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Twitter Use and its Effects on Student Perception of Instructor Credibility

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Abstract

This study investigates college student perceptions of instructor credibility based on the content of an instructor's Twitterfeed and student beliefs about Twitter as a communication tool. Quantitative and qualitative methods were utilized to explore the effects of three manipulated Twitter feeds (e.g., tweeting social topics, professional topics, or a blend) on student perceptions of instructor credibility and examine how students perceive Twitter as a teaching tool. Quantitative results suggest that the profile with professional content was most credible. Credibility ratings were also associated with other Twitter use variables, including positive student attitudes about instructors who use Twitter and Tweet frequency. Coded qualitative responses indicated that Twitter may be both an asset and an obstacle for instructors.

Keywords: Educational technology, Twitter, Instructor credibility, Social media, Instructor self-disclosure

Twitter Use and its Effects on Student Perception of Instructor Credibility

In an era when technology has become interwoven with teaching, social media has emerged as a communication medium for teaching and learning. In online courses and face-to-face (FtF) classrooms alike, instructors are integrating mixed media tools such as course management systems with weblinks, audio and video materials, and virtual groups (Hillman, 2014; Kirkwood & Price, 2014). As such, researchers have identified a need to better understand how those social media tools can impact the learning process. Specifically, Carr, Zube, Dickens, Hayter, and Barterian (2013) found that perceptions of instructor credibility in an online learning environment positively influenced students' educational affect and cognitive learning. Credibility is defined in the research as a source's *ethos*, which is comprised of intelligence, character, and goodwill (McCroskey & Teven, 1999; McCroskey & Young, 1981; Teven & McCroskey, 1997). Indeed, research conducted prior to the advent of educational technology suggests that instructor credibility is paramount in the student learning process (Teven & McCroskey, 1997; Thweatt & McCroskey, 1998). For contemporary instructors, establishing themselves as credible in the classroom and through social media may be the first step in understanding how social media tools can impact learning outcomes.

Twitter is a social media tool that allows users to send and receive messages no more than 140 characters in length, called "tweets." As of August 2014, Twitter had 271 million users (Koh, 2014). As Twitter grows in popularity, more instructors are beginning to experiment with Twitter as a teaching tool, and educators in many fields use social media in and outside of the classroom. A recent survey of faculty conducted by Pearson Learning Solutions and the Babson Survey Research Group found that 70% of the faculty surveyed use social media for personal purposes, 55% use Twitter for professional purposes (outside of class), and 41% use social media

in class (Seaman & Tinte-Kane, 2013). In addition, Twitter has quickly become a tool to

disseminate research and teaching among college professors (Priem, Costello, & Dzuba, 2012).

As instructor Twitter use becomes more prevalent, it is timely to question the effects of

using Twitter as a mode of public communication with students. Thus, understanding how

Twitter can be used as a means of personal and professional communication, and the effects of

using Twitter in different ways, becomes central to understanding student perceptions of

instructor credibility. Priem et al.'s (2012) research indicated that only 30 percent of faculty's

tweets are scholarly in nature. Johnson (2011) found that instructors who tweeted more social

content were perceived as more credible by students. While Johnson's findings are provocative,

they are not intuitive, and we argue that the subject deserves further investigation. Our study was

designed to examine how instructor use of Twitter affects perceptions of their credibility, as

previous studies have resulted in mixed findings with regard to students' perceptions of Twitter-

using instructors (Johnson, 2011; McArthur & Bostedo-Conway, 2012). Therefore, the primary

aims of our study were twofold: to quantitatively examine perceived differences in credibility

based on the content of a hypothetical instructor's Twitterfeed, and to qualitatively investigate

perceptions of credibility and Twitter use to understand what students think about instructors

who use Twitter.

Instructor Credibility and Technology

Effective communication between instructor and student is vital to the student's learning

experience; however, outside of the classroom setting, communication can take on many forms.

Informal communication with instructors can positively influence student perceptions of trust,

and feelings of instructor immediacy, as well as student motivation; however, in one study, only

half of students surveyed had ever talked to their instructor outside of class, either in office hours

or informally on campus (Jaasma & Koper, 1999). Indeed, some students may be hesitant to

initiate communication with instructors outside of class (Martin & Myers, 2006; Kelly, Duran, &

Zolten, 2001). Communication researchers have recently focused attention on how students and

instructors communicate via technology (e.g., Johnson, 2011; Mazer, Murphy, & Simonds,

2007a, 2007b), and how forms of technology, such as Twitter, can serve as a form of informal

communication with instructors. Thus, the current study examines Twitter as a mechanism of

informal communication between instructor and student.

Previous researchers have demonstrated the importance of an instructor maintaining

credibility due to its positive effects on student learning outcomes (Martin, Mottet, & Chesebro,

1997; McCroskey, Valencic, & Richmond, 2004). We build upon the assertion that an

instructor's self-disclosure is a vital component to creating a perception of credibility (Brookfield,

2006; McCroskey, 1992), adding recent work that suggests that formal and informal self-

disclosure among students and instructors transpires and is affected by communication in an

online context (Johnson, 2011; Lowe & Laffey, 2011; Mazer et al., 2007a, 2007b).

Instructor's Credibility and Self-Disclosure

McCroskey and Teven (1999) found that instructor credibility is based on three factors:

competence (subject-matter expertise), trustworthiness (character and sincerity), and caring

(showing concern for students' welfare). Credibility is important to maintain, as it can influence

student learning outcomes (McCroskey et al., 2004) as well as student motivation to learn

(Martin et al., 1997). A number of factors can have an effect on one's perceived credibility,

including high immediacy (Thweatt & McCroskey, 1998), relatability (Teven & Hanson, 2004),

and self-disclosure (McCroskey, 1992). Brookfield (2006) posited that an instructor's self-

disclosure increases their personhood (the students' beliefs that their instructor has a life outside

of the classroom) in the eyes of their students. Brookfield's discussion of instructor personhood, however, only included revelations of personal information that related to course content. McBride and Wahl (2005) argued that if instructors increase self-disclosure, they will likely increase immediacy with their students.

In their research on instructors' use of Facebook, Mazer et al. (2007b) found that students perceived teachers who were highly self-disclosive on Facebook as being more credible than teachers who were less self-disclosive. Additionally, students who viewed instructors with high amounts of self-disclosure on Facebook reported higher levels of motivation, affective learning, and evaluated the classroom climate more positively than those who were exposed to a teacher who limited their disclosures on Facebook (Mazer et al., 2007a).

Although self-disclosure online can lead to increased perceptions of credibility, researchers point out potential pitfalls. Johnson (2011) cautioned instructors to only use Twitter with students who "have a positive feeling about social networking sites" since doing so with students who do not support the use of technology in this manner could damage the student-teacher relationship (p. 32). Mazer et al. (2007b) also warned against disclosure that could potentially damage an instructor's credibility. Specifically, they advised educators to maintain an online persona consistent with their offline behaviors.

Potential Impacts of Social Media Use

Researchers point to several reasons for instructors to incorporate social media into their personal and professional communication with students. Remund and Freberg (2013) argued that it is important for students to learn how to build social media networks that include personal and professional connections. Instructors should show students how to build networks using social media by "being active on social media networks, both professionally and personally" and

"model[ing] effective online reputation management" (p. 3). The researchers also posited,

"scholars who live by example and actively participate in social media will establish trust and

credibility among students and professionals alike" (p. 4). Other researchers concur, citing

Twitter's concise nature and convenient access via mobile devices as benefits of using Twitter to

communicate with students (Lowe & Laffey, 2011). Unlike Facebook, which requires a two-way

following relationship, Twitter users may choose to follow the tweets of the instructor without

the instructor seeing the student's tweets.

Despite the potential benefits of Twitter as a medium used for out-of-class

communication, Lowe and Laffey (2011) found that if students are not already familiar with

Twitter as a social networking tool, they may doubt its relevance and its usefulness in a

classroom setting. Rinaldo, Tapp, and Laverie (2011) found that students who utilized Twitter

the most frequently benefited more in terms of increased student involvement in the course,

increased satisfaction with the course, enhanced learning, and career preparation. Conversely, the

students who were unfamiliar with Twitter resisted using it for class complained that it was

difficult to understand, and felt that it was a waste of time. Students' attitudes toward Twitter, as

well as general perceptions of instructor technology use as an extension of the classroom, might

be tied to a student's preferred learning style, as "progressive" educators are often rated higher in

perceived character and caring (see Brann, Edwards, & Meyers, 2005). Thus, it is relevant to

consider students' Twitter use and instructor use of Twitter in order to better understand how

these variables could impact perceptions of instructor credibility. Perhaps a student's familiarity

and use of Twitter could alter the way they assess the credibility of instructors who use Twitter.

While previous studies have focused on the potential effectiveness of Twitter as an

educational tool, only two studies have examined the perceived credibility of instructors who use

Twitter. Johnson (2011) examined three groups of college students: one viewed only social tweets from an instructor, another viewed only scholarly tweets from an instructor, and the last group saw a blend of scholarly and social tweets. The students who saw only social tweets from an instructor rated that instructor as more credible than did the students who saw only scholarly tweets; scholarly tweets from an instructor did not increase perceived competence among students. She surmised that this is because caring, not competence, is the most important determinant of perceived credibility and called for a larger pool of more diverse students in future studies. The present study addresses this limitation and extends the depth of understanding to investigate contextual factors involved in student Twitter use.

McArthur and Bostedo-Conway (2012) also studied how an instructor's use of Twitter in a class affected student perceptions of the instructor. They found that student perceptions of teacher credibility were positively correlated with their own frequency of Twitter use. In addition, student perceptions of the content relevancy of an instructor's tweets was positively correlated with how often they read the instructor's tweets and favorable perceptions of Twitter as an instructional tool. These findings seem to contrast Johnson's (2011) study and warrant further investigation into how student Twitter users feel about an instructor using Twitter and how instructor credibility may be related to the content of the instructor's tweets.

Overall, research suggests that Twitter has the potential to be a valuable communicative tool for instructors; however, the current investigation addresses some of the limitations in previous research. To better understand how Twitter content can impact instructor credibility, we posed the following research questions:

RQ 1: Is the type of instructor Twitter use (social, professional, or a blend of the two) associated with student perceptions of instructor credibility?

RQ 2: Above and beyond the content in the Twitterfeed, do perceptions of instructor

credibility differ based on whether students believe it is a good idea or a bad idea

for an instructor to use Twitter?

RQ 3: Does student use of Twitter (i.e., frequency, use of Twitter for social versus

professional use) change the association between the profile content and

perceptions of instructor credibility?

RQ 4: How do students describe the potential positive and negative effects of an

instructor using Twitter?

Method

We used both quantitative and qualitative methods to examine perceived differences in

instructor credibility based on the content of hypothetical instructors' Twitterfeeds. We

investigated student perceptions of instructor credibility and use of Twitter as a communication

tool.

Participants and Procedures

Participants were recruited by the researchers posting calls for participation on course

Blackboard sites in a variety of classes at several universities as well as postings calls on

researchers' social networking sites, such as Facebook and Twitter. All materials and procedures

were approved by the Institutional Review Boards at the authors' institutions. Upon clicking the

hyperlink to the questionnaire in the call for participants, students were asked to agree to the

conditions in the consent form and indicate eligibility for the study.

The respondents included 239 individuals who met the study criteria: current college

student, Twitter user, and between 18 and 89 years old. Participants were 65.7% female ($n =$

157), average age 20.5 (range 18-40, $SD = 2.6$), and primarily Caucasian (76.6%, $n = 183$), with

12.6% Black/African American, 6.3% Asian/Asian American, 2.5% Hispanic/Latin American,

2.1% Multiracial/Other, and 1.3% American Indian/Alaska Native. Participants represented a

wide range of academic majors, distributed across years on college: First year 34.7%,

Sophomore, 4.2%, Junior 23.0%, Senior, 33.9%, Graduate Student 2.5%.

Participants were asked to access their Twitter account profile to provide accurate

responses to questions about their Twitter usage. On average, participants had used Twitter for

2.6 years, ranging from about 6 months to 8 years ($SD = 1.67$ years). The number of tweets per

participant varied across participants ($M = 1,569$, $SD = 3,224$, range 0 - 22,487). On average,

participants tweeted a few times per week. Responses ranged from *less than once per month*,

coded as 1, to *more than once per day*, coded as 7 ($M = 4.65$, $SD = 2.18$). Participants also

reported the number of people they followed ($M = 239$, $SD = 200.94$, range $0 – 1,406$) and their

number of followers ($M = 239$, $SD = 379.76$, *range* $0 – 5,115$).

Participants were asked to gauge their own social and professional Twitter use by

answering two separate questions about their Twitter use on a continuum of completely social to

completely professional. Using a sliding response scale, participants rated their own tweets as

mostly social, where 0 = social tweets and 100 = professional or educational tweets ($M = 27.3$,

$SD = 20.4$, range $0 – 100$). Using the same scale, participants responded that the Twitter content

they generally follow also tends to be slightly more social than professional in nature, ($M = 36.5$,

$SD = 22.1$, range $0 – 100$).

Manipulation

Three hypothetical instructor Twitter profiles were created: 1) an account with only social

tweets, 2) an account with tweets pertaining only to academic and professional messages, and, 3)

an equal blend of the tweets from the social and professional tweets. Social tweets focused on the

professor's personal life, including references to family and interests outside of the classroom.

There were 16 social tweets total. Professional tweets were relevant to the professor's teaching

and research. There were 16 professional tweets total. The blend of tweets consisted of

alternating social and professional tweets from the other two accounts. There were 11 social and

11 professional tweets in the blended account (22 total). Since the blended account was a mix of

both the social and professional (each having 16 tweets per account), and we considered 32

tweets to be too many tweets in comparison with 16, we chose to include 11 tweets from each

account and alternate social with scholarly. We deemed 22 tweets to be an adequate

representation of both social and scholarly without appearing to be substantially more than 16 in

the other accounts. The first three to five tweets for each of the three accounts mirrored the

tweets used by Johnson (2011) in her study of social, professional, and blended hypothetical

instructor Twitter accounts.

The names and profile photos on the accounts were all female, shared the same last name,

and were purposefully generic (Tina, Kim, and Lisa Edwardsville). Tina's account was the

professional account and included tweets such as, "Students considering careers in SM need to

remember that your storytelling/writing skills are as important as knowledge of the SM

platforms." Kim's account was social and included tweets like, "Just reserved my spot in a

kickboxing class tonight. I've heard it's challenging but fun." Lisa's account was an equal blend

of the first two accounts. A manipulation check of the three Twitterfeeds was completed by a

separate group of college student Twitter users ($N = 32$), who rated each profile for the level of

professional and social content on a scale of $0 - 100$, where $0 =$ completely professional content,

and $100 =$ completely social content. The manipulation check confirmed there were significant

differences in the means between the three profiles, $F (1, 31) = 24.13$, $p < .001$. The social

profile, $M = 82.66$, $SD = 25.62$, was considered significantly more social than the professional

profile $M = 10.06$, $SD = 20.47$, $t (31) = 10.13$, $p < .001$, and the blended, $M = 52.56$, $SD = 13.27$,

$t (31) = 4.91$, $p < .001$. The professional profile was less social than the blended, $t (31) = 15.97$, p

$< .001$.

Participants were randomly assigned to view one of the three hypothetical instructor

Twitterfeeds. The final numbers of participants in each condition included 33.5% ($n = 80$) in the

professional condition, 31.0% ($n = 74$) in the social condition, and 27.6% ($n = 66$) in the blended

condition. There were no significant differences in age, sex, length of Twitter use, or Tweet

frequency across the three conditions. A small number of participants ($n = 19$) accessed the study

but withdrew after consent and before being assigned to a condition. The total sample for

quantitative analyses included 220 participants.

Quantitative Measurement

Perceptions of instructor credibility were assessed using the Source Credibility Measure

(McCroskey & Teven, 1999; Teven & McCroskey, 1997), comprised of three separate subscales:

competence, goodwill/caring, and trust. Each subscale included six bipolar adjectives with a 7-

point response. Items were appropriately reverse-scored so that higher numeric responses

indicated higher credibility. Sample items included: This instructor is *intelligent/unintelligent*

(competence subscale, $M = 5.20$, $SD = 1.10$), *concerned with me/not concerned with me* (caring

subscale, $M = 4.71$, $SD = 1.17$), and *honest/dishonest* (trust subscale, $M = 5.12$, $SD = 0.94$). Each

subscale achieved good reliability (competence $\alpha = .87$, goodwill $\alpha = .82$, and trust $\alpha = .86$), and

the overall scale reliability was $\alpha = .92$ ($M = 92.12$, $SD = 16.96$).

We also asked participants to reflect on reasons why it would be a good idea and a bad

idea for their instructors to have a Twitter account, using a series of items adapted from Johnson

(2011). Six items addressed reasons why it would be a bad idea for instructors to have a Twitter

account (e.g., "It can decrease students' respect for an instructor," and, "It eliminates social

boundaries between students and instructors"), $M = 24.47$, $SD = 8.22$, $\alpha = .89$. Six items

addressed reasons why it would be a good idea for instructors to have a Twitter account (e.g., "It

makes them seem more approachable," and, "It allows students to have a more personal

relationship with the instructor."), $M = 31.69$, $SD = 7.15$, $\alpha = .91$. The reasons were significantly

negatively correlated, $r = -.32$, $p < .001$. Overall, participants reported more positive than

negative reasons for instructors to have a Twitter account, $t (201) = 62.99$, $p < .001$.

Qualitative Data and Analysis

We also posed open-ended questions to participants regarding their perception of

instructors with public Twitter accounts. We asked for possible positive outcomes related to an

instructor having a public account, resulting in 111 responses. We also asked for examples of

potentially negative effects of an instructor with a public account, which garnered 134 responses.

The comments were thematically analyzed (Braun & Clarke, 2006). We first examined

the responses to the question, "What are some reasons that it is a good idea for instructors to

have Twitter accounts that students can view?" Then we independently, inductively analyzed the

data using the constant-comparative method (Glaser & Strauss, 1967). This allowed us to

identify recurring patterns in the comments. Using open coding, we coded each response and

labeled them until theoretical saturation (Glaser & Strauss, 1967) was reached. We compared the

results of our independent coding and were found to have similar labeling.

After the initial coding was complete, we, again independently, engaged in axial coding

(Strauss & Corbin, 1990), making connections between the initial categories. We compared our

results, and found them to be similar as well. The axial coding resulted in three main categories

of responses. We then examined responses to the second question, "What are some reasons that it is *not* a good idea for instructors to have Twitter accounts that students can view?" in the same manner. This process also resulted in three main categories of responses. The categories are identified and discussed in the results section.

Results

The primary aim of the quantitative analyses was to examine perceived differences in credibility based on the content of a hypothetical instructor's Twitterfeed. Specifically, we manipulated content to represent a Twitterfeed that contained social, professional, and a blend of social and professional content. The first research question probed whether the content of an instructor's Twitter account would be significantly associated with student perceptions of instructor credibility. Initial analyses suggest that credibility perceptions differ significantly based on the condition, F (2,211) = 14.97, $p < .001$, $\eta^2 = .12$.

To further examine these results, we conducted post hoc tests using Tukey's HSD test (adjusted for unequal sample sizes using the harmonic mean). The post hoc tests revealed significant differences in overall credibility assessments based on condition. Participants rated the professional Twitterfeed significantly more credible than the social Twitterfeed ($M = 5.49$, $SD = 0.87$ versus $M = 4.70$, $SD = 0.87$, $p < .001$), and the professional Twitterfeed was also marginally more credible than the blended Twitterfeed ($M = 5.14$, $SD = 0.92$, $p = .06$). Further, students rated the blended Twitterfeed as significantly more credible than the social Twitterfeed, ($p < .05$).

We also found that there were significant differences in regard to each of the three credibility dimensions based on the three Twitterfeed conditions, competence $F(2, 211) = 14.64$, $p < .001$, $\eta^2 = .12$, caring $F(2, 211) = 16.74$, $p < .001$, $\eta^2 = .14$, and trust $F(2, 211) = 4.58$, $p < .05$,

$\eta^2 = .04$. Perceptions of competence were significantly different among participants who viewed the professional and social Twitterfeed, such that individuals rated the instructor with the professional Twitterfeed as significantly more competent than did individuals who rated credibility after viewing the social Twitterfeed, mean difference = 0.89, $p < .001$. There was not a significant difference in perceptions of competence for those in the blended condition compared to professional condition; however, the blended account was rated as significantly higher competence than the social Twitterfeed, mean difference = 0.64, $p < .001$. Regarding the caring dimension of credibility, participants in the social condition rated their instructors as significantly lower caring than both the professional (mean difference -1.03) and the blended (mean difference -0.62) conditions (ps $< .01$). The professional Twitterfeed condition was also significantly more caring than the blended condition, mean difference = 0.40, $p < .05$. Lastly, for the trust dimension of credibility, the professional account was rated as significantly more trustworthy than the social account, mean difference = 0.45, $p < .05$, and the blended account, mean difference = 0.39, $p < .05$.

The second aim of the quantitative portion of this study was to examine whether college students' perceptions of instructor credibility differs based on the student's opinion about how instructors should use Twitter, above and beyond the content of the tweets. To examine this issue, we built a hierarchical regression model that included the main effects for the three conditions as a control variable, then entered the two scales for "reasons why it is a good idea for an instructor to use Twitter" and "reasons why it is not a good idea for an instructor to use Twitter" simultaneously as the second step in the model. As indicated by the results for RQ$_1$, the assigned condition was significantly associated with perceptions of credibility, $R^2 = .03$, $SE = .93$, $p < .01$, and the addition of the student opinion scales in the second step accounted for a significant

portion of the variance in credibility assessments, $R^2 = .17$, $SE = .86$, $p < .001$, $R^2\Delta = .15$.

Specifically, the more participants thought it was a good idea for instructors to use Twitter, the

higher overall credibility ratings they gave the hypothetical instructors, ($\beta = .05$, $SE = .01$, p

$< .001$) regardless of the Twitterfeed condition they were assigned to view. Participants' negative

opinions of instructors using Twitter did not significantly contribute to their credibility

assessments of the assigned hypothetical instructor ($\beta = -0.01$, $SE = .01$, $p = .23$).

The third research question asked whether student use of Twitter might change the

association between the profile content and perceptions of instructor credibility. This question

examines Twitter use as a potential moderator variable, testing for differences between the

credibility assessments (the dependent variable) and the manipulated condition (the independent

variable) at different levels of the moderator variable(s). The potential moderator variables

included the use of Twitter for social versus professional use and tweet frequency. Participants

were asked to self-report how much they tweet about social versus professional content and how

much they followed other people who tweet about social versus professional content (both

continuous moderators), in addition to how often they tweet. We tested each of the three

proposed moderators in a separate model using the PROCESS macro for SPSS (Hayes, 2013),

Model 1. The type of content participants tweeted about did not moderate their credibility

perceptions, $R^2\Delta = < .001$, $F(1, 210) = .03$, $p > .05$, and the content participants followed did not

moderate their credibility perceptions $R^2\Delta = < .01$, $F(1, 210) = .73$, $p > .05$. Frequency of tweets

did significantly moderate the association $R^2\Delta = < .03$, $F(1, 209) = 6.34$, $p < .05$. To interpret

the interaction of tweet frequency and condition, dummy codes were created for each of the three

categorical conditions. Results for the interaction effects for each condition and the Tweet

frequency are presented in Table 1. A simple slopes test revealed a significant slope of the

interaction effect for the blended profile only (b = .16, SE = .05, p < .05). The interpretation of

the interaction suggests that only in the blended condition did the frequency of Tweets change

the credibility assessments. For participants in the blended condition, those who Tweet more

frequently reported higher overall credibility ratings for the hypothetical instructor. Tweet

frequency was not a significant moderator in either the professional or social conditions

predicting credibility.

Results of Open-ended Questions

To address our fourth research question, we asked participants to discuss the benefits and

drawbacks of an instructor utilizing a publicly viewable Twitter account. We grouped responses

into themes.

"It keeps the student connected with the professor." When asked to identify positive

uses of an instructor's Twitter account, participants distinguished three core reasons for

instructors to utilize a public Twitter account. They said it extends the classroom, improves

student-instructor relationships, and can teach students how to use Twitter in a professional

manner.

Extending the classroom. Students indicated that an instructor could use Twitter to

extend the physical classroom. One person explained, "It allows for an interactive tool that

almost all college kids use daily so you can continue to teach even when you are not in class."

Others said Twitter could allow the instructor to post class-related announcements, reminders, or

responses to student questions. Twitter could also allow more time for the instructors to get to

know their students, which can then help the instructor determine useful, relevant examples or

discussion topics to use in the classroom.

Numerous responses indicated that Twitter would be a better venue to use for

communication, compared to email or an online learning system like Blackboard, when extending the classroom. This might be because students have a habit of logging into their social media accounts instead of online learning systems or their email. One student wrote, "Everyone checks their social media sites everyday, so tweeting a professor may be easier than emailing and getting a response."

Improving student-instructor relationships. Participants widely noted that Twitter could help break down the instructor-student boundary that exists in the classroom, which might lead to more motivated students. They mentioned that when an instructor has a Twitter account that is used to interact with students, it shows that the instructor is willing to talk outside of class and office hours. Using Twitter also makes the instructor seem more relatable, personable, and approachable. One respondent said, "It shows a more personal side of their professors and, generally, professors post relevant information to the class and/or the major." Another participant extended this thought: "Often times when a teacher seems more approachable, it makes the students feel more at ease while in their class. Thus, they're more likely to approach them with questions and such." Others mentioned that by the instructor becoming more relatable, the students might become more apt to join in on class discussions. Finally, students also indicated that Twitter is a good way to keep in touch with instructors after the class is over and after they graduate.

Meta-learning. Finally, participants mentioned that seeing how an instructor uses Twitter is helpful in learning how to use Twitter in a professional manner. A respondent wrote, "It can be a great resource for students, i.e., the opportunities that professors retweet as well as making connections online through professors." Other students said they learned more about the instructor's profession through his or her tweets. For example, "I have gained some information

about the profession I'm going into by reading my professor's Twitter account." Many of the

same arguments made in favor of instructors using Twitter were also identified as drawbacks,

discussed below.

"Student/teacher relationships should not go much further than the classroom. "
Overall, participants identified two main reasons that instructors should not maintain a public

Twitter account: 1) it can violate typical classroom and time expectations, 2) the boundaries

between students and instructors might be broken down (a negative implication).

Violating classroom and time expectations. Participants who viewed instructor Twitter

use negatively wanted to uphold the boundaries of the classroom. One wrote, "I would rather

keep the relationship strictly within a classroom setting." Study participants also appeared

concerned that students would overstep their bounds and ask instructors too many questions

when the instructor was "off the clock." A student wrote, "Professors may have students

contacting them at unreasonable times." Another agreed: "Professors shouldn't field students'

questions 24/7." Students were also nervous that the instructor would use Twitter after class to

disseminate important announcements that the students might miss. Some students do not have

Twitter, and other students do have Twitter but they follow numerous accounts, so the important

announcement might get lost. A student explained, "If I missed an important class announcement

because it was only on Twitter and not Blackboard, I'd be extremely upset."

Breaching the student-instructor boundary. Unease in this category related to issues

with instructor professionalism and student professionalism. Participants indicated that

instructors could post negative or biased tweets that could harm an instructor's credibility or get

them fired from their job. Arguments regarding a reduction in instructor credibility included: "It

decreases the professor's position of authority," and, "The reputation of the professor becomes

more like a student instead of a college professor." One student summarized, "We should not know our professor's life outside the classroom."

Some responses incorporated characteristics or descriptions of "professional tweeting." One example read, "I don't think professors should tweet links to random entertainment news articles, as this seems inappropriate and strange." Participants' descriptions of professional tweeting included the following guidelines: the instructor should not be allowed to "follow' students, the instructor should set up separate accounts for personal tweets and professional tweets, the instructor should only be allowed to maintain a private account that students cannot see, and instructor should not require the use of Twitter in class. One student declared that if an instructor wants to use Twitter, "the school needs to monitor the account." Participants were also concerned that interactions between students and instructors on Twitter could lead to favoritism or even a romantic relationship. Finally, students pointed out that instructors are not interesting, so they should not tweet. One simply wrote, "I do not care about their social lives."

In addition to potential problems with the instructor's professionalism, student professionalism was also highlighted as an area of concern. Students mentioned that other students might use personal information from an instructor's tweets negatively by discussing tweets in class or by using the information to stalk the instructor. One respondent wrote, "Personal information posted could be used against the professor in an attempt of blackmail." Another said, "Students could be immature about the situation and tweet at the professor or just use their tweets against them." Participants also noted that students might tweet negatively about the instructor, harming the student's integrity and instructor's perception of him or her. One person admitted, "I find it kind of weird adding my professors on Twitter because sometimes I post unprofessional tweets and it makes me look not as intelegent [*sic*] to the professor."

Numerous participants seconded this sentiment, indicating that Twitter should be for students only so they did not need to worry about posting unprofessional items and appearing foolish. One response read, "It might be difficult to shake the opinions formed from [unprofessional] posts despite the student being extremely professional in the appropriate classroom setting." A participant summed up his feelings: "I just feel that it's unprofessional and that students tend to lose respect for professors who do partake in teenage dominated social sites." Essentially, it seemed that students wanted to be able to communicate in uncensored ways using a medium (Twitter) that the instructor is not able or allowed to access.

Many of the negative aspects pointed out by students were the result of a fundamental misunderstanding of how Twitter functions. For example, several participants indicated that if a student "follows" an instructor on Twitter, the instructor is then able to see all of the student's tweets as well – akin to how Facebook functions. Some respondents thought that if a student tweeted negatively about the instructor, all of the instructor's followers would automatically see the offensive tweet as well. These are inaccurate understandings of the medium.

Discussion

The primary aim of our study was to examine how the message content of an instructor's Twitter profile could impact a student's perception of the instructor's credibility. In addition, we questioned whether student use of Twitter would impact their perceptions of an instructor's use of Twitter or their assessment of the instructor's credibility. Qualitative results indicated students' strong feelings both for and against instructor use of Twitter while quantitative data suggested that students were generally favorable to the notion of instructors using Twitter.

Overall, quantitative findings suggest that perceptions of instructor credibility are associated differently with the content of the Twitterfeed. The instructor's profile that featured

posts about education and professional resources was perceived to be the most credible, followed by the blended and then social profiles. To elucidate our credibility analyses, we also analyzed each dimension of credibility and found that the professional content profile was considered more competent, higher in goodwill, and more trustworthy than the social content profile. The quantitative findings presented here contrast that of Johnson (2011) in that credibility perceptions in the present study were associated with more professional content in a Twitter profile, rather than more social content. Indeed, Johnson (2011) surmised that the caring dimension of credibility may be most relevant to students (which emerged in her findings that the social tweets were indicative of higher credibility ratings); yet our findings provide a direct contrast in that the instructor with the professional content was deemed higher in the caring dimension of credibility than the instructor with the social content. Johnson's study was completed three years prior to the present study. It is possible that students' perceptions of Twitter and how it is used have changed over the years, accounting for the difference in our findings. Perhaps the students in the current study view an instructor who uses Twitter to share information as showing care and support for their students' education. These behaviors are often seen as displaying teacher immediacy, which is correlated with teacher credibility (Thweatt & McCroskey, 1998). Because of our larger, more heterogeneous sample, we are confident that our contrasting findings present an important extension to the research on instructor credibility.

In addition, we also found that students who feel favorably about their instructor's use of Twitter assigned higher credibility ratings to instructors, regardless of which version of the Twitterfeed they viewed (social, professional, or blended). This finding echoes previous research. In their study, McArthur and Bostedo-Conway (2012) found a positive correlation between student perceptions of the appropriateness of Twitter as a classroom tool and perceived teacher

immediacy, which significantly, and positively, impacts perceived teacher credibility (Thweatt &

McCroskey, 1998).

Indeed, a central theme of our open-ended responses suggested that students might have

overarching positive and negative perceptions that may dictate how they feel about instructors

who use Twitter. One particular student comment provides a good example of a student

expressing a positive view of an instructor who uses Twitter in any capacity: "It is easier to see

them as a human being rather than just someone who gives us information." The use of Twitter

may humanize the instructor in the eyes of this student. Additional comments illustrate the

perspectives of students who do not appreciate instructors who use Twitter in any capacity: "The

student/teacher relationship should be left inside of school, not social life or social media."

Students' beliefs as to whether or not it is appropriate for an instructor to use Twitter (in any

capacity) does have an effect on their perception of instructor credibility, which further endorses

previous research findings. Previous research suggests that if an instructor is viewed by students

as behaving inappropriately (i.e., simply communicating on a Twitter account), that instructor is

more likely to be perceived as less credible (Banfield, Richmond, & McCroskey, 2006; Mazer et

al., 2007b; Thweatt & McCroskey, 1998). In light of this work, our quantitative findings suggest

the positive side of this argument may also be true: that when students perceive benefits to their

instructors using Twitter, regardless of which Twitter profile they viewed, they tended to give

higher credibility assessments. These findings highlight the importance of a mixed-methods

approach to investigating the Twitter messages and attitudes.

A large number of students viewed Twitter as a positive addition to a course or their

overall educational experience. They saw Twitter as extending the classroom, improving

relationships with instructors, and providing useful examples of how to professionally use social

media. Consistent with previous research, these positive views about Twitter use by instructors align with the research on self-disclosure as a mechanism for creating immediacy and increasing perceptions of credibility (Teven & Hanson, 2004). Other students viewed instructors' Twitter use as extremely negative. They indicated that all learning should occur in the classroom, and this extension (i.e., using Twitter for out-of-class communication) could also lead to an inappropriate breach in the student-instructor relationship. From the open-ended portion of our study, we found some strong views about how instructors who use Twitter could be perceived as less credible. Many students' comments described Twitter as a place where personal and professional communication do not mix, suggesting that instructors who use Twitter could be breaching the unwritten self-disclosure rules of the student/professor relationship. Despite a relatively similar positive and negative number of open-ended comments, only the positive feelings were indicative of higher credibility in our quantitative analyses. Negative feelings about instructor use of Twitter did not impact credibility ratings.

A student's perception of an instructor on Twitter may be indicative of his or her differences in preferred learning and teaching philosophies. Brann et al. (2005) studied instructor credibility as it related to their teaching philosophy, describing educators with transmissive teaching styles as those who preferred approaches to lecture-style teaching and traditional exams and educators with progressive teaching styles as those who position students as "active learners whose own experiences are extremely important for learning and for the entirety of the educational process" (p. 219). Instructors adhering to progressive philosophies create a "learning environment that is a practical, simplified version of society'' (Jacobsen, 1999, p. 231). Students rated teachers with progressive teaching styles higher in perceived character and caring (Brann et al., 2005) and perceived more satisfying communication with progressive teachers (Edwards,

2003). One possible reason for the conflicting student views expressed in the qualitative portion

of this study may be indicative of some students who prefer a transmissive educational

philosophy and favor more traditional methods of teaching and a traditional instructor-student

relationship. Even if instructors use Twitter only for class or for professional reasons,

transmissive-style students may not appreciate this new learning tool. On the other hand,

students who prefer a more progressive educational philosophy may be open to an instructor who

displays more human characteristics and more open to the use of Twitter as a classroom tool.

Indeed, personal characteristics of an instructor and how technology is used may be an important

way to gauge instructor credibility from the perception of students (Schrodt & Witt, 2006).

Our study also suggests that the students who use Twitter more frequently may think

about their instructors who use Twitter differently. When presented with Twitter messages that

were half social and half professional, the students who tweeted more frequently (more than a

few times per week) rated these hypothetical instructors as more credible than did students who

tweeted less frequently. This finding adds to work by Rinaldo et al. (2011), suggesting that

students who are more familiar with Twitter may have positive experiences using the technology.

We emphasize caution in the interpretation of this finding because it only emerged in one of the

three conditions. Nonetheless, we think it offers an important area of consideration for future

research.

One limitation of our study was that it was based upon hypothetical scenarios, not based

on students' actual experience with real professors, although hypothetical scenarios are common

in education research (e.g., Johnson, 2011; Schrodt & Witt, 2006). We also cannot extend our

findings to include learning outcomes, since we focused on credibility. It is likely that there are

other indicators of credibility, as well. For example, we only assessed one form of

communication (Twitter) and it is likely that students gauge their instructors' credibility using

multiple modes of communication. In addition, our descriptive questions limit us to making

inferences based on what appears to be a relatively age-homogeneous sample of undergraduate

student participants (mean age was 20); however students were relatively evenly dispersed across

classes. We do not know how these results might extend to different ages of students or

nontraditional students. Further, the structure of the study did not allow for a control condition.

Students viewed a hypothetical teacher's Twitterfeed and answered questions pertaining to that

instructor. Perhaps future research in the area of communication between student and instructor

could examine multiple modes with control conditions.

Despite some limitations, there are a number of strengths to the current study. In our

attempt to replicate and extend Johnson's (2011) work, we present contrasting results that are

both intuitive and in synch with previous research on credibility in educational settings. Our

study provides a more complete picture of the context of instructor Twitter use using qualitative

and quantitative methods. Despite the age homogeneity mentioned as a limitation, our sample

includes students recruited from a broader range of academic institutions, which is important as

the type of institution the students attend might also affect their perceptions of teacher credibility.

For example, the Johnson study was conducted at a small institution, and students in our study

hailed from a variety of institutions (private, public, small, large). Future research in this area

may benefit from examining students from a variety of institutions, with different class sizes and

experiences.

We also offer an extension to previous work in other areas of social media and credibility

by presenting results based on both quantitative and qualitative investigations specific to Twitter.

Based on our results, we concur that additional research is needed to understand how modality

switching positively and negatively affects relationships between students and instructors (Ramirez & Zhang, 2007).

Recommendations

If instructors are planning on incorporating Twitter into their classes, we offer some recommendations based upon our findings. First, use Twitter as a supplement to regular course communication (e.g., via email or Blackboard) rather than requiring students to use it. Students worried about their privacy on Twitter can simply block the instructor or make his or her tweets private. However, if instructors do want to require the use of Twitter for a course, we recommend stating these expectations explicitly in the syllabus and on the first day of class. We also reiterate Mazer et al.'s (2007b) recommendation that to enhance student perceptions of their credibility, instructors' online and offline personae should be consistent. Teaching students how to use Twitter in a professional way would also be beneficial, especially for those students who view Twitter as strictly a social medium. Understanding the fundamentals of Twitter and why people use it might help minimize those reservations. Overall, our findings can be summarized by one student's response: "It breaks barriers between students and professors, and that can be a good thing or a bad thing."

Disclosure Statement

The authors declare that they have no financial interest or benefit arising from direct applications of their research.

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Table 1

Interaction results for Condition X Tweet Frequency predicting Credibility ($N = 213$)

Variables	Social Profile		Professional Profile		Blended Profile	
	β	SE	β	SE	β	SE
Constant	5.06***	0.17	4.60***	0.19	5.31***	0.18
Condition	-.030	0.32	0.94	0.29	-0.90**	0.32
Tweet Frequency	0.06	0.03	0.06	0.04	-0.04	0.03
Condition X Tweet Frequency Interaction	-0.07	0.06	-0.08	0.06	0.20**	0.06

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