Power of a Tweet: How Does Social Media Interaction Affect Social Identity and University Satisfaction

by

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TABLE OF CONTENTS

ABSTRACT

The more undergraduate college students report satisfaction with their university, the more likely they are to remain enrolled and graduate. College student satisfaction is strongly influenced by students' social identification with their university (e.g., they demonstrate pride as and strongly identify with being a student of the university). Students can interact with their university directly and its associated "brand" on social media platforms, using platforms such as Twitter (e.g., by posting tweets directed at a university's Twitter account or posting tweets about the university). Universities often expend substantial effort to produce content through such channels to engage students. Interacting with the university through social media may strengthen students' social identity with the university and lead to increased student retention. This study examined how social media interactions with and about a college student's university may play a role in their social identity with the university and overall university satisfaction.

Online questionnaires were completed by participants before and after their Twitter data was collected by the researcher to assess changes in the social identity and university satisfaction of 198 undergraduate students at a large public four-year university over a period of approximately 30 days. Data from the students' Twitter accounts were collected during this interim time period, and a content analysis of the tweets was conducted to identify interactions with the university's Twitter account and tweets about the university in general.

Results indicated that, in both the pre- and post-collection questionnaires, the more students reported social identification as a university student, the more likely

they were to report overall satisfaction with the university. The more students directly interacted with the university's Twitter account, the more likely they were to report higher levels of social identification as a student; however, general interaction with the university "brand" (i.e., tweeting about the university in general) did not reveal the same significant relationship. More Twitter interaction of either kind also did not result in greater university satisfaction, despite the significant association with social identification, and therefore, future research is necessary to better understand the relationship between social identification and satisfaction. Results from this study suggest that, based upon social identity theory, when trying to build stronger identification among undergraduate students with their university, universities should focus their efforts on creating opportunities that encourage direct engagement with the university's account.

LIST OF TABLES

CHAPTER I

INTRODUCTION

Beginning in fall 2013, undergraduate student enrollment at universities in the United States has decreased by 4.5 percent (National Student Clearinghouse Research Center, 2015), making retention of these students through graduation an on-going concern for university administrators (Jamelske, 2008). Attrition, or students leaving prior to graduation, is as high as 35 percent for less selective universities (Berger et al., 2012) and considered a loss of tuition income and a failure to fulfill the educational mission for universities (Bean, 1990). Students withdrawing from a university also may be less likely to obtain personal or financial success (Pacific Association of Collegiate Registrars & Admissions Officers, n.d.).

College student retention is influenced by factors such as whether students feel they have resources available to them to succeed and appropriate support from and services provided by the university (DeAndrea et al., 2012). Undergraduate student retention is also linked with students' satisfaction with the university (Donahue & Wong, 1997). Students' social identity, or an individual's understanding of who they are based on group membership, with a university's brand (i.e., the perceived image, reputation, and/or perception of the university) can provide a feeling of "oneness" with the university that is a factor in retention and satisfaction (Ashforth & Mael, 1989). This organization-wide identity provides "oneness," or a sense of belonging, which prevents students from feeling alienated and can lead to stronger university satisfaction. The more students socially identify with their university brand, the more likely they are to remain enrolled and graduate (DeShields, Kara, & Kaynak, 2005).

The introduction of social media channels such as Twitter and Facebook created and managed by universities provides an opportunity for students to interact and receive information from the university in virtual spaces where they already exist (Wang, Tchernev, & Solloway, 2012). By shaping positive expectations through social media, students can have a healthier transition into and throughout their university experience (DeAndrea et al., 2012). Brand interactions on social media also can have a stronger impact than more traditional forms of marketing and advertising (Muntinga, Moorman, & Smit, 2011) by providing an effective method for university administrators to reach students.

As of 2015, consumers use of social media channels to engage in brand-related activities, including both consuming and creating content about brands online, is increasing (Araujo, Neijens, & Vliegenthart, 2015). Universities, like any other businesses and organizations, have a reputation and perception that comprise its' brand personality (i.e., how audiences perceive and characterize an entity's brand). Communities can form around brands on social media channels, and allow for connection and interactions with the brand directly and with other individuals within the community (Wu, Huang, Zhao, & Hua, 2015).

Twitter, the leading microblogging social media channel as of 2015, is a major platform for users to interact with brands virtually (Araujo et al., 2015). Microblogging is a form of blogging that allows short messages, comments, or links to photos and videos to be posted, typically with space constraints (Suh, Hong, Pirolli, & Chi, 2010). Interactions through Twitter can facilitate the formation of brand communities, giving users a number of advantages, such as support from the brand

itself or from other users seen as leaders within the community. As of 2015, Sephora's popular Beauty Talk brand community facilitates conversations and an exchange of beauty tips hosted on the brand's website, for example, as well as advice from Sephora experts and video tutorials (Leclercq, 2015). Many personal and branded profiles on Twitter are public, such that any individual can view their tweets, which provides search functionality within the native platform and allows for dynamic interactions that are easy and quick (Fischer & Reuber, 2011). Twitter therefore provides the opportunity to reliably collect tweets from profiles to examine interactions between users and brands.

This study examined how Twitter interactions made directly to the university (i.e., tweets directed at the university's own Twitter account, herein known as "direct tweets") and interactions about the university (i.e., tweets about the university "brand" in general but not directed to the university's account, herein known as "brand tweets") may play a role in undergraduate students' social identity with the university and their overall university satisfaction. Online questionnaires were completed by participants before and after their Twitter data was collected by the researcher for approximately 30 days. These questionnaires assessed students' social identification as university students, satisfaction with their university experience, and their reported Twitter use. Twitter data from the participants' public profiles during the 30-day period were collected and analyzed for students' interaction levels with the university's Twitter account (i.e., direct tweets) and the university's brand (i.e., brand tweets). This collection of Twitter data allowed for direct measurement of interactions instead of

reliance on self-report and were analyzed with the use of weighted indexes developed for this study to determine the level of interaction.

CHAPTER II

LITERATURE REVIEW

Student Retention

As of 2015, undergraduate student enrollment in higher education has decreased since fall 2013 (National Student Clearinghouse Research Center, 2015), illuminating the importance of ensuring universities support and retain students currently enrolled. Students leaving prior to graduation, or attrition, signifies a loss of tuition income and a failure to fulfill the educational mission for universities (Bean, 1990), and students may be less likely to obtain personal or financial success without a degree (Pacific Association of Collegiate Registrars & Admissions Officers, n.d.). Many attributes influence student retention and performance, from personal and social reasons to institutional practices (Thomas, 2002). University administrators routinely focus attention on programs for attracting and admitting students rather than managing enrollment, even though satisfying admitted students is vital for student retention (Deshields & Kara, 2005).

Research indicates students' adjustment to college is reliant on their self-perceptions of whether they have the appropriate social and educational resources available to them (DeAndrea et al., 2012). Most retention efforts by universities are focused on retaining students in their first year of university enrollment, despite retention issues existing throughout the entire four-year experience that universities should focus on as well (Nora & Crisp, 2012). Undergraduate student retention is linked with students' satisfaction with the university, indicating their likelihood to remain enrolled (Donahue & Wong, 1997), and their level of social identification with

their university may play a vital role, according to social identity theory (Tajfel & Turner, 1979).

Social Identity Theory

Tajfel and Turner (1979) suggested groups give people a sense of belonging to the world. Undergraduate students' social identity with a university and its associated brand can provide a sense of belonging with the university that is a major factor in retention (Ashforth & Mael, 1989). Social identity is defined as "the individual's knowledge that he/she belongs to certain social groups together with some emotional and value significance to him/her of the group membership" (Abrams & Hogg, 1990, p. 2). Individuals categorize themselves into social groups by way of comparison and identify those who are similar to themselves as the in-group and those who are different as the out-group. (Stets & Burke, 2000) These categories can be based on a variety of factors, such as organizational membership, gender, age cohort, among others. Being able to classify themselves as being part of a social group allows individuals to bring order into their social environment for themselves and others within it (Mael & Ashforth, 1992).

Social identification within a group can lead to a sense of involvement, concern and pride, whether or not there are personal relationships between individuals within the group (Abrams & Hogg, 1990). Due to this, groups are regulated more by the self-conceptualization of being a group member, which leads to the uniformity and coordination of group behaviors (Abrams & Hogg, 1990). Through social identification, individuals perceive themselves as "psychologically intertwined with

the fate and of the group, as sharing a common destiny and experiencing its successes and failures" (Mael & Ashforth, 1992, p. 104). Being a member of the group also allows individuals to define themselves in their environment, and this social identification gives a sense of belonging with the group; however, there are degrees of social identification, it is not an all-or-none situation (Ashforth & Mael, 1989). Group members may identify at different levels depending on their self-conceptions in the identity, and their identification may only exist in certain social categories, such as gender, religious affiliation, or organizational membership. (Ashforth & Mael, 1989).

Organizational identification. Universities serve as organizations, as members share a common organization-wide identity (Mael & Ashforth, 1992). The sense of belonging that organizational identification provides can prevent students from feeling alienated and may lead to general feelings of satisfaction with their university experience. Students who identify with the university also are more likely to remain enrolled (van Knippenberg & van Schie, 2000).

Organizational identification is a specific form of social identification in which the individual defines themselves based on the specifics of an organization (Mael & Ashforth, 1992). It is "a perceived oneness with an organization and the experience of the organization's success and failures as one's own" (Mael & Ashforth, 1992). Group identification is based on an individual's perception and not necessarily based on specific behaviors, such that an individual thinks their fate is dependent on the group's fate, meaning the group member perceives the group's outcomes as their own (Ashforth & Mael, 1989). The individual "personally experiencing the success and failures of the group," (Ashforth & Mael, 1989, p. 21) and maintains group

identification throughout; however, the individual's social identification is not necessarily internalized. An individual may consider themselves part of a group, though they may not accept all of the values and attitudes of that group (Ashforth & Mael, 1989). Identification with the group leads to individuals partly defining themselves in the terms of that group. Customers of Apple products, for example, exhibit organizational identification traits, standing in long lines to be the first to buy new products and becoming satisfied and enthusiastic customers (Coget, 2011). Behavior and action are seen as related; however, they may not occur as part of identification with the group. This distinguishes organizational identification from other related behaviors (Mael & Ashforth, 1992).

Organizational identification has an impact on the well-being of the organization itself and the organizational members. Organizational identification can comprise a major component of an individual's sense of self (Mael & Ashforth, 1992), aiding them in making sense of surroundings, organizing thoughts, and achieving decisions (Cheney, 1983). This identification should therefore also be associated with higher satisfaction with an individual's experience as part of that organization. Thus, the study's first hypothesis was proposed:

H1: The more a student socially identifies as a student of the university, the more he or she will report overall satisfaction with their university experience.

Social Media Engagement

Social identification with an organization can be fostered through use of social media by posting content about an organization and interacting with others (Barker,

2009). The differences social media channels provide from traditional media allows new opportunities for direct interaction between organizations and individuals (boyd & Ellison, 2008). Social media channels are Internet applications that allow and emphasize participation, networking, user-generated content, information circulation, and collaboration among multiple people (Henderson and Bowley, 2010). Hundreds of different social media platforms (Hanna, Rohm, & Crittenden, 2011) exist, and are "user-friendly, inexpensive, scalable internet- and mobile-based technologies that allow for the sharing of user-generated material" (Fischer & Reuber, 2011, p. 2). These social media channels have millions of users, and many of those users have added interactions on these channels to their daily lives (boyd & Ellison, 2008).

Social media allow for peer-to-peer messages instead of one-directional broadcasting of messages, with the ability to receive feedback users have the ability to inform companies of their opinions, form relationships, and inquire about more information (DeAndrea, Ellison, LaRose Steinfield, & Fiore, 2012). Social media channels provide a limitless environment for interaction, sharing and creating of content, and expression (Mutinga, Moorman, & Smit, 2011). The ability for users to participate and connect with brands online "results in a collaborative, participatory culture, where users feel comfortable expressing themselves, creating and sharing their creations and communication with a wide variety of people across the world" (Henderson & Bowley, 2010, p. 239). While many of the features offered by social media channels are similar, different cultures and groups form around different social media channels (boyd & Ellison, 2008).

While there is not any definitive categorization of social media, scholars commonly sort these channels into several categories (Fischer & Reuber, 2011). One of these categories includes a specific type of social media platform, microblogging, which allow users to publish content to Internet-mediated audiences, but the content is limited in length (Zappavigna, 2014). These microblogging platforms provide new kinds of interpersonal interaction due to the conversation-like exchanges that occur on the platforms. One of the most popular microblogging platforms, Twitter, allows these types of messages and exchanges in the form of "tweets."

On social media, a shift has made seemingly private moments or interactions more public, dependent upon the nature of the individual platform. On Twitter, for example, tweets can help build community, enact communal bonds, and inherently lead to more conversations (Zappavigna, 2014). Social media platforms not only allow users to maintain existing connections but also allow for the formation of new communities (Ellison, Steinfield, & Lampe, 2007). Individuals do not have to interact directly to form a community around similar items. Features, such as the hashtag, and other resources including slang, semantics, and grammar, can help individuals to align themselves with established communities, or others to form new communities (Zappavigna, 2014).

Brand interactions. Social media platforms are increasingly used by consumers to engage in brand-related activity, including both consuming and creating content about brands, and sharing messages about or directly from the brands (Araujo, Neijens, & Vliegenthart, 2015). These brand-related interactions can have a stronger impact than more traditional forms of marketing and advertising (Muntinga,

Moorman, & Smit, 2011). Each social media channel has different features, and not all channels are used to accomplish the same types of communication. On Twitter, brands are more central to users' activities than on other social media platforms (Araujo et al., 2015). A 2014 study found 80 percent of respondents habitually mentioned a brand (Nagy & Midha, 2014). The ability to retweet content may explain the high level of brand interaction, as it is a key way information is spread to others on the platform (Araujo et al., 2015). In 2012, Disney, for example, increased interactions by posting photos that were relatable to a wide audience, and Publix Super Markets used videos and polls to increase interactions. Both companies were successful in encouraging interactions with their brand using different tactics (Abramovich, 2012). Such brand interactions can occur in brand communities (Muniz & O'Guinn, 2001).

Brand community. A brand community is a "specialized, non-geographically bound community, based on a structured set of social relations among admirers of a brand," (Muniz & O'Guinn, 2001, p. 412). Brand communities provide opportunities for information circulation, forming the history and culture of a brand, providing customer service, and increasing brand loyalty. There are three common components in community: consciousness of kind, shared rituals and traditions, and a sense of moral responsibility to the community (Muniz & O'Guinn, 2001). Consciousness of kind is defined as the connection members feel toward one another, and the differences they feel between those in the group and those not. The second component, shared rituals and traditions, allow the community's shared history and culture to continue on within the community, and lastly, the third component is a sense of moral responsibility, or a sense of commitment to the whole community and its members

(Muniz & O'Guinn, 2001). These three components are similar to characteristics of organizational identification, such as perceived belonging with the organization.

Online brand communities are always reliant on social media channels and facilitate connections between individuals who are interested in a brand and/or already loyal to the brand (Muniz & O'Guinn, 2001). These communities "facilitate consumers' communication and interaction with each other to discuss product-, brand-, or company-related information, as well as share their experiences" (Wu et al., 2015, p. 813). Online brand communities allow for these connections to occur without regard to time or location and can provide a place for the company to participate in the community, learn from their customers, and share company-related information. Geography's lack of effect is present in large part due to the fact that media, and especially social media, transcend geography (Muniz & O'Guinn, 2001). Online brand communities can be housed by the brands themselves or can be housed within other third-party platforms, such as Facebook or Twitter (Wu et al., 2015). Cisco Systems routinely hosts Twitter Chats, for example, or an online discussion centered around a hashtag and a specific topic at a typically pre-established time and date (Fouts, 2015), which help build the community around the brand, and easy ways for community members to participate (Kerpen, 2011).

Participators in online brand communities are grouped by either non-interactive or interactive. Non-interactive participants are not highly involved in the community, passively taking in the activities occurring within the community, or very limitedly interacting, mostly through sharing information to others. An interactive member joins a community and participates by posting messages, responding to

others, and leading others to join activities (Wu et al., 2015). Leadership in the community can be obtained by individuals by organizing activities and participating in and starting discussions, and are considered to be more deeply involved in the community. It is important to note community members' participation levels can and do vary; most members participate minimally, reading content and sometimes forwarding information, contributing limitedly (Wu et al., 2015).

Social media and student retention. Universities establish programs to provide students with the resources needed to help them "establish social support networks once students arrive on campus" (DeAndrea et al., 2012, p 16). Social media now provides ways for students arriving on campus to build social support networks even before arriving on campus. Social media channels can make it easier to create expansive social networks, and having students connect with other students on social media channels before their arrival on campus may lead to those students building larger social networks than they would have without the assistance of social media channels (DeAndrea et al., 2012).

Social media channels provide avenues for students to build communities around their university. "Reducing uncertainty about college and shaping positive expectations through social media can go a long way in facilitating a healthy transition to college" (DeAndrea et al., 2012, p. 16). An individual's self-perceptions can help explain how social media may affect their perceptions of higher education and transitioning to a university through additional information obtained elsewhere. Social cognitive theory (Bandura, 1989) discusses how internal thoughts and environmental factors work together to alter these self-beliefs, which affect behavior. Social media

can provide the opportunity for students to examine their environment through a virtual means, through the mass dissemination of messages, lack of geographical constraints, and the longer lasting nature of messages. These messages can then be internalized and affect a student's adjustment to higher education (DeAndrea et al., 2012).

Twitter. Twitter is the leading microblogging service, allowing users 140 characters to post their content, including photos, videos, links, and text, in real time. These posts, called "tweets," allow for interactions between accounts through a number of features, such as replies, mentions and retweets, or resharing. Twitter is central to interactions with brands virtually, and these interactions can facilitate the formation of brand communities.

Both interactions with the brand itself and with others allows users to voice opinions, gain information, and build relationships (Araujo et al., 2015). In 2015, Nielsen, an international media measurement company, was able to find a correlation between tweet activity with on-air promotions of television shows before they premiered to better estimate the show's eventual ratings (Spangler, 2015), showing how social media interactions can reveal feelings about brands. These social activities can help students learn about their university and foster satisfaction with their university experience (DeAndrea et al., 2012). The interactions are dynamic and quick, providing an easy way for users to connect with brands (Fischer & Reuber, 2011). Twitter also provides the opportunity to reliably collect tweets showing interactions between users. The ease of Twitter data collection allows for a unique opportunity for this study to examine interactions as they occur naturally.

Features. Tweets can include the @ symbol to post "replies" and "mentions." Replies are activated when a user clicks the reply icon on a tweet, which then adds an @ symbol followed by the username of the account being replied to. These @username combinations are added at the beginning of the tweet. For mentions, @username combinations are included within the tweet but are not in reply to another tweet (Twitter Help Center, n.d.).

To forward a tweet for others to see, users can either "retweet" or "quote tweet." Both interactions allow a tweet to be shared with a user's audience, but retweets do not allow additional comments to be added. Quote tweets do, however. To retweet, the user clicks the retweet icon and confirms the retweet. To quote tweet, the user clicks the retweet icon, but then indicates it is a quote tweet. The user can then add their own comments, and the original tweet will be included below the quote tweet content for reference (Twitter Help Center, n.d.).

Users also have the ability to favorite a tweet. Favorites are represented by a small heart icon on a tweet, and are often used to indicate a user likes the tweet, but can also be used to save a tweet (Twitter Help Center, n.d.). As of November 2015, Twitter changed the name of "favorite" to "like" (Kumar, 2015).

Text of tweets can also include the # symbol, which is referred to as a "hashtag," and is used to mark keywords or topics within a tweet. Hashtags can help categorize tweets and make them more visible within Twitter search (Twitter Help Center, n.d.). While the reasoning is not fully known, research indicates that a tweet that includes at least one hashtag in their text is more likely to be retweeted, although which hashtag is included in the tweet does make a difference (Suh, Hong, Pirolli, &

Chi, 2010). Users also have the ability to follow other users to receive their tweets, allowing users to be consumers of tweets and producers of tweets (Fischer & Reuber, 2011).

Twitter's functionality creates opportunities for students to create and interact in university brand communities and interact directly with the university Twitter account. Therefore, the more students interact on Twitter through direct and/or brand tweets, the more likely they may be to socially identify as a student of the university. The following two hypotheses were thus proposed:

H2: The more students positively interact with the university account on Twitter (i.e., direct tweets), the more they will socially identify as a student of the university.

H3: The more students positively interact with topics about the university in general on Twitter (i.e., brand tweets), the more they will socially identify as a student of the university.

The Twitter interactions students partake in may lead to social identification, and thus, based upon predictions made above in Hypothesis 1, it was also proposed that stronger student social identification would lead to higher levels of satisfaction with college experience the more they also interact with or about the university on Twitter. Since satisfaction is linked with college student retention, Twitter interactions could also ultimately influence retention. Thus, the following hypotheses were proposed:

H4: The more students positively interact with the university account on Twitter (i.e., direct tweets) and the more they socially identify as a student of the university, the more likely they are to report overall satisfaction with their college experience.

H5: The more students positively interact with topics about the university on Twitter (i.e., brand tweets) and the more they socially identify as a student of the university, the more likely they are to report overall satisfaction with their college experience.

CHAPTER III

METHODS

This study examined how Twitter interactions with the university's Twitter account and the university's brand played a role in undergraduate students' social identification with the university brand and their overall university satisfaction. Pre- and post-collection questionnaires allowed for the assessment of participants' social identity with the university and university satisfaction. A content analysis of Twitter data collected from the participants' Twitter account for approximately 30 days, prior and after completion of the respective questionnaires, was conducted to examine how Twitter interactions would influence their social identification and satisfaction with the university over time.

Participants

Participants were 198 full-time undergraduate students at Texas Tech University, ages 18 through 24 (M=20.55, SD=1.31), and the majority of participants were female (81.8%). Participants included 6.1% first years, 24.2% sophomores, 34.3% juniors, and 35.4% seniors. A little more than a quarter of participants (25.8%) transferred from another college or university before enrolling at Texas Tech University. A majority of participants first enrolled at Texas Tech University within the last 4 years, 2012-2015, with 13.1% enrolled in 2012, 31.3% enrolled in 2013, 30.8% enrolled in 2014, and 21.2% enrolled in 2015. Of participants, 3.5% enrolled prior to 2012. More than three-quarters of participants (83.3%) majored in programs in

the College of Media & Communication, 8.6% in the College of Arts & Sciences, 7.6% in the Jerry S. Rawls College of Business Administration. Almost three quarters of participants identified as White/Caucasian (74.2%).

Undergraduate students were selected for this study since student retention among this group is an on-going concern for universities, with dropout rates as high as 20 percent at Texas Tech University (the university of interest in this study) in the last 10 years (Texas Tech University Institutional Research, 2014). Traditional university students are typically ages 18 through 22 (Jameson & Fusco, 2014), but to ensure students who started higher education at a traditional age but enrolled in classes for more than four years are included in the study, the age range of eligible participants was expanded to age 24.

Procedures

The study was made available to undergraduate students through an online participant pool system managed by the College of Media & Communication at the university, such that students could voluntarily sign up and participate in a selection of research studies being conducted at the university for course credit. Once participants signed up for the study online, they were directed to an online informed consent form and provided with details about the study, and an eligibility questionnaire.

Eligibility. To be eligible, participants completed a questionnaire to determine if they were current, full-time students of Texas Tech University between the ages of 18 and 24. Also, participants were required to have an active account on Twitter and check their accounts regularly, defined as two to three times per week for this study.

This frequency was chosen since it allowed the participants multiple opportunities of exposure to the Texas Tech Twitter account and for related brand interactions to occur. See Appendix A for the complete list of eligibility questions.

Once determined eligible, participants were asked to provide their Twitter username and permission to allow collection of their Twitter data for approximately 30 days. A link was provided to participants to allow them to verify that they followed the Texas Tech Twitter account or to instruct them on how to follow if they were willing to follow the account during the course of the study (note: all participants were required to follow the Texas Tech University Twitter account to be eligible for the study). By following the account, tweets from the Texas Tech Twitter account appeared in the participants' timeline or their personal Twitter homepage showing a stream of tweets. Participants agreed to have their Twitter data collected for approximately 30 days (i.e., from the completion of the pre-collection questionnaire to the completion of the post-collection questionnaire). According to the Twitter data collected, participants logged in to Twitter a minimum of 17 times during the study and an average of two times per week.

Once eligibility was determined and consent was given, the participant completed a 15-minute online questionnaire. Not meeting eligibility criteria resulted in termination of study participation.

Pre-collection questionnaire. An organization identification and a satisfaction scale were used to assess participants' social identification as Texas Tech students and satisfaction with their university experience.

Social identification. An organizational identification scale adopted from Mael and Ashforth (1992) and included six statements was used to assess social identification. A 5-point Likert response scale was used, such that *1 = strongly disagree* and *5 = strongly agree*. Following reliability analysis, one scale item did not load reliably with the other items and was therefore dropped, leaving five items. Example items included: "When someone criticizes Texas Tech, it feels like a personal insult," and "When someone praises Texas Tech it feels like a personal compliment." Reliability of the pre- and post-collection organizational identification scales were confirmed with Cronbach's alphas of 0.81 (M=4.15, SD=.80) and 0.85 (M=4.02, SD=.89), respectively. See Appendix B for a complete list of the statements for the organizational identification scale.

Satisfaction with university experience. To measure the participants' satisfaction with their university experience, a scale was adapted from the "Penn State Student Satisfaction Survey" created by the Penn State Student Affairs Research and Assessment Office (2010). The items included statements about participants' satisfaction levels with the quality of academic experiences, sense of belonging, and teaching, among other related resources. Participants were asked "How satisfied are you with the overall quality of," statements such as "Your sense of belonging at Texas Tech," and "Your safety and security on campus." A 5-point Likert response scale was used, such that *1 = extremely dissatisfied* and *5 = extremely satisfied*.

Items were also adapted from another scale used to measure satisfaction with university experience (Peterson and Johnston, 2015) and included such statements as, "In most ways, my life at Texas Tech is close to my ideal," and "So far I have gotten

the important things I want at Texas Tech." A 5-point Likert response scale was used, such that *1 = strongly disagree* and *5 = strongly agree*.

All of the items related to university satisfaction listed above were confirmed to load as one reliable scale, with a Cronbach's alpha of 0.90 at pre-collection (*M*=4.11, *SD*=.66), and a Cronbach's alpha of 0.89 at post-collection (*M*=4.15, *SD*=.63. See Appendix C for all the items used to measure university satisfaction.

Twitter usage. To assess usage, participants were asked the amount of time they spent on Twitter and how long they have actively used Twitter. The total number of tweets each participant posted during the 30 days of Twitter data collection were also recorded to use as a control variable in the final analyses. More than half of participants (63.2%) indicated they spend less than 15 minutes per Twitter session. Almost three quarters of participants (70.4%) indicated they have actively used their Twitter account for more than 2 years. See Appendix D for the complete list of questions on Twitter usage.

Demographic questions. The pre-collection questionnaire also included basic demographic questions, including gender identity, classifications, years attended at Texas Tech, and whether or not the participant transferred from another university before attending Texas Tech. See Appendix E for a complete list of all the demographics questions.

Twitter data collection. Following completion of the pre-collection questionnaire, data from each participants' Twitter account was collected for approximately 30 days.

Privacy. To protect the privacy of participants, the researcher guaranteed confidentiality of participants' identifying information. Participants were given identification numbers. For collection of Twitter data, the participants' accounts were required to be public, meaning the account was accessible to anyone on the internet, or if it was private, participants were given the option to change it to public. Participants who chose to change their account to private were informed of possible risks or discomforts they could reasonably experience before voluntarily participating in the study.

Software. Two data collection websites, *If This, Then That* and *TwDocs*, were used to collect data from each participants' Twitter account. *If This, Then That* collected each tweet a participant sent, and *TwDocs* allowed for reports of favorites to be downloaded.

If This, Then That. The researcher added the participants' Twitter username into *If This, Then That* to collect the participant's tweets, retweets, quote tweets, mentions, and replies in a Google Spreadsheet. Every time a tweet was sent by a participant, *If This, Then That* was triggered to add the entire tweet's content and date published into a Google Spreadsheet. Each spreadsheet was saved on a password-protected Google account by the participant's identification number.

TwDocs. TwDocs provides reports of favorites. The researcher downloaded each participant's favorites and imported the results into a Google Spreadsheet for analysis. The downloads included all favorites published within the time frame and the researcher removed identifying information and replaced it with identification numbers.

Post-collection Questionnaire. After approximately 30 days, participants were sent an online post-collection questionnaire that included the same questions as those provided in the pre-collection questionnaire by email. Each eligible participant who completed both the pre-collection and post-collection survey questionnaires was awarded course credit. Three-hundred and fifty participants registered to participate in the study through the online participant pool system, but only 198 completed all portions of the study and were included in the final data analysis.

Interaction Data

Twitter data from each participant was collected for approximately 30 days as indicated above and coded using interaction type with the Texas Tech Twitter account and around topics about the university on Twitter to assess if and how participants interacted with and around the Texas Tech brand using their Twitter account.

Data coding. Following the collection of Twitter data, the data was coded for interaction types using four weighted indexes.

Interactions with the Texas Tech Twitter Account (Direct Tweets). The Texas Tech Twitter account is operated by Texas Tech University to publish informational messages for a variety of audiences, including students, faculty, staff, alumni and fans. These interactions are defined as communication on Twitter created by participants that explicitly includes the Texas Tech Twitter account's username, @TexasTech. Tweets could include: photos, mentions, hashtags, or videos.

Interaction weights. An index to measure each Twitter interaction feature was created. The scores of this index are based on two items: (1) the ease of completion of the interaction and (2) the visibility of the interaction to a user's Twitter followers.

Since a "favorite" is the easiest form of interaction for a Twitter user to complete and is the least visible to the user's followers, it was given a score of one. A "retweet" is equally simple to complete, with both a favorite and a retweet requiring the click of an icon. A retweet is more visible to a Twitter user's followers and thus was provided with a score of two. "Reply" and "quote tweet" were assigned values of three, as they require clicking an icon, and the users have the opportunity to add their own text to the interaction. Both also are visible to the user's followers. A "mention" was given the highest weight of four. While a mention and a reply are very similar, a mention is visible to more of a user's followers, and also requires the user to initiate the interaction, rather than the user reacting to a piece of content posted by a Twitter account.

The scores of each tweet were summed to create a final score of interactions with the Texas Tech Twitter account. Scores ranged from 0 to 21 for direct tweets (M=0.84, SD=2.20).

Table 3.1

Weights of Interaction Types for Direct Tweets

Interaction Type	Weight
Favorite	1
Retweet	2
Reply	3
Quote Tweet	3
Mention	4

Interactions Around Topics About the University on Twitter (Brand Tweets). Interactions around topics about the university on Twitter were defined as communication on Twitter created by participants that discusses or insinuates anything related to Texas Tech. Tweets can include: photos, mentions, hashtags, or videos. An index was used to measure these interactions.

Interaction weights. The reasoning for each weight of the interaction types index are similar to those for the interactions with the Texas Tech Twitter account. Tweet was added to this interaction index because interaction with the brand could occur without any other Twitter account being included. A tweet without any other form of interaction is similar to a mention since the content is not created in reaction to another piece of content; thus, it was given a weight of four, the same as the mention. All scores were generated and finalized after gathering consistent feedback about appropriate weights from undergraduate and graduate students in two communications courses at the university.

The scores of each tweet were summed to create a final score of interactions around topics about the university on Twitter. Scores ranged from 0 to 253 for brand tweets (M=20.15, SD=32.75).

Table 3.2

Weights of Interaction Types for Brand Tweets

Interaction Type	Weight
Favorite	1
Retweet	2
Reply	3
Quote Tweet	3
Mention	4
Tweet	4

CHAPTER IV

RESULTS

Hypothesis 1 proposed that the more participants reported social identification as a student of the university, the more likely they would be to report overall satisfaction with their university experience. Simple linear regression analyses were conducted for both the pre- and post-collection scores with university satisfaction entered as the dependent variable and social identification scale as the independent variable.

In the pre-collection questionnaire, the more participants socially identified with the university organization, the more he or she reported overall satisfaction with their university experience, $\beta = .44$, $t(196) = 6.83$, $p < .001$. In the post-collection survey, the same was found, such that the more participants socially identified with the university organization, the more he or she reported overall satisfaction with their university experience, $\beta = .40$, $t(196) = 5.91$, $p < .001$. Hypothesis 1 was thus supported.

Hypothesis 2 proposed that the more participants interact with the university's Twitter account (i.e., direct tweets), the more likely they will be to socially identify as a student of the university. A hierarchical regression was conducted with the pre-collection organizational identification score and the total number of tweets posted per participant in the first block and the direct tweets interaction score in the second block. The post-collection organizational identification score was entered as the dependent variable. Model 1 was significant with a variance of 23.8%, F (2, 195) = 30.38, $p <$

.001. Model 2 was also significant, F (3, 194) = 22.71, $p < .001$, with a significant increase in variance to 26.0%, F (1, 194) = 5.86, $p < .05$. The more participants interacted directly with the Texas Tech Twitter account, the more likely they were to report organizational identification as a student of the university, $\beta = .16$, $t(194) = 2.42$, $p < .05$. Hypothesis 2 was thus supported. See Table A.1 for all the model coefficients and descriptive statistics.

Hypothesis 3 proposed the more students interacted around topics about the university (i.e., brand tweets), the more they would socially identify as a student of the university. A hierarchical regression was conducted with the pre-collection organizational identification score and the total number of tweets posted per participant in the first block and the brand tweets interaction score in the second block. The post-collection organizational identification score was entered as the dependent variable.

Model 1 remained the same as above, with a variance of 23.8%. Model 2 was also significant, F (3, 194) = 20.27, $p < .001$, but a significant increase in variance was not found (22.7%), F (1, 194) = .28, $p = .60$. The more participants interacted on Twitter around topics about the university did not indicate that they were more likely to report organizational identification as a student of the university, $\beta = .04$, $t(194) = .53$, $p = .60$. Hypothesis 3 was thus not supported. See Table A.2 for all the model coefficients and descriptive statistics.

Hypothesis 4 proposed the more students interact with the university Twitter account (i.e., direct tweets) and the more they socially identify as a student of the university, the more likely they are to report overall satisfaction with their college

experience. A hierarchical regression was conducted with the pre-collection satisfaction score and the total number of tweets posted per participant in the first block, the post-collection organizational identification score in the second block, and direct tweets interaction score in the third block. The post-collection satisfaction score was entered as the dependent variable.

Model 1 was significant with a variance of 59.0%, F (2, 195) = 140.07, $p <$ .001. Model 2 was also significant, F (3, 194) = 96.62, $p < .001$, with a significant increase in variance (59.9%), F (1, 194) = 4.58, $p < .05$. Model 3 was significant, F (4, 193) = 11.84, $p < .001$, but did not result in a significant increase in variance (59.9%), F (1, 193) = .001, $p = .98$. While participants who indicated high organizational identification were more likely to report overall satisfaction with their college experience, the addition of the direct interaction with the Texas Tech Twitter account did not add significant variance to lead to higher satisfaction, $\beta = .00$, $t(193) = .03$, $p =$ .98. Hypothesis 4 was thus not supported. See Table A.3 for all the model coefficients and descriptive statistics

Hypothesis 5 proposed the more students interact around topics about the university on Twitter (i.e., brand tweets) and the more they socially identify as a student of the university, the more likely they are to report overall satisfaction with their college experience. A hierarchical regression was conducted with the pre-collection satisfaction score and the total number of tweets posted per participant in the first block, the post-collection organizational identification score in the second block, and brand tweets interaction score in the third block. The post-collection satisfaction score was entered as the dependent variable. Models 1 and 2 remained the

same as above for Hypothesis 4. Model 3 was also significant, F (4, 193) = 72.56, p < .001, but did not result in a significant increase in variance (60.1%), F (1, 193) = .74, p = .39. While participants who indicated high organizational identification were more likely to report overall satisfaction with their college experience, the addition of the brand tweets interaction score did not add significant variance to lead to higher satisfaction, β = .05, t(193) = .86, p = .39. Hypothesis 5 was thus not supported. See Table A.4 for all the model coefficients and descriptive statistics

CHAPTER V

DISCUSSION

This study focused on examining the relationships between college students' Twitter interactions directly and about their university and their social identification overall satisfaction with the university. As expected, a significant positive relationship was found between social identification as a university student and satisfaction with their university experience, such that students who socially identify with the university also report satisfaction. More direct interaction with the Texas Tech Twitter account (i.e., direct tweets) resulted in participants reporting higher levels of social identification as a Texas Tech student over time. Since social identification is associated with satisfaction (and arguably undergraduate student retention) (Donahue & Wong, 1997), this relationship has important implications for universities' use of Twitter for their retention efforts. Based upon these results from this study, universities should consider ways in which they can increase their students' engagement directly with the university's own Twitter account.

Participants' brand tweets interactions, however, did not have the same effect, such that there was not a significant relationship found between brand tweets and social identification as a Texas Tech student. Types of brand tweets can vary greatly and may not be related to how a participant feels about their connection to the university; whereas, communicating directly with the Texas Tech Twitter account may indicate a stronger desire to connect with the university and strengthen ones' identification. Twitter interaction directly with the brand therefore may allow

universities to influence social identification and university satisfaction directly in a way that simple interaction with the overall brand cannot.

Participants Twitter interactions of any type, however, did not add a significant variance to overall satisfaction with their college experience when examined with organizational identification, and therefore, the relationship between social identification and university satisfaction must be explored further to understand how social media engagement may play a significant moderating or mediating role between the two outcome variables.

Theoretical Implications

The study's results provide evidence in support of social identity theory, with a specific focus on organizational identification. Social identification can lead to a sense of involvement, concern, and pride with a group or organization by an individual, which was examined using established social identity attitudes and organizational identification scales focused on the participants' current university, Texas Tech University. The results of this study indicate that social identification can be strengthened through direct interactions with the university through Twitter, but not necessarily through general tweets about the university (i.e., brand tweets). Brand tweets occurred more often than direct tweets, but they may not have always resulted in interactions from others. For example, a brand tweet could be posted by a participant, but little interaction may have occurred from other group members; whereas, most tweets made directly to the university's account were interactions to start with; they were most often posted in response to content on the university's

account. As Muniz and O'Guinn (2001) discussed, brand communities facilitate conversations and interactions around brand-related information. Without the conversations and interactions from others, and specifically the brand itself, participants may not have felt as part of the community, and therefore did not feel a perceived oneness with the university.

This finding of strengthened social identification due to direct interaction further supports Abrams and Hogg's (1990) suggestion that social identification occurs whether or not there are personal relationships within the group. General interactions around topics about the university were more likely to occur with other individuals; however, these personal-level interactions did not have the same effect as the direct interactions with the Texas Tech Twitter account.

Online brand communities formed without direct presence and interaction of the brand itself may not have the desired effects of creating strong social identification, loyalty, or networks. At the very least, these communities on their own are not enough to further social identification with the university potentially due to the lack of interactions occurring between group members and lack of interaction by the brand itself. Further research should examine if these results are replicated on other social media channels and with other brands. A similar study on other social media channels, such as Facebook, could be replicated through the use of Facebook groups, which would allow for measurement of interactions similar to those on Twitter, but also different interactions such as comments and more group-like conversations. Facebook's interaction capabilities may reveal online brand community effects not present on Twitter.

While participants who reported high levels of organizational identification were likely to report overall satisfaction with their college experience, the addition of Twitter interactions, both direct or brand tweets , did not add significant value. This may due to the short Twitter data collection time not allowing for the interactions to affect satisfaction and that social identification was a strong predictor of satisfaction; whereas, Twitter interaction was only a predictor of social identification and was therefore not strong enough to influence satisfaction above and beyond social identification. Further research should include a longer Twitter data collection time to examine how social media interactions may play a stronger role in influencing both outcome variables.

Methodological Implications

This study employed a unique approach of measuring Twitter usage by collecting observed interaction data instead of self-reported data. By using this approach, results are more likely to be accurate than studies relying on self-reported Twitter usage. Gathering tweets for this study revealed a large range of number of tweets sent by each participant, from 0 to 1,183 tweets per participant (M=73.30, SD=127.80). Tweets were analyzed for manifest content; however, due to the number of ways a participant could reference the university, each tweet was read to ensure accuracy of content analysis, but the valence of the tweets was not possible to reliably determine.

The weighting of interaction types allowed for the consideration of the level of interaction, in addition to whether or not participants completed an interaction. Since

interaction weights were based on the ease of completion of the interaction and the visibility of the interaction to the participant's followers, this study recognized that some interactions are more likely to affect social identification than other interactions, and weighted those interactions accordingly.

Additionally, this approach can be utilized with additional social media channels and other consumer brands. Muntinga, Moorman, & Smit (2011) found that brand-related interactions have a stronger impact than more traditional forms of marketing and advertising, which could be further examined using methods similar to this study. Further research should be conducted to study the effects among other types of brands. University brands include a specific audience of students, while consumer brands have a larger, more-diverse audience that may exhibit different results.

Within this study, there were high numbers of females, upperclassmen, and participants whose majors are in the College of Media & Communication. Due to this, the sample is not representative of all students. Further research with a representative sample of university students would further inform this result.

Practical Implications

Universities expend both human and financial resources to support social media communications to students without necessarily knowing the result of their efforts. This study provided evidence that undergraduate students' use of Twitter to interact directly with their university can influence their social identification with the university, which could eventually lead to greater satisfaction with their overall

university experience. Since this relationship was not found with brand tweets interactions, university Twitter accounts can provide an influential opportunity for universities to connect with their students by encouraging them to engage directly with the university's account.

Managers of university Twitter accounts should keep undergraduate students a priority when considering content strategies. In addition, interaction with secondary Twitter accounts at the university, such as departmental accounts, did not appear to replace or replicate these effects, as for this study they were included as brand tweets, not as direct tweets with the Texas Tech account. This places renewed emphasis on the primary university Twitter account and the content produced and posted through the account. Managers of university Twitter accounts should focus on creating content that appeals to their student audience to increase followers of the university Twitter account so messages reach students. This might include using specific types of content, such as photos or videos, but also subject matter that is relevant to students.

More research should be completed into what types and subjects of content allow for more interaction, but also into whether this effect can be replicated using other social media channels and for other university Twitter accounts. Twitter users may be different than users of other social media channels. These users may be unique in their use of social media channels, and if their brand interactions. This can be further examined through replication using other social media channels. Additionally, research should be conducted to examine if this effect is stronger over a longer Twitter collection period. Periods of time longer than 30 days may allow for more social

identity attitudes to form, further informing managers of university Twitter accounts' content strategy.

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APPENDIX A

ELIGIBILITY QUESTIONNAIRE

How many credit hours are you currently enrolled in at Texas Tech?

- 11 hours or less
- 12 hours or more

How old are you?

Do you currently have a Twitter account?

How many times, on average, do you check your Twitter account per week?

- Every day
- 4-6 times per week
- 2-3 times per week
- 1 or less times per week

APPENDIX B

ORGANIZATIONAL IDENTIFICATION SCALE

- When someone criticizes Texas Tech, it feels like a personal insult.
- I am very interested in what others think about Texas Tech.
- When I talk about Texas Tech, I usually say 'we' rather than 'they'.
- Texas Tech's successes are my successes.
- When someone praises Texas Tech, it feels like a personal compliment.
- If a story in the media criticized Texas Tech, I would feel embarrassed.

Adapted from Mael and Ashforth (1992).

APPENDIX C

SATISFACTION SCALE

How satisfied are you with the overall quality of:

- Your academic experiences
- Your sense of belonging at Texas Tech
- Your safety and security on campus
- The level of academic integrity at Texas Tech
- The quality of teaching
- The quality of courses

Adapted from Penn State Student Affairs Research and Assessment (2010).

In most ways, my life at Texas Tech is close to my ideal.

- The conditions of my life at Texas Tech are excellent.
- I am satisfied with my life at Texas Tech.
- So far I have gotten the important things I want at Texas Tech.
- If I could live my time at Texas Tech over, I would change almost nothing.

Adapted from Petersen and Johnston (2015).

APPENDIX D

TWITTER USAGE

How much time do you spend on Twitter, on average, per day?

- Less than 10 minutes
- 10 minutes to less than 20 minutes
- 20 minutes to less than 30 minutes
- 30 minutes to less than 1 hour
- 1 hour to less than 2 hours
- 2 hours to less than 3 hours
- Equal to or more than 3 hours

How long have you actively used Twitter?

- 6 months to less than 12 months
- 1 year to less than 2 years
- 2 years or more

Adapted from Han et al., (2015).

APPENDIX E

DEMOGRAPHIC QUESTIONS

What is your gender identity?

- Male
- Female
- Trans
- Other

What is your classification?

- Freshman
- Sophomore
- Junior
- Senior
- Other:

How many years have you attended Texas Tech?

- Less than ½ a year
- ½ year to less than 1 year
- 1 year
- 2 years
- 3 years
- 4 years
- More than 4 years

Did you transfer to Texas Tech from another college or university?

- Yes
- No

In what college(s) are you pursuing your major(s) at Texas Tech? (Select all that apply.)

- College of Agricultural Sciences & Natural Resources
- College of Architecture
- College of Arts & Sciences
- College of Education
- College of Human Sciences
- College of Visual & Performing Arts
- College of Media & Communication
- Honors College
- Jerry S. Rawls College of Business Administration
- Whitacre College of Engineering

How do you describe yourself? (Select all that apply.)

- American Indian or Alaska Native
- Hawaiian or Other Pacific Islander
- Asian or Asian American
- Black or African American
- Hispanic or Latino
- White
- Other: _____

APPENDIX F

TABLES

Table A.1. *Summary of Hierarchical Regression Analysis for Variables Predicting Organizational Identification Including the Direct Tweets Interaction Score (N = 197)*

	Model 1			Model 2		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Pre-score	.54	.07	.49***	.53	.07	0.47***
Total Tweets	.00	.00	.03	.00	.00	- .01
Direct Interaction				.06	.03	.16*
R^2		.24			.26	
F for change in R^2		30.38			5.86*	

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

Table A.2. *Summary of Hierarchical Regression Analysis for Variables Predicting Organizational Identification Including the Brand Tweets Interaction Score (N = 197)*

	Model 1			Model 2		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Pre-score	.54	.07	.49***	.54	.07	.48***
Total Tweets	.00	.00	.03	.00	.00	.03
Non-direct Interaction				.00	.00	.04
R^2		.23			.24	
F for change in R^2		30.38			.28	

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

Table A.3. *Summary of Hierarchical Regression Analysis for Variables Predicting Satisfaction Including the Direct Tweets Interaction Score (N = 197)*

	Model 1			Model 2			Model 3		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Pre-score	.74	.04	.77***	.70	.05	.73***	.70	.05	.73***
Total Tweets	.00	.00	-.03	.00	.00	-.01	.00	.00	-.01
Organizational Identification				.08	.04	.11*	.08	.04	.11*
Direct Interaction							.00	.01	.00
R^2		.59			.60			.60	
F for change in R^2		140.07			4.58*			.00	

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

Table A.4. *Summary of Hierarchical Regression Analysis for Variables Predicting Satisfaction Including the Brand Tweets Interaction Score (N = 197)*

	Model 1			Model 2			Model 3		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Pre-score	.74	.04	.77***	.70	.05	.73***	.70	.05	.73***
Total Tweets	.00	.00	-.03	.00	.00	-.01	.00	.00	-.01
Organizational Identification				.08	.04	.11*	.08	.04	.11*
Non-direct Interaction							.00	.01	.00
R^2		.59			.60			.60	
F for change in R^2		140.07			4.58*			.74	

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