift seen in interaction on Facebook. Rogers (2014), the Data Editor for Twitter Blog, indicates videos in Twitter capture a 28% increase in Retweets. Since the advent of native videos within Facebook, engagement has been compared to the native Facebook videos versus the YouTube embedded videos. The native videos get twice as many views and seven times as much engagement (Baker 2015).

Video and image usage by the various universities within their posts will be examined. In particular, an examination of the percent of all posts containing videos and images will be conducted and a comparison across universities made.

2.5.5 Consistent Voice

Most social media practitioners have heard that a consistent voice in social media is key. However, it is less well known how to make this happen in organizations where there are many individuals who represent the brand. Solis (2011), founder of the Altimeter Group, a consultancy at the forefront of Social Media consulting advocates the

development of a Social Media Brand Style Guide, and Guidelines for usage in training the social media staff. Nagel (2015) also provides guidelines regarding online communications including showing an interest in others and being genuine and authentic. McKelley (2016) suggests the development of buyer personas to allow the social media team to visualize the type of individuals with whom they are dealing. This is especially helpful if the audience of a brand contains multiple segments, with different interests and needs - as is the case for academic institutions.

Although this is important, capturing the use of a consistent voice was deemed outside of the scope of this research paper and will be considered on its own in future research. However, it should be highlighted that differences were seen between schools and inconsistencies within schools. For example, the researcher of this study noted that one school in particular did not understand whom they were talking with on social media. Their posts were quite varied and dealt with politics, alumni, faculty, staff and students. There was no focus. Because of not focusing on a specific and targeted audience, they had the lowest engagement rates among the nine universities under study.

2.5.6 Use of Contests

The purpose for any marketer to run a contest in social media is to build their audience and have a reason to communicate about something that will be shareable. Katz (2014) advises it must be fun and be one that individuals would be happy to align themselves with. To this end, the prize should also align with the overall theme of the contest and campaign. When the contest allows the submission of content from brand followers, it gives a level of authenticity to the brand, which adds to a brand's trust factor. A good contest is one where the contestants (and their friends if there is a voting

component via submitted content) need to come back frequently so there is a traffic increase where you can expose these visitors to your page to new content.

Hootsuite (2015) advises that the first step is to set the goal for what you want to achieve with the contest. Whether the goal is for brand awareness, building fans, generating leads, or improving engagement, the goals will inform the kind of contest that you run. On Facebook, the types of contests you can run are:

- Sweepstakes
- Photo
- Video
- Comment based
- Trivia
- Challenge

In addition, Hootsuite (2015) advises keeping things simple so that it is easy for people to participate. If the rules are simple, then you will have more engagement. The rules should be clearly posted on the Facebook page.

Leaning (2012) advises giving a contest more of a custom look and feel on Facebook. A brand is best served by employing an external app such as Shortstack, Woobox, or Offerpop, and if your goal is to generate leads, use an app to create a form to make it easy to register. This has benefits over not using an app which in turn would make it more difficult for a consumer to understand how to register.

Are universities using contests and if so how often and are they meaningful to students and engage them. I will assess the universities under study to see who is doing it right and who has room for improvement using the best practices outlined in this section.

Millennials want to be entertained as stated earlier in this paper. They want to co-create and be a part of the brand experience.

2.5.7 Two-Way Conversations

Arguably, one of the more transformational aspects of social media is the access that it provides individuals to ask questions or deliver complaints to a brand. With the access in the hands of consumers who can tweet questions or complaints at brands for the world to see, there is a need for best practices in the area of managing customer communications. According to Nielsen (2012), nearly half of the U.S. consumers use social media to ask questions, report satisfaction or complain. In fact, one in three consumers prefers customer service via social media channels versus over the phone. The first rule of customer service, according to Zendesk, is to be where your customers are. In other words, the social media team must monitor all of the social channels where your customers congregate and post and look for those posts that may require a response. Moore (2007) as you recall, stated that for universities to be successful in the future, they must embrace the new marketing strategies that appeal to this generation. It is up to each brand to search various social media platforms for conversations relative to their brand. Zendesk also advocates tracking the volume and type of response-worthy posts so that benchmarks can be set to assess if (as in the Airline Industry) there is a baseline for negative or problem-related communications that will always be present just by the nature of the industry.

Lithium (2012) conducted a social survey to assess what consumers expected in the social realm from brands. They expect to have a two-way dialogue with a brand. Thirty-five percent expect to hear from a brand that they have liked on Facebook, but

58% say they have never received a response after liking a company. Companies are part of the problem; 86% say they actively use Facebook in their marketing efforts, but only 2.8% report that when Fans like their brand on Facebook it results in better quality interactions. Clearly, there is a gap that needs to be bridged by companies to their consumers, and while some brands are managing excellent social media teams, not all are, and many consumers are tweeting their frustrations.

Edgecomb (2013) provides tactical insights on the conversation that is possible between brands and consumers. The purpose is to humanize the brand by giving a voice that can interact directly with consumers. To be more human and likable a brand needs to participate in a give and take conversation, with consumers and at times with other brands. Edgecomb also advocates humor as long as it is not forced.

Given instant recognition is important for the Millennial generation, where do universities stand regarding carrying on a two-way conversation publicly with students? Are universities responsive to student social media posts and inquiries? That is exactly what this study will try to understand in part.

2.6 The State of Universities

It is important to examine the current state of education in the United States. This will help frame the need for universities to be more competitive through better marketing and communications. Many colleges and universities in the United States are having major financial difficulties due to the recession, reduced state funding, lower student enrollment rates, and increased competition for fewer students. The university where the researcher teaches, UMSL, was \$15 million dollars in debt in 2015. A look at restructuring and potential layoffs loomed as he was writing this paper. In fact, according

to The New York Times (2013), one-third of all colleges and universities are on an unsustainable fiscal path. The number of higher education institutions on the Department of Education's watch list has grown by over a third since 2007. Another reported problem is that in 1987 the states covered about three-quarters of the institution's expenses. Today that figure is half at best if not well under.

According to the Census (2014), college enrollment has declined by close to half a million for two years in a row. As such, it would seem that universities need to be more aggressive in their marketing/student retention efforts to be competitive. This underscores the importance for universities of understanding their market, being where their customers and communicating with them in ways they prefer as stated previously in this paper.

2.7 Can Universities Operate Strategically?

In order for a university to be able to enact a better communications plan, strategy at the highest level is required. Can a university develop and act on strategic goals? A review of the literature in this area will address this question.

If universities were run like corporations, mission statement, strategic planning and goals would be set to quickly combat such issues before they even evolve to a major problem. But, universities are not like corporations. According to Sevier (Spring 1996), universities have too much vision rather than too little. Universities are very siloed by the various colleges, departments and even faculty all with their own agendas. And, through trying to do too much, they do too little.

According to Canning (1998), a marketing conscious company will enact a plan that identifies its customer targets and the products and services they each want. It will

also assess the competitive landscape. So why is it so difficult for a university to apply such corporate business practices more effectively? The problem lies in the complex business model of a university and the various thoughts regarding who the customers are and what the product is. Kotler and Murphy (1982) feel universities are not equipped to create a strategic plan and are better at operations. Stating that certain strategies require certain structures to succeed and organizational structures in higher education are often hard to change and growth opportunities are limited because of the need to satisfy internal constituents. They go on to state that to adopt a new strategic posture, the university may also have to develop a plan for changing the culture of the organization.

In a paper by Doyle and Lynch (1979), they state four reasons that universities have not adopted the type of strategic planning employed by modern commercial organizations.

1. Government financial support
2. Organizational inflexibilities that do not make it easy to shift resources when necessary
3. Can be overly research focused with only secondary concerns with the marketplace
4. Confuse planning with budgeting

They continue by laying out a systemic approach to strategic planning in universities to be successful. In the paper by Sevier, he also helps lay out approaches for universities to be more strategic and why.

Based on this literature it appears that a university can be strategic but not without challenges. And in these days of reduced government funding, creating a strategic

marketing and communications plans could be considered critical to the future of any academic institution.

2.8 Who is the Customer?

Another reason why universities have a difficult time in creating a strategic plan is that many do not know who their customers are. Is it the student, the faculty, the employers, or government agencies? In fact, Cuthbert (1989) and Johnston (1988) do not even see students in the mission of a university. In this section, the researcher explores the literature in an attempt to understand how universities view their students.

Conway, MacKay, and York (1994) conducted a study of 83 universities mission statements to help understand their positioning. They categorized them in the following manner:

- A. Product Marketing Approach – only talked about their educational courses and no student focus
- B. Service Marketing Approach – Similar to A. but would elaborate on the education process.
- C. Unclear specification of multiple customers
- D. Clear specification of a number of customers
- E. Potential employer as the major customer
- F. Both student and employer as major customers
- G. Identification of the complexity of the student role.

Category of mission statement	New universities/ polytechnics		General colleges		Specific colleges		Total Number
	Number	%	Number	%	Number	%	
A	10	32	8	36	10	33	28
B	6	19	2	9	4	13	12
C	12	38	8	36	5	17	25
D	2	6	1	5	0	0	3
E	0	0	1	5	10	33	11
F	0	0	2	9	1	5	3
G	1	3	0	0	0	0	1
Total	31		22		30		83

Figure 13. Type of Mission Statement for 83 Universities. Adapted from “Strategic planning in higher education: Who are the customers,” by Conway, T., Mackay, S., & Yorke, D., 1994, *International journal of educational management*, 8(6), 29-36.

As can be seen in Figure 13, the largest grouping (approximately one-third) were identified as being product driven, meaning they are placing more emphasis on courses and not the student.

Pereira and Silva (2004) analyzed the views of several authors and their positions regarding who are the customers. The results can be seen in Figure 14 below.

Authors	Students	Employers	Faculty	Society/ Government	Families	Managers/ Employees	Others
Weaver (1976)	v	v	v	v	v	v	
Kotler and Fox (1985)	v	v	v	v	v	v	v
Robinson and Long (1987)	v	v	v		v	v	v
Ermer (1993)	v	v	v				
Owlia and Aspinwall (1996a)	v	v	v	v	v		
Karapetrovic and Willbom (1997)	v	v	v	v	v	v	v
Rowley (1997)	v	v	v	v	v	v	v
Owlia and Aspinwall (1997)	v	v	v	v	v	v	v
Reavill (1998)	v	v	v	v	v	v	v
Kenji and Tambi (1999)	v	v	v	v	v	v	
Hewitt and Clayton (1999)	v	v	v	v			
Hwang and Teo (2001)	v	v	v	v			v
Prendergarst <i>et al</i> (2001)	v	v		v	v		v

Figure 14. How Authors View the Customer of Academic Institutions. Adapted from “A key question for higher education: Who are the customers?” by Pereira, M. A. C., & Da Silva, M. T., 2003, *31st Annual Conference of the Production and Operations Management Society*.

As can be seen, all feel students and employers are customers. And all but one author felt that faculty are also customers of the university. Hewitt and Clayton (1999) specifically state that the most obvious educational stakeholders are the educators and those being educated – those teaching within the university and those studying there. They go on to state that the student is not simply analogous to the consumer of the service, but also the input material which is in the process of being created.

As seen above, most of the literature do feel a student is a customer. Hence, one must believe it critical that the university engages with that student in a manner the student would expect from any company they are doing business with. The environment is competitive for students given reduced funding.

Seymour (1992) correctly predicted that it is the age of consumerism in higher education. Owlia and Aspinwall (1996) also predicted that the state higher education is moving towards is a market-oriented environment in which delighting the customer plays

an important role. Nevertheless, they do caution that because of the complex and dynamic nature of education, there are some reservations in the mode of operation. Abeyta (2013) states that the transformation of the student into a customer stresses the importance of treating students as such in order to succeed in the competitive higher education marketplace that is emerging.

Browne, Kaldenberg, Browne and Brown (1998) state that institutions that want positive word-of-mouth from current and former students should not restrict their efforts to administrative and curricular issues that are easy to benchmark, but should consider the nature of the total service encounter between students, staff and faculty. They go on to say that it should be recognized that these encounters have emotional qualities that impinge on satisfaction judgements.

Letcher and Neves (2010) state institutions of higher education are increasingly realizing they are part of the service industry and are putting greater emphasis on student satisfaction as they face many competitive pressures. Administrators and educators also recognize that understanding the needs and wants of students and meeting their expectations are important to develop environments in which students can learn effectively (Seymour 1992). Therefore, in today's technology-based world, the way in which universities meet those expectations must change.

According to CollegeAtlas.org, approximately 30% of all college students drop out after their first year. Retention, according to Gerdes and Mallinckrodt (2001), are more than just a function of academic performance. It covers three broad areas (a) academic adjustment, (b) social adjustment, and (c) personal adjustment.

By creating and fostering a community with the students using tools and technology they enjoy, a university could greatly affect all areas mentioned above by connecting students, reinforcing the values and instilling a sense of belonging. This is what this paper will begin to explore and understand.

2.9 Diffusion of Technology Innovation in Academia

Lastly, this paper will explore the research around the adoption of new technology to understand if differences exist between academic institutions and other industries. For example, are universities slower at adopting new innovative technology than other sectors, why and how might this impact their ability to communicate with Millennials in ways they desire?

The theory of diffusion seeks to explore how, why and at what rate new technological advances are introduced within a business or industry. The basis of the diffusion model theory was born by Rogers (2010) in 1962 as seen below in Figure 15.

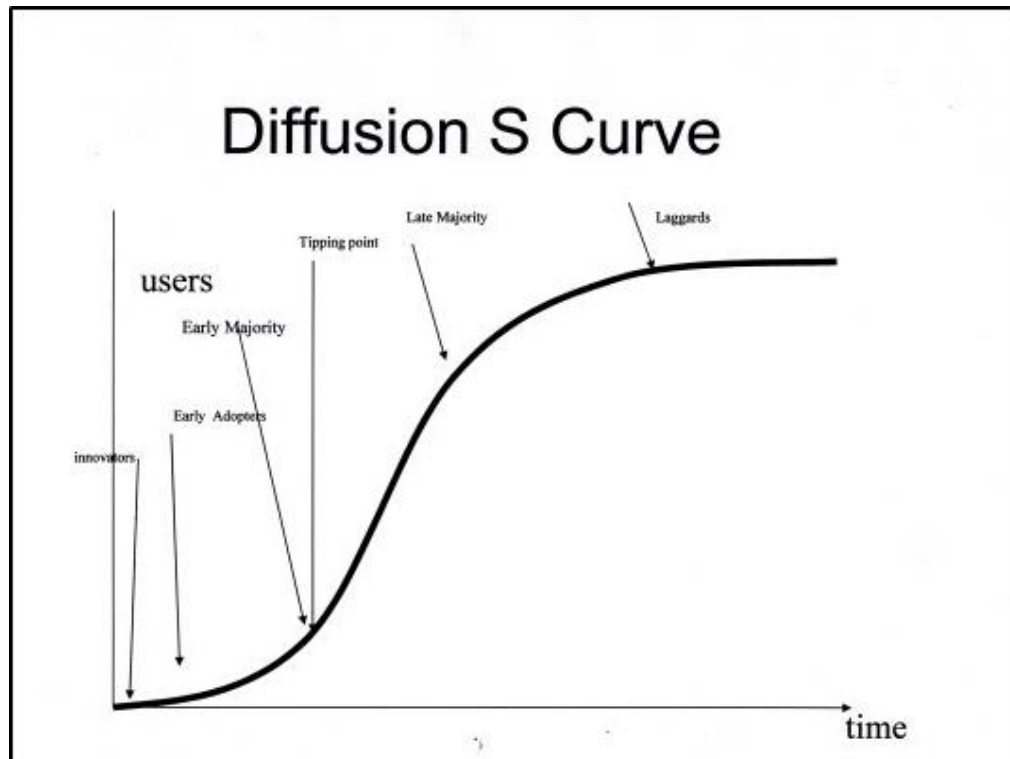


Figure 15. Diffusion S Curve. Adapted from *Diffusions of Innovation*, By Rogers, E. M., 2010, Simon and Schuster.

The premise of the diffusion theory model is you have innovation followed by early adopters. Influential early adopters that embrace the new technology are key to reaching the early majority and hence the tipping point. How quick one reaches a tipping point is a function of many things. G. Moore (1991) in his book states the real problem is crossing the chasm. He defines crossing the chasm as moving from the early adopters to the early majority. The early adopters need to be the evangelists winning over the early majority. They are key to successfully making the leap.

The elements of diffusion as defined by Rogers are innovation, adopters, communication channel, time and social systems.

J. Rottman (2002) did research on technology diffusion within a university setting. His study was a look at the impact on the rate of adoption caused by the social

systems within a university. In his research, he found significant differences in the adoption of technology by colleges and departments within the university. Those departments that were more homogeneous in terms of ages, ideals, and beliefs were much quicker to adopt new technology versus those departments that were not.

Rottman states within his paper, the Vice Chancellor of Information Technology Services at the university being studied by Rottman, termed the university as “Byzantine” in the way the departments interact with each other. This is consistent with other citations by Sevier, Canning, Kotler, Murphy, Doyle and Lynch in the prior section regarding universities being very siloed and unable to act strategically and work across departments or even within departments.

To understand if one can expect the time it takes to cross the chasm to be slower for academic institutions vs. other organizations, the researcher examined each of the elements of innovation in detail as they relate to a university setting:

- Innovation – *Innovation is certainly present in any research university institution. So there appears to be no issue here.*
- Adopters
 - Early Adopters – *There are always trailblazers in an organization. But how influential they will be within an academic establishment is the question.*
 - Early Majority – *Due to the slowness of any academic establishment to act compounded with compliance issues and FERPA issues as cited by Drake (2014), adoption of innovation would certainly be expected to be slower than in other business models.*
- Communication – *Due to the siloed nature and lack of strategic leadership within universities at the highest level, which was cited previously, one could reasonably expect this to slow down the adoption process of innovations.*
- Social System – *Given the research by Rottman and the issues with social systems within an academic setting, this too would be expected to cause issues with the adoption rates of innovation across the entire campus.*
- Time – *If one believes the above statements true, then time of adoption by universities would be expected to be slower.*

In a study conducted by New Media Consortium Horizon Project (2015), they found various factors that cause a slowdown to the adoption of new technologies within universities including Faculty training, processes within education, lack of demand by faculty, competing models of education.

Morrison (2014) states that it takes a strategic approach to adopt new technologies, which is a challenge for academic institutions due to their siloed structures.

Parr (2015) speaks of six significant challenges impeding technology adoption in higher education, including a lack of consensus on what comprises digital literacy by colleges and universities when formulating adequate policies and programs that address this challenge.

Concerns with FERPA issues are also cited by Drake (2014) in his discussion of the ways faculty can safely employ these new media within the classroom setting.

2.10 The Gap

As can be seen in the review of the literature, the majority of references regarding how universities are using these new social and digital media tools is within the teaching classroom. Relatively few sources address the use of social media for purposes of engaging with the students outside of the classroom including Ahlquist (2013), Drake (2014), Foulger (2014) and O'Keefe (2013). As the literature supports, some in academia do agree this is important, especially in today's competitive academic environment. Many citations have been expressed earlier in this chapter stating that 2-way conversations between a customer and business using social media and digital communications is imperative especially for Millennials. Therefore, this should be no

different for the student/university relationship since students are customers as supported by the literature.

Regarding the diffusion of technology at the university level, conclusions have been expressed supporting slower adoption can be expected and is understood.

In summary, this paper will begin to address the gap in the literature of how universities are using digital and social media to communicate with students, create communities, what practices they are employing and how those practices compare to best practices published in literature.

CHAPTER 3: Methodology

3.1 Introduction to the Chapter

As described in Chapter 1, the purpose of this study was to investigate how universities are using social/digital communications, including strategies to engage with students and prospective students, and how such usage compares to corporate best practices. This study also sought to determine if a correlation exists between college rankings of the various universities and their effectiveness in the use of social and digital strategy.

Chapter 2 highlighted the lack of research in this area and the need to understand how universities are currently engaging with students using new and emerging technologies. In times of increased pressure on universities to increase enrollments, brought about by decreased government funding and increased competition, being effective in the use of these new means of communications with students can be seen as one way to help relieve pressure.

To address the goals of this study, the researcher used a case study and correlation approach that was both quantitative in nature. This chapter will describe the methods that were used, including the research design and sample construction. It will also discuss the instrumentation and data collection methods. Finally, this chapter will discuss the data analysis.

This research paper addresses four questions: (1) How are universities using the various social and digital media platforms? (2) How effective are they in using these tools? (3) How do these practices compare to corporate best practices? (4) Is there any

correlation between college rankings and how well the various colleges use social media to engage students?

3.2 Research Method and Design

This study employed a case study and correlational analytical approach. For the first research question, nine universities were examined regarding what social media they were using at the university level. Regarding the second research question that addresses effectiveness, engagement metrics for the nine universities was calculated for each social media platform. The third research question was answered by comparing each university's usage of a social media platform with the known best practices as cited in the literature provided in Chapter 2. Lastly, the paper determined if a correlation exists between each university's overall social media engagement and the Forbes college ranking numbers. For example, did a university that had higher engagement rates on social media have a more favorable college ranking score?

3.3 The Sample

The researcher examined nine universities, of which one was the University of Missouri – St. Louis (UMSL), where he holds a faculty position. The other eight universities were selected based on similar characteristics as UMSL. The researcher started with 103 universities, based on the following seven criteria:

- Were they classified as an “urban university” based on the Urban 13 Coalition?
- Were they classified as a Great Cities’ University Coalition (GCU)?
- Were they listed in the top 25 as being the most affordable according to Great Value Colleges (2016)?

- Were they listed in the top 15 as being the best urban university according to College Raptor (2016)?
- Were they listed as one of the ten best commuter campuses according to Money (2015)?
- Where they listed by Wikipedia (2016) as the best example of an urban university?
- Are they a member of the Coalition of Urban Serving Universities (2016)?

Once the list was created, universities were sort ordered based on how many of the above seven lists they appeared. Those that were found on 3 or more of the lists reduced the set to 12 universities.

To ensure no extraneous elements having nothing to do with this study could affect one university's use of these communication tools over another university's use, four additional factors were examined: (1) student to faculty ratios based on U.S. News & World Report (2015); (2) personal per capita income of each university's metro region as defined by Bureau of Economic Analysis (2014); (3) percentage of households with broadband subscriptions based on the U.S. Census American Community Survey (2014); and (4) percent of people over 16 that are unemployed by city based on the U.S. Census American Community Survey (2014).

The rationale for each are as follows:

- **Student to faculty ratios** – the researcher desired to ensure all schools in this study had consistent staffing and no one school had an advantage in this area.

- **Average income of the immediate metro region** – the researcher further desired to ensure all schools were based in locations with similar economic conditions.
- **Percent of households with broadband subscriptions** – this was included to ensure all colleges were located in areas where residents were equally connected to the Internet.
- **Percent of people over 16 that are unemployed** – this was included to ensure that all colleges were located in areas that were economically stable.

Of the 12 universities, three were eliminated due to the above conditions:

- Two of the three universities eliminated had a very favorable student to faculty ratio when compared to the others.
- Two of the three universities eliminated were based in a metro region which had a much high income when compared to the others.
- One of the three universities was eliminated due to the region having a much higher unemployment rate when compared to others.
- One of the three universities was eliminated due to it being located in a state in which the Internet connectivity rate was much lower when compared to the others.

What resulted was nine very homogeneous urban universities in terms of income, connectivity, student-faculty ratios and unemployment rates. Those nine universities included:

- Cleveland State University

- University of Memphis
- Georgia State University
- University of Cincinnati
- Florida International University
- Indiana University-Purdue University-Indianapolis
- University of Wisconsin-Milwaukee
- University of Missouri - St. Louis
- Portland State University

3.4 Instrumentation

First, each university was evaluated on the social media best practices as outlined in the literature review. The researcher only considered Facebook and Twitter for this study – two of the three most used and popular social media. Instagram was not included at this time given the subjective nature of best practices considered by industry, which revolves more around the look and feel of the photos used as clearly called out by York (2016) .

In particular, the data gathered included the following from each university’s social media pages:

- Number of posts per day.
- Character count of each post.
- Number of likes, shares, comments or retweets per post.
- Notation if the post contained an image or video present.
- Notation if the post was a contest.

- Notation if the post was promotional, owned or curated.

Not captured were the following:

- Two-way conversations: Noting if questions posed by students were later answered by a university was not captured. The problem arose due to delays in responses by universities. The researcher found it quite difficult to go back, find and capture that data with integrity. Some conversations may have gone on for many days to well over a week. Therefore, this data was not collected.
- Consistent voice: Noting a school's consistency in voice was also not captured due to this measure being very subjective. It is not a post-by-post measure that can be easily assessed. This is more of an over-riding content strategy – are they posting with a consistent voice? This can certainly be the focus of a future study to determine if schools that are consistent in their voice, reap the benefits regarding better engagement rates. However, capturing this data would require multiple judging participants to ensure integrity.

“Best practices” metrics calculated for each school, as discussed in the literature included:

- Twitter and Facebook post character counts.
- The percent of their Tweets or Facebook posts that were within the character count guidelines.
- Twitter and Facebook posts per day.

- The percent of the days they were posting the ideal number of Tweets or Facebook posts.
- The percent of their Tweets or Facebook posts that were within guidelines for owned/shared/promotional.
- The percent of Tweets or Facebook posts that included an image or video.
- The percent of Tweets or Facebook posts that incorporated a contest.

To understand consistency in the application of best practices, the research also examined two additional data elements for both social media:

- The standard deviation associated with the character counts per post for each social media.
- The standard deviation associated with the number posts per day for each social media.

Each university was then evaluated on how engaging their content was on Facebook and Twitter. This was done using an industry standard calculation as presented by many sources including Smitha (2013):

- Engagement rate = the average likes/shares/comments/retweets as a percent of the fan base per post or tweet

The researcher then compared each school's derived engagement rates to understand which is doing better at engaging their student base. This paper additionally assessed the correlation between each school's engagement rate with each of the above data elements to better understand if applying best practices in a university setting does correlate with social media engagement as seen in the corporate world. However, it should be noted that with a sample of only nine universities, the power associated with

any hypothesis test was quite low according to calculations provided by the Clinical and Translation Science Institute (2014). In fact, it was as low as 20% assuming the type I error held at .20. As a result, this reduced the chance of detecting a true effect when in fact one existed.

3.5 Data Collection

Data was captured at the start of the fall semester across a 4-week period from August 15, 2016, through September 11, 2016. Although one could argue that a different evaluation period might yield higher engagement rates, what was important is that all universities were evaluated at the same time. The researcher chose this period believing students would be most engaged at the start of the semester as clubs are forming, college sports are starting, classes are beginning and new friendships are forming, as opposed to later in the semester when students would be consumed with tests and assignments.

With the data collected, the following calculations were made for all nine universities. Each was used to compare one school to another.

3.5.1 Twitter and Facebook character count per post.

The character count for every Tweet and Facebook post during the evaluation period was calculated. Per the literature, the longer the post, the less engagement it receives.

3.5.2 Percent of Twitter and Facebook posts that are within the character count guidelines.

The character count for every Tweet and Facebook post during the evaluation period was calculated. Once determined, it was then noted if that count fell within the range determined to be best for engagement per the literature.

3.5.3 The standard deviation associated with the character count per post for each social media.

The standard deviation associated with the character count per post was calculated for each social media. This allowed an indication as to their consistency in posting for each social media.

3.5.4 Number of Twitter and Facebook posts per day.

The number of posts per day was calculated for each social media. Per the literature, the more one posts per day, the less engagement they receive.

3.5.5 Percent of the time they are posting the ideal number of Tweets or Facebook posts per day.

The number of posts per day was calculated for each social media. It was then noted if those daily counts fall within the ideal range for engagement as set forth by the literature.

3.5.6 The standard deviation associated with the number of posts per day for each social media.

The standard deviation associated with the daily counts was calculated for each social media. This allowed an indication as to their consistency in posting for each social media.

3.5.7 Percent of posts that contain an image or video for each social media.

Each Twitter and Facebook post was evaluated to determine if it contained an image or video.

3.5.8 Percent of posts that include a contest for each social media.

Each Twitter and Facebook post was evaluated to determine if the post contained a contest.

3.5.9 Percent of posts that are within guidelines for owned/shared/promotional.

Each Tweet and Facebook post were categorized as either owned, shared or promotional. The researcher then calculated the percent of all Tweets for that university that were owned, shared and promotional.

3.5.10 Twitter and Facebook engagement rates per post.

The independent variable was the engagement rate received per post for Twitter and Facebook. This was calculated by using an industry standard calculation as presented by many sources including Smitha (2013):

Engagement rate = the average likes/shares/comments/retweets per post as a percent of the fan base.

3.5.11 Externally collected data

The researcher also obtained the college rankings as defined by Forbes (2016) as an independent variable. This was chosen to determine if those schools doing better at engaging students with social media in turn rank higher on the Forbes list. Use of this measure assumes a cause and effect relationship, which will be discussed later. Forbes was chosen over U.S. News & World Report given the subjective manner in which scores are calculated. According to Morse, Brooks and Mason (2016) U.S. News includes the opinions of those associated with the university in their scores. According to Howard (2016), Forbes does not include any internal data and all data is external to the universities.

3.6 Analysis Procedures

As previously stated in Section 3.5, nine metrics were calculated for each university. Those metrics were:

- Twitter and Facebook post character counts.
- The percent of their Tweets or Facebook posts that were within the character count guidelines.
- The standard deviation associated with the character counts per post for each social media.
- Twitter and Facebook posts per day.
- The percent of the days they posted the ideal number of Tweets or Facebook posts.
- The standard deviation associated with the number posts per day for each social media.
- The percent of their Tweets or Facebook posts that were within guidelines for owned/shared/promotional.
- The percent of Tweets or Facebook posts that included an image or video.
- The percent of Tweets or Facebook posts that incorporated a contest.

Also, calculate for each university was the social media engagement rates for both Twitter and Facebook:

- Engagement rate = the average likes/shares/comments/retweets per post as a percent of the fan base.

These metrics allowed the researcher to assess the university's ability to engage with and capture the student's attention.

The researcher then assessed the correlation between each of the above metrics and the engagement rate for the nine universities. At this point, the researcher was testing the hypothesis that if a university under study applies social media best practices, they will have a higher engagement rate with their student base.

Next, the study attempted to determine if a positive correlation existed between a universities engagement rate and a measure of success, which in this case is the Forbes ranking. Of course, this assumes a cause and effect relationship, which will be discussed more in Chapter 4.

3.7 Summary

The purpose of this study was to research how universities are using social/digital communications, including strategies to engage with students and prospective students and how those compare to corporate best practices. This study also sought to determine if a correlation exists between college rankings of the various universities and their effectiveness in the use of social and digital strategy. The researcher used a case study and correlation approach that are both quantitative in nature.

The University of Missouri – St. Louis and eight other universities were selected for this analysis. These schools were selected to be similar in terms of many factors including student to teacher ratios, average metro income and unemployment levels, connectivity, and urban classifications.

For each of the nine universities the researcher calculated various metrics as a way to gauge how well they were applying social media "best practices." In addition, for each of the universities chosen, this study also calculated their overall engagement rate on both Twitter and Facebook indicating how well their students engage with them overall.

These metrics allowed the researcher to understand if they were producing engaging content and capturing the attention of the student population.

Next, a correlation analysis between the “best practice” metrics and the engagement rates was conducted. This allowed the researcher to test the hypothesis that applying good social media practices at the university level does positively affect student engagement. The researcher also sought to determine if a positive correlation existed between the use of good social media practices and the school’s health as measured by the Forbes’ college ranking score.

CHAPTER 4: Research Findings

4.1 Introduction to the Chapter

In this chapter, the researcher will reveal the data collected on each university including external data from the U.S. Census and the Bureau of Economic Analysis. Following this, the researcher will state all hypotheses for this study followed by findings for each including the correlation matrices. Lastly, the researcher will discuss any issues with the data collection and implications for future work.

4.2 Data Collection, Measures and Methods

As noted in Chapter 3, there were several data elements created for each university. These data elements allowed the researcher to determine how well each university is at applying social media best practices. As mentioned in chapter 3, the researcher only considered Facebook and Twitter for this study as they were determined to be the two most used and most measurable in terms of understanding social media best practices.

Data were collected from each university over a 4-week time period as identified in Chapter 3. Below are the metrics that were calculated for each university:

- Twitter and Facebook post character counts.
- The percent of Tweet or Facebook posts that were within the character count guidelines.
- The standard deviation associated with the character count per post for each social media.
- Twitter and Facebook posts per day.

- The percent of the days they posted the ideal number of Tweets or Facebook posts.
- The standard deviation associated with the number posts per day for each social media.
- The percent of their Tweet or Facebook posts that were within guidelines for owned/shared/promotional.
- The percent of Tweet or Facebook posts that included an image or video.
- The percent of Tweet or Facebook posts that incorporated a contest.

Facebook and Twitter engagement rates were calculated for each post per the literature as follows:

- Engagement rate = the average likes/shares/comments/retweets per post as a percent of the fan base.

Lastly, an overall Twitter and Facebook engagement rate was calculated for each university to see how well they compared to each other and to determine if schools doing better at engaging students with social media in turn rank higher on the Forbes list. Use of this measure assumes a cause and effect relationship, which will be discussed later.

4.3 The Data

Figure 16 below shows the Facebook metrics calculated from the raw data obtained for every post during the 4-week evaluation period. The data has now been anonymized to emphasize the impact of the social media without having to consider other random data.

University_coded	FB Avg. Character Count	FB Std. Dev. Of Character Count	FB Avg. Posts Per Day	FB Std. Dev. Of Posts Oer Day	FB Pct. Owned or Currated	FB PCT Promotional
A	154.4231	116.7183	1.8571	1.1455	0.7308	0.2692
B	162.9722	96.9750	1.2857	1.1174	0.8333	0.1667
C	130.4706	137.3409	0.6071	0.6853	0.7647	0.2353
D	69.2069	45.3789	1.0357	0.9222	0.7241	0.2759
E	154.2973	73.6738	1.3214	1.3068	0.9459	0.0541
F	334.8333	111.3111	0.4286	0.6901	0.9167	0.0833
G	132.7857	175.9638	0.5000	0.6939	0.8571	0.1429
H	141.0000	62.9733	0.4286	0.5040	0.9167	0.0833
I	175.6923	117.0764	1.8571	1.6491	0.8269	0.1731

University_coded	FB Pct. Posts Between 80 & 120 Chars.	FB Pct. Posts at 1 Per Day	FB Total Fan Base	FB Total Posts	FB Avg. # Interactions Per Post	FB Avg. Engagement Rate Per Post
A	0.1346	0.2143	34,161	52	67.4423	0.0020
B	0.1389	0.3571	122,575	36	265.9167	0.0022
C	0.1765	0.3929	42,876	17	369.3529	0.0086
D	0.1724	0.3929	55,327	29	176.0000	0.0032
E	0.1622	0.3929	91,707	37	193.4595	0.0021
F	0.0000	0.2143	43,705	12	244.0000	0.0056
G	0.0714	0.3929	59,738	14	232.5000	0.0039
H	0.2500	0.4286	39,133	12	579.2500	0.0148
I	0.0577	0.3214	16,576	52	19.4615	0.0012

Figure 16. Facebook Metrics by University.

Each data element from left to right are defined below:

- **Facebook average character count per post.** The literature suggests that posts between 80 and 120 characters are the most ideal.
- **The standard deviation associated with the post character count.** This measure represents the school's ability to be consistent in their character count per post. A large standard deviation would imply inconsistencies in lengths of posts across time.
- **Facebook average posts per day.** Based on the literature, as revealed in Chapter 2, one post per day is ideal to keep an engaged fan base.

- **The standard deviation associated with the daily post count.** This measure represents the school's ability to be consistent in their daily number of posts.
- **The percent of all posts that were either owned or curated as opposed to being overly promotional.** The literature defines owned as a post referencing an internal blog post or internal article; and, curated as sharing other's posts, stories and news items external to the university. Promotional posts would be those advocating for one to attend campus events (usually for dollars) such as on-campus concerts or sports games. Owned and curated posts were considered together because most university curated posts were summarized from units on campus, such as other college units, student organization, or sports teams. All sharing was internal to the school. There was very little being curated outside of the university environment.
- **The percent of all posts that are promotional.**
- **Percent of all Facebook posts between 80 and 120 characters.**
- **Percent of all days that had one Facebook post.**
- **Facebook fan/follower base.**
- **Total Facebook posts over the evaluation period.**
- **Average interactions with each post over the evaluation period including likes, share and comments.**

- **The average engagement rate per post for the evaluation period.** As stated in the literature, this was calculated as the total number of likes, shares and comments divided by the total fan/follower base.

All Facebook posts included an image or video. Therefore, this variable was not meaningful for analysis purposes and removed from consideration.

No Facebook post over the evaluation period included a contest. Therefore, this variable was not meaningful for analysis purposes and removed from consideration.

Figure 17 shows the Twitter metrics calculated from the raw data obtained for every Tweet during the 4-week evaluation period.

University_coded	TW Avg. Character Count	TW Std. Dev. Of Character Count	TW Avg. Posts Per Day	TW Std. Dev. Of Posts Oer Day	TW PCT. Image or Video	TW Pct. Owned or Currated	TW PCT Promotional
A	87.3762	51.7010	11.1071	11.7326	0.7428	0.9260	0.0740
B	83.9144	36.1286	9.1786	7.1131	0.7082	0.7160	0.2840
C	103.8576	26.6221	11.5357	6.9147	0.7028	0.9133	0.0867
D	76.3421	33.9126	4.1071	4.4166	0.6754	0.9912	0.0088
E	99.6905	34.2939	1.5000	1.9907	0.6190	0.9286	0.0714
F	106.7143	23.8289	0.7241	0.7510	0.9524	0.7619	0.2381
G	83.0328	33.8198	8.7143	5.1270	0.7623	0.9344	0.0656
H	96.0093	28.5158	3.8571	3.2285	0.7593	0.7963	0.2037
I	106.1069	22.5140	5.2000	2.2361	0.8702	0.9466	0.0534

University_coded	TW Pct. Posts LE 100 Chars.	TW Pct. Posts at 2 Per Day	TW Total Follower/ Fan Base	TW Total Posts	TW Avg. # Interactions Per Post	TW Avg. Engagement Rate Per Post
A	0.4840	0.0000	10,700	312	11.2468	0.0011
B	0.5907	0.0357	30,200	258	25.0388	0.0008
C	0.2632	0.0000	24,900	323	17.4489	0.0007
D	0.6983	0.2500	34,700	114	130.9386	0.0038
E	0.5094	0.1429	24,000	42	34.0238	0.0014
F	0.5152	0.1071	16,500	21	28.7619	0.0017
G	0.6122	0.0714	60,000	245	88.8694	0.0015
H	0.4867	0.1429	30,100	113	29.4159	0.0010
I	0.2824	0.1600	6,099	131	4.6031	0.0008

Figure 17. Twitter Data by University.

Each data element from left to right are defined below:

- **Twitter average character count per Tweet.** Based on the literature as revealed in Chapter 2, tweets less than or equal to 100 characters are ideal to ensure maximum engagement.
- **The standard deviation associated with the Tweet character count.**
- **Twitter average Tweets per day.** Based on the literature, two Tweets per day was determined to be the best strategy.
- **The standard deviation associated with the daily Tweet count.**
- **The percent of all Tweets that included an image or a video.**
- **The percent of all Tweets that were either owned or curated as opposed to being overly promotional.** Owned and curated posts were considered together because most university curated posts were summarized from units on campus, such as other college units, student organization, or sports teams.
- **The percent of all Tweets that were promotional.**
- **Percent of all Tweets less than or equal to 100 characters.**
- **Percent of all days that had two Tweets.**
- **Twitter fan/follower base.**
- **Total Tweets over the evaluation period.**
- **Average interactions with each Tweets over the evaluation period including likes and retweets.**
- **The average engagement rate per Tweet for the evaluation period.** As stated in the literature, this was calculated as the total number of likes, shares and comments divided by the total fan/follower base.

No Twitter posts over the evaluation period included a contest. Therefore, this variable was not meaningful for analysis purposes and removed from consideration.

4.4 Hypotheses

With all data prepped, the next step of the analysis was to test the various hypotheses identified in Chapter 1.

4.4.1 Hypothesis 1: Facebook industry best practices apply to universities

The first hypothesis was to determine if applying good Facebook social media skills and techniques as per the literature had a positive impact on the overall Facebook engagement rate for the universities under study. For this, the researcher correlated the various Facebook measures as laid out prior with the Facebook engagement rate.

A positive correlation with engagement for the following metrics would be expected if these hypotheses were found to be true as based in the literature:

- Percent of all posts that were either owned or curated.
- Percent of all Facebook posts between 80 and 120 characters.
- Percent of all days that had one Facebook post.

A positive negative with engagement for the following metrics would be expected if these hypotheses were found to be true as based in the literature:

- Facebook average character count per post, as less is always better.
- The standard deviation associated with the post character count.
- Facebook average posts per day, as less is always better.
- The standard deviation associated with the daily post count.
- The percent of all posts that are promotional.

4.4.2 Hypothesis 2: Twitter industry best practices apply to universities

The second hypothesis was to determine if applying good Twitter social media skills and techniques as per the literature had a positive impact on the overall Twitter engagement rate for the universities under study. For this, the researcher correlated the various Twitter measures as laid out prior with the Twitter engagement rate.

A positive correlation with engagement for the following metrics would be expected if these hypotheses were found to be true as based in the literature:

- Percent of all Tweets that have an image or video.
- Percent of all Tweets that were either owned or curated.
- Percent of all Tweets less than or equal to 100 characters.
- Percent of all days that had two Tweets.

A negative correlation with engagement for the following metrics would be expected if these hypotheses were found to be true as based in the literature:

- Twitter average character count per Tweet, as less is always better.
- The standard deviation associated with the Tweet character count.
- Average Tweets per day, as less is always better.
- The standard deviation associated with the daily Tweet count.
- The percent of all Tweets that are promotional.

4.4.3 Hypothesis 3: Some universities are better at engaging students than others

The fourth hypothesis was that some universities were better at engaging students with the use of social media than other universities.

Figures 18 and 19 show the Facebook and Twitter engagement rates for each university ranked by engagement rates, smallest to largest.

University Coded Ranked by Engagment	Facebook Average Engagement Rate Across all Posts
I	0.001174
A	0.001974
E	0.002110
B	0.002169
D	0.003181
G	0.003892
F	0.005583
C	0.008614
H	0.014802

Figure 18. Facebook Average Engagement Rate by University.

University Coded Ranked by Engagment	Twitter Average Engagement Rate Across all Posts
C	0.000701
I	0.000755
B	0.000829
H	0.000977
A	0.001051
E	0.001418
G	0.001481
F	0.001743
D	0.003773

Figure 19. Twitter Average Engagement Rate by University.

Some large differences were observed between the best and worst schools as shown above. To measure if statistical differences existed between these universities, pairwise z tests were performed using the Plan-alyzer tool provided by Drake Direct (1999).

4.4.4 Hypothesis 4: Facebook and Twitter engagement rates are positively correlated with Forbes college ranking

The fifth hypothesis was to determine if a positive correlation between engagement on social media and the Forbes ranking were seen based on the data shown in Figure 20. This test was established by the researcher to help prove the value of these

communication tools for universities. Of course, this assumes a cause and effect relationship.

University coded	Forbes Ranking	Twitter Average Engagement Rate Across all Posts	Facebook Average Engagement Rate Across all Postss
A	641	0.001051	0.001974
B	487	0.000829	0.002169
C	630	0.000701	0.008614
D	595	0.003773	0.003181
E	466	0.001418	0.002110
F	583	0.001743	0.005583
G	381	0.001481	0.003892
H	606	0.000977	0.014802
I	526	0.000755	0.001174

Figure 20. Forbes Rankings by University.

4.5 Results

Within this section, the researcher reveals the correlations for all variables including significance levels. The confidence levels used for all comparisons was set at 95%.

4.5.1 Hypothesis 1: Facebook industry best practices apply to universities

Figure 21 below shows the correlation matrix for the Facebook best practice metrics and the Facebook engagement rate. This matrix was produced using SAS. The top number in each cell represents the correlation. The bottom number in each box represents the p-value. The lower the p-value, the more likely there is a negative or positive correlation. A value of .05 or less represents significance at the 95% level. For this research paper, significance was determined at the 95% confidence level.

Row 1 = Pearson Correlation Coefficients, N = 9												
Row 2 = Prob > r under H0: Rho=0 (p-value)												
	FB Avg. Character Count	FB Std. Dev. Of Character Count	FB Avg. Posts Per Day	FB Std. Dev. Of Posts Oer Day	FB Pct. Owned or Currated	FB PCT Promotional	FB Pct. Posts Between 80 & 120 Chars.	FB Pct. Posts at 1 Per Day	FB Total Fan Base	FB Total Posts	FB Avg. # Interactions Per Post	FB Avg. Engagement Rate Per Post
FB Avg. Character Count	1											
FB Std. Dev. Of Character Count	0.20617 0.5946	1										
FB Avg. Posts Per Day	-0.17999 0.6431	-0.11633 0.7657	1									
FB Std. Dev. Of Posts Oer Day	-0.05504 0.8882	-0.08188 0.8341	0.91113 0.0006	1								
FB Pct. Owned or Currated	0.50986 0.1608	-0.06795 0.8621	-0.37042 0.3264	-0.11708 0.7642	1							
FB PCT Promotional	-0.50986 0.1608	0.06795 0.8621	0.37042 0.3264	0.11708 0.7642	-1 <.0001	1						
FB Pct. Posts Between 80 & 120 Chars.	-0.69612 0.0373	-0.54001 0.1334	-0.07642 0.8451	-0.24811 0.5198	-0.12991 0.7391	0.12991 0.7391	1					
FB Pct. Posts at 1 Per Day	-0.68555 0.0415	-0.2217 0.5664	-0.34356 0.3653	-0.2235 0.5632	0.14522 0.7093	-0.14522 0.7093	0.65125 0.0574	1				
FB Total Fan Base	-0.10727 0.7835	-0.18112 0.641	-0.01431 0.9709	0.05549 0.8873	0.2414 0.5315	-0.2414 0.5315	0.16532 0.6708	0.29133 0.4469	1			
FB Total Posts	-0.17999 0.6431	-0.11633 0.7657	1 <.0001	0.91113 0.0006	-0.37042 0.3264	0.37042 0.3264	-0.07642 0.8451	-0.34356 0.3653	-0.01431 0.9709	1		
FB Avg. # Interactions Per Post	-0.06019 0.8778	-0.19392 0.6171	-0.76958 0.0153	-0.78961 0.0114	0.37226 0.3238	-0.37226 0.3238	0.58431 0.0985	0.53614 0.1368	0.11909 0.7602	-0.76958 0.0153	1	
FB Avg. Engagement Rate Per Post	-0.01123 0.9771	-0.16495 0.6715	-0.70724 0.0331	-0.76627 0.016	0.27729 0.4701	-0.27729 0.4701	0.53154 0.1408	0.38867 0.3012	-0.26207 0.4957	-0.70724 0.0331	0.92432 0.0004	1

Figure 21. Facebook Correlation Matrix.

Interpretations for each metric are below:

- **Facebook average character count per post.** This correlation was not significant at the 95% confidence level. However, it was leaning negative as expected based on the theoretical review of best practices.
- **The standard deviation associated with the post character count.** This correlation was not significant at the 95% confidence level. However, it did show a moderate negative correlation, as expected based on the literature.
- **Facebook average posts per day.** This metric did show a significant negative correlation with engagement at the 95% confidence level. This was as expected, based on the literature.

- **The standard deviation associated with the daily post count.** A significant negative correlation at the 95% level is observed, confirming the more varied the daily posting count, the less the engagement rate.
- **The percent of all posts that were either owned or curated.** This correlation was not significant at the 95% confidence level. However, it was showing a moderate positive correlation, as expected based on the literature.
- **The percent of all posts that are promotional.** This metric did not show a significant correlation at the 95% confidence level. However, it was leaning negative, as would be expected.
- **Percent of all Facebook posts between 80 and 120 characters.** This metric did not show a significant correlation at the 95% confidence level but did show significance at the 85% level. The correlation was positive, as expected based on the literature.
- **Percent of all days that had one Facebook post.** This metric did not show a significant correlation at the 95% confidence level. However, it was leaning positive, as expected.
- **Total Facebook posts over the evaluation period.** Here a significantly negative correlation at the 95% confidence level was observed. This is in line with the literature which states the more posts made, the worse the engagement rate.

Every Facebook best practice metric had correlations with the engagement rate in the direction as would be expected. Three were significant at the 95% level and one at

the 85% level. It is no surprise that we did not have more significance. With a sample of only nine universities, the power associated with such correlation tests would be quite low according to a power calculator provided by the Clinical and Translation Science Institute (2014). In fact, it will be as low as 20% assuming the type I error rate of .20. As a result, this would make it difficult to find significance, thus reducing the chance of detecting a true effect when in fact one exists.

4.5.2 Hypothesis 2: Twitter industry best practices apply to universities

Figure 22 below shows the correlation matrix for the Twitter best practice metrics and the Twitter engagement rate. This matrix was produced using SAS. The top number in each cell represents the correlation. The bottom number in each box represents the p-value.

Row 2 = Prob > r under H0: Rho=0 (p-value)													
	TW Avg. Character Count	TW Std. Dev. Of Character Count	TW Avg. Posts Per Day	TW Std. Dev. Of Posts Oer Day	TW PCT. Image or Video	TW Pct. Owned or Currated	TW PCT Promotional	TW Pct. Posts LE 100 Chars.	TW Pct. Posts at 2 Per Day	TW Total Follower/ Fan Base	TW Total Posts	TW Avg. # Interactions Per Post	TW Avg. Engagement Rate Per Post
TW Avg. Character Count	1												
TW Std. Dev. Of Character Count	-0.62022 0.0748	1											
TW Avg. Posts Per Day	-0.31166 0.4143	0.46747 0.2045	1										
TW Std. Dev. Of Posts Oer Day	-0.48093 0.19	0.80577 0.0087	0.87293 0.0021	1									
TW PCT. Image or Video	0.49207 0.1784	-0.46794 0.204	-0.2625 0.495	-0.36108 0.3397	1								
TW Pct. Owned or Currated	-0.1705 0.661	0.16424 0.6728	0.11869 0.761	0.11135 0.7755	-0.33097 0.3843	1							
TW PCT Promotional	0.1705 0.661	-0.16424 0.6728	-0.11869 0.761	-0.11135 0.7755	0.33097 0.3843	-1 <.0001	1						
TW Pct. Posts LE 100 Chars.	-0.79777 0.01	0.39324 0.2951	-0.23391 0.5447	0.01328 0.973	-0.2591 0.5008	-0.09207 0.8137	0.09207 0.8137	1					
TW Pct. Posts at 2 Per Day	-0.11513 0.768	-0.36993 0.3271	-0.74859 0.0203	-0.6663 0.05	-0.00007 0.9999	0.30623 0.4229	-0.30623 0.4229	0.34767 0.3593	1				
TW Total Follower/ Fan Base	-0.59147 0.0934	0.04223 0.9141	0.13825 0.7228	-0.00549 0.9888	-0.33416 0.3795	0.06187 0.8744	-0.06187 0.8744	0.5846 0.0983	0.05058 0.8972	1			
TW Total Posts	-0.32688 0.3906	0.48322 0.1876	0.99886 <.0001	0.88118 0.0017	-0.27757 0.4696	0.09916 0.7996	-0.09916 0.7996	-0.20935 0.5888	-0.75857 0.0178	0.16002 0.6809	1		
TW Avg. # Interactions Per Post	-0.70751 0.033	0.06986 0.8583	-0.16703 0.6675	-0.11707 0.7642	-0.30288 0.4282	0.40138 0.2843	-0.40138 0.2843	0.75116 0.0196	0.56199 0.1153	0.69443 0.0379	-0.15628 0.688	1	
TW Avg. Engagement Rate Per Post	-0.53137 0.141	0.0598 0.8785	-0.39645 0.2908	-0.20243 0.6014	-0.16993 0.662	0.37723 0.3169	-0.37723 0.3169	0.68732 0.0408	0.69878 0.0362	0.28964 0.4497	-0.38964 0.2999	0.87672 0.0019	1

Figure 22. Twitter Correlation Matrix.

Interpretations for each metric are below:

- **Twitter average character count per post.** This correlation was not significant at the 95% confidence level but was at the 85% level. However, as expected, this correlation was leaning negative.
- **The standard deviation associated with the Tweet character count.** A slightly positive correlation was observed, which was not what one would expect based on the literature. However, it was also not significant at the 95% confidence level.
- **Twitter average Tweets per day.** This correlation was not significant at the 95% confidence level. However, it was leaning negative, as would be expected.
- **The standard deviation associated with the daily Tweet count.** At the 95% confidence level, a significant correlation was not observed. However, it was leaning negative as would be expected based on the literature.
- **The percent of all Tweets included an image or a video.** For this metric, a negative correlation was observed, which was contrary to what one would expect based on the literature. However, it was also not significant at the 95% confidence level.
- **The percent of all Tweets that were either owned or curated.** For this metric, significance was not seen at the 95% level. However, it was positive, as would be expected.

- **The percent of all Tweets that are promotional.** As would be expected, a strong negative correlation was seen, but it was not found to be significant at the 95% confidence level.
- **Percent of all Tweets less than or equal to 100 characters.** For this metric, significance at the 95% confidence level was observed. Indicating, as the literature suggests, posting strategically with 100 or fewer characters yields a positive result on engagement rates.
- **Percent of all days that had two Tweets.** For this metric, significance at the 95% confidence level was also detected. Indicating, as the literature suggests, posting 2 times per day consistently yields a positive result on engagement rates.
- **Total Tweets over the evaluation period.** This metric was not significant at the 95% confidence level. However, it was leaning negative, as would be expected, indicating that the more one posts, the lower the engagement rate.

For Twitter, every best practice metric but two had correlations with the engagement rate in the direction as would be expected. Two were significant at the 95% and one at the 85% level.

4.5.3 Hypothesis 4: Some universities are better at engaging students than others

Figure 23 below reveals the Facebook engagement rates for each university ranked by engagement. This is the same as Figure 18 but with sample sizes (number of posts) included per university. Even though large differences were observed between the

most engaging university (H) and the least engaging university (I), sample sizes did not allow for significant readings. Based on the Plan-alyzer tool (Drake, 1999), samples would need to have been at least 1,000 per university to have read these differences statistically.

University Coded Ranked by Engagment	Facebook Average Engagement Rate Across all Posts	Number of FB Posts
I	0.001174	52
A	0.001974	52
E	0.002110	37
B	0.002169	36
D	0.003181	29
G	0.003892	14
F	0.005583	12
C	0.008614	17
H	0.014802	12

Figure 23. Facebook Average Engagement Rates and Sample Sizes by University.

Figure 24 below reveals the Twitter engagement rates for each university ranked by engagement. This is the same as Figure 19 but with sample sizes (number of posts) included per university. Even though a large difference was observed between the most engaging university (D) and the least engaging university (C), sample sizes did not allow for significant readings. Based on the Plan-alyzer tool (Drake, 1999), samples would need to have been at least 1,000 per university to have read these differences statistically.

University Coded Ranked by Engagment	Twitter Average Engagement Rate Across all Posts	Number of Tweet Posts
C	0.000701	323
I	0.000755	131
B	0.000829	258
H	0.000977	113
A	0.001051	312
E	0.001418	42
G	0.001481	245
F	0.001743	21
D	0.003773	114

Figure 24. Twitter Average Engagement Rates and Sample Sizes by University.

4.5.4 Hypothesis 4: Facebook and Twitter engagement rates are positively correlated with Forbes college ranking

As can be seen in Figure 25 below, the Forbes ranking is positively correlated with both the Facebook and Twitter engagement rates. However, neither are significant at the 95% confidence level.

Row 1 = Pearson Correlation Coefficients, N = 9		
Row 2 = Prob > r under H0: Rho=0 (p-value)		
	Facebook	Twitter
Correlation	0.38995	0.0653
P-Value	0.2995	0.8674

Figure 25. Forbes Correlation Matrix

Even if significance were found, it would have been difficult to determine the exact cause and effect relationship without additional research:

- Is the higher Forbes ranking a function of the various schools doing better at communicating with students via social media?
- Do higher-ranking schools have more resources available to them to put against social media applications?
- Is it a combination of both?

This is a tough question to answer without additional research and will be the subject of future work by the researcher. Other dependent variables to be considered besides the Forbes ranking could include attrition rates and enrollment trends. However, both would be difficult to obtain and ensure consistency in definitions across universities.

4.6 Summary

In this study, the data revealed that the application of best practices regarding social media did correlate with higher engagement rates on both Facebook and Twitter. Even though only a few of the correlations were significant, all but two correlations were going in the direction as expected based on the literature (see Figure 26 below). This fact certainly adds to the strength of the hypotheses.

Row 1 = Pearson Correlation Coefficients, N = 9										
Row 2 = Prob > r under H0: Rho=0 (p-value)										
	Avg Post Char Count	Std Dev Post Char Count	Avg Posts Per Day	Std Dev Post Per Day	Pct with Image/Vid eo	Pct Posts Currated + Owned	Pct Post Promo	Pct Posts Within Optimal Char Count	Pct Posts Within Optimal Num Per Day	Total Post During Eval Period
Facebook										
Engagement Rate	-0.01123	-0.16495	-0.70724	-0.76627	NA	0.27729	-0.27729	0.53154	0.38867	-0.70724
P-Value	0.9771	0.6715	0.0331	0.016	NA	0.4701	0.4701	0.1408	0.3012	0.0331
Twitter										
Engagement Rate	-0.53137	0.0598	-0.39645	-0.20243	-0.16993	0.37723	-0.37723	0.68732	0.69878	-0.38964
P-Value	0.141	0.8785	0.2908	0.6014	0.662	0.3169	0.3169	0.0408	0.0362	0.2999

Figure 26. Correlation Summary of Findings.

The main difficulty in reading these tests with statistical significance is due to small sample sizes. Only nine universities were used for the analysis. With such small sample sizes, it would be difficult to find significance. A second phase of this study could be conducted with larger sample sizes. A sample of approximately 75 schools would need to be studied assuming a type I error of .20 and power of 80%. As previously stated, currently there is only a 20% probability of correctly rejecting the null hypothesis of no correlation (the power of the test) when in fact there is a correlation.

To prove that applying social media best practices affect a college positively, the researcher calculated the correlation of Facebook and Twitter engagement rates with the Forbes College Rankings for all nine universities. In conducting this test, the researcher found that both Facebook and Twitter engagement rates were positively correlated with the Forbes ranking (as seen in Figure 25). However, neither were significant due to a small sample size.

CHAPTER 5: Summary and Conclusion

5.1 Background

As clearly outlined in the prior chapters, 68% and 45% of United States citizens own smartphones and tablets respectively, and the power and capability of these devices increase each year. As consumers and businesses find new ways to use these devices, one particularly relevant segment of the population could already be considered technology power-users: Millennials. Millennials could be considered a segment of power users because the mobile smartphone technology was available for as long as they can remember, and unlike their older-generational counter parts, the Baby Boomers, they not only are comfortable with the technology but with the communication and collaboration platforms that run on the technology.

Millennials are not only using their smartphones for communication, as previously discussed, but they are also using them to share and collaborate with their friends and the world. They seek out information before making a purchase decision and share information following the transaction. When they forge relationships with brands, they approach those relationships in a collaborative way as well.

The interest and research surrounding Millennials, technology and communication platforms is whether colleges and universities are recognizing this unique aspect of the Millennial worldview and if institutions of higher learning are applying technology and social networking practices in a manner similar to their corporate counterparts.

This study was conducted to better understand how colleges and universities are connecting with Millennials through the use of digital and social media communication

tools and compare these practices to other business sectors. The study also explored possible reasons why a university might be slower at adopting these new tools.

5.2 Restatement of the Purpose, Hypothesis and Research Questions

As stated in Chapter 1, the purpose of this study was three fold: (1) research how universities are using social/digital communications, including strategies to engage with students and prospective students; (2) compare the executional tactics of universities to corporate best practices; and, (3) seek to determine if a correlation exists between university rankings at each university under study and their effectiveness in the use of social and digital strategies.

The hypothesis made was that not all universities being studied were interacting fully with students via digital and social media communication tools in meaningful ways. Nor were they using industry best practices as demonstrated in other sectors regarding posting strategies.

The exact research questions addressed within this study included the following:

- How much were universities using the various social and digital media tools?
- How effective were they in using these tools?
- How do these practices compare to corporate best practices?
- Was there a correlation between college ranking and how well the various colleges used social media to engage students?

5.3 Summary of Findings

In this study, the data revealed that the application of corporate best practices by

the universities under study regarding social media did correlate with higher engagement rates on both Facebook and Twitter. In particular, it was found that maintaining consistent posting strategies based on the literature for both Facebook and Twitter regarding character counts, posts per day, consistency in posting strategy, not being overly promotional and the use of images/videos all yielded a positive impact on student engagement rates for these channels. Even though only a few of the correlations were significant, almost all correlations were going in the direction that would be expected based on the literature.

Some universities did apply best practices better than other universities. For Facebook, the best university had an average engagement rate over 12 times that of the worst university. For Twitter, the best university had an average engagement rate over 53 times that of the worst university. However, due to small sample sizes, these extreme differences were not significant at the 95% confidence level. In addition, universities which were better at applying best practices also had a higher college Forbes ranking, although it too was not significant.

5.4 Explanation and Interpretation of Findings

5.4.1 Hypothesis 1: Facebook industry best practices apply to universities

Figure 21 from Chapter 4 revealed the correlation matrix for the Facebook best practice metrics and the Facebook engagement rate. Every Facebook best practice metric based on the literature had correlations with the engagement rate in the direction as would be expected, and two were significant at the 95% confidence level and one at the 85% confidence level. The metrics analyzed are listed below with significance noted:

- Facebook average character count per post
- The standard deviation associated with the post character count
- Facebook average posts per day (significant at 95%)
- The standard deviation associated with the daily post count (significant at 95%)
- The percent of all posts that were either owned or curated
- The percent of all posts that were promotional
- Percent of all Facebook posts between 80 and 120 characters (significant at 85%)
- Percent of all days that had one Facebook post
- Total Facebook posts over the evaluation period (significant at 95%).

5.4.2 Hypothesis 2: Twitter industry best practices apply to universities

Figure 22 from Chapter 4 showed the correlation matrix for the Twitter best practice metrics and the Twitter engagement rate. Every best practice metric found in the literature but two had correlations with the engagement rate in the direction as would be expected, and two were significant at the 95% confidence level and one was significant at the 85% level. Metrics analyzed are listed below with significance noted:

- Twitter average character count per post (significant at 85%)
- The standard deviation associated with the Tweet character count
- Twitter average Tweets per day
- The standard deviation associated with the daily Tweet count
- The percent of all Tweets included an image or a video
- The percent of all Tweets that were either owned or curated

- The percent of all Tweets that are promotional
- Percent of all Tweets less than or equal to 100 characters (significant at 95%)
- Percent of all days that had two Tweets (significant at 95%)
- Total Tweets over the evaluation period

5.4.3 Hypothesis 3: Some universities are better at engaging students than others

Figures 23 and 24 in Chapter 4 revealed the rank ordered Facebook and Twitter engagement rates for each university. Even though quite large differences in engagement rates were observed between the most engaging university and the least engaging university for both Facebook and Twitter, sample sizes did not allow for significant readings. Regardless, the research did show that universities that were better at applying best practices did see higher engagement rates. In fact, for Facebook, the best university (H) had an engagement rate over 12 times that of the worst university (I). For Twitter, the best university (D) had an engagement rate over 53 times that of the worst university (C).

5.4.4 Hypothesis 4: Facebook and Twitter engagement rates are positively correlated with Forbes college ranking

As was shown in Figure 25 from Chapter 4, the Forbes ranking was positively correlated with both the Facebook and Twitter engagement rates. However, neither were significant. Even if significance would had been found, it would have been difficult to determine the exact cause and effect relationship without additional research:

- Is the higher Forbes ranking a function of a school doing better at

communicating with students via social media?

- Do higher-ranking schools have more resources available to them to put against social media applications?
- Is it a combination of both?

This requires further study as detailed in chapter 4 and may involve trying to assess the return on investment using other such measure as attrition rates and student enrollment trends. However, both would be difficult to obtain and ensure consistency in definitions across universities.

5.5 Limitations of the Study

The researcher previously addressed several limitations of this study that were outside of his control. However, none should detract from the conclusions and interpretations as detailed in the prior section.

First, it was assumed that universities could operate strategically and enact communications plans that are timely and effective. The literature suggests they can but not without some effort. The research proved that some universities under consideration did employ better social media strategies than other universities by following the guidelines found in the literature. As a result, they did benefit regarding higher student engagement rates.

Second, universities must acknowledge that students are their customers. This is required by all universities if they are to take best practices regarding communicating with students seriously and understand the ramifications if they do not. The literature is mixed, but the majority of literature does show that universities do see students as one of

the several types of customers including alumni, faculty and business. However, some confusion does still exist for many institutions.

Additionally, the adoption of technology by academia may be slower than other sectors. If true, this could hinder a universities ability to incorporate new communication technologies into their strategy quickly. Based on the literature review in this area, nothing specifically addresses this question, but it appears it could be true that universities are slower. Further research would be required. A paper by J. Rottman (2002) did show that significant differences did exist in the adoption of technology by colleges and departments within the university. Those departments that were more homogeneous regarding age, ideals and beliefs were much quicker to adopt new technology versus those departments that were not. This is a significant finding. And if this is true, one could argue that corporations, which typically have overarching common goals and objectives, should be in a more positive position to adopt new technologies more quickly than other sectors that lack common overarching goals and vision. Such as academia which is very siloed and compartmentalized as discussed in the literature. As a next step, the researcher is quite interested in pursuing this topic further to examine the rate of diffusion of technology in academia versus other sectors.

5.5 Delimitations and Recommendations

The researcher was in control of several limitations, which will be called delimitations. These delimitations help define the scope and application of results. The main reason for most delimitations was to keep the scope of the study within reason given limited resources. However, none hinders the research findings and their contribution to the literature.

First, this study only examined what was called “urban” universities similar to UMSL. As clearly defined in Chapter 3, the sample of nine universities were selected to all be in an urban setting, have similar student to teacher ratios, be located in areas with a similar average income, etc. It was important to ensure all schools under examination were as homogeneous and similar to one another as possible. Future research could examine if similar results hold true for other universities including those in the private sector such as NYU.

Secondly, by limiting the study to only nine universities did have ramifications on the significance and power of the many hypothesis tests conducted. However, as was called out in Chapter 4, directionally almost all tests were going in the directions as would be expected and some were in fact significant. Again, this was a resource issue to ensure the data collection and analysis could be conducted within a reasonable period and insure data integrity.

Third, only Facebook and Twitter were examined. Not considered were Instagram, Snapchat and other channels due to limited resources. As found in the literature, Facebook and Twitter were two of the most used social media with clear and measurable best practices.

When collecting and noting whether a post included an image or video, the researcher did not note these separately. As mentioned in the literature, posts with videos drive significantly more engagement than posts with images only. In the future, these two fields should be created separately.

Another delimitation is that the study was restricted to a 4-week evaluation period at the start of the school year. The researcher felt that as long as all school evaluations

occurred at the same time, there would be no issues in comparing best practices across the nine schools. One would expect the application of best practices by a school to be similar throughout a school semester.

Not captured were metrics such as a university's response to a post made by students on social media. Given the delay in responses by universities and length of some conversations, time did not permit the researcher to keep track of these two-way conversations. This will be the subject of a future study.

Lastly, the researcher was hoping to use enrollment trends as one of the independent variables. With such data, the researcher was hoping to show that those universities that employ better social media communication strategies see more favorable enrollment trends. Unfortunately, problems arose in the capturing of this data for each school from a single source that also ensured consistent enrollment definitions. The researcher spent many hours trying to obtain this data from a single source, also ensuring "student population" definitions were consistent across schools. But to no avail.

5.6 Opportunities for Universities

During this study, there was one missed opportunity identified for universities regarding the use of social media. As discussed in Chapter 4, most universities did not curate content outside of the university sitting to share. Most curated content was from other internal departments, colleges or sports teams. This is a missed opportunity. As the literature suggests, curating and sharing others content is strategically one of the most important things to do. In fact, this researcher is in the process of establishing a study at UMSL within the College of Business to see how much engagement such truly curated posts garner compared to other types of posts.

5.7 Conclusion

Millennials today are digital natives. They live and breathe technology. It is carried with them everywhere 24-7. Brands understand this and realize they must listen, engage, connection and collaborate with this segment of the population. Based on the research, it should be no different for universities. In this study, the research found that universities do have various obstacles that can hinder their ability to adopt quickly to the technology needs and demands of these digital natives. In particular, universities:

- May be slower in adoption of technology
- Must adhere to FERPA rules and regulations
- Have difficulty in operating strategically
- Are known to be very siloed in nature
- Cannot easily deploy limited resources as needed strategically
- Are confused about who their customers are

The benefits of overcoming these obstacles were obvious as observed in the research. Universities that applied corporate social media best practices better than others did see much higher engagement rates with their students. They also had higher Forbes ranking scores.

What this paper has contributed to the literature is research that corporate social media communication best practices also hold true in an academic setting and that students are customers of a university and enjoy engaging with their university.

Additionally, the paper provides an extensive literature review addressing the various reasons why universities have more difficulty enacting technological change at times where change is constant, fast and a given. In fact, a slower adoption rate towards

technology innovation is highlighted as the largest potential roadblock for a university wanting to stay current in their digital communication strategies. More research is required, but this paper has laid a solid foundation for formulating this hypothesis within an academic setting.

Universities can act strategically and by applying corporate best practices regarding social and digital strategy they see strong engagement rates with their customers...their students.

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