Title

Social media self-efficacy and information evaluation online

Authors

Hocevar, Kristin Page
Flanagin, Andrew J
Metzger, Miriam J

Publication Date

2014-10-01

DOI

10.1016/j.chb.2014.07.020

Peer reviewed

Computers in Human Behavior 39 (2014) 254–262

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Social media self-efficacy and information evaluation online

Kristin Page Hocevar *, Andrew J. Flanagin, Miriam J. Metzger

Department of Communication, UCSB, 4005 SS&MS, Santa Barbara, CA 93106, United States

ARTICLE INFO

Article history:
Available online 7 August 2014

Keywords:
Social media
Self-efficacy
Information evaluation
Credibility
Internet

ABSTRACT

This study introduces the concept of *social media self-efficacy*, or a person's perceived ability to reach desired outcomes in the social media environment, and examines the relationship between social media self-efficacy and how people evaluate information found online. Results of a survey of a representative sample of adult Internet users in the United States ($N = 3568$) indicate that users with higher social media self-efficacy find information shared via social media to be more trustworthy than do those lower in social media self-efficacy. These self-efficacious social media users also rely more both on the opinions of others and on social media specifically when evaluating or verifying the information they find online, suggesting that they may be more prone to seek out and be influenced by input from others. Practical and theoretical implications of these findings are explored.

1. Introduction

Social media enable people to distribute a wide range of information by creating and sharing content across a diversity of applications, such as blogs, wikis, and ratings or question and answer websites. As usage of social media continues to grow, and is further enhanced by its variety and mobility (Nielsen, 2012), the proportion of online information filtered in some manner through social media is swiftly increasing. Yet, there is substantial variance in the quality of the information available through social media (Agichtein, Castillo, Donato, Gionis, & Mishne, 2008). The social media environment allows the sharing of information between widely dispersed and frequently unknown individuals, and cues that traditionally have served to aid people in determining the trustworthiness of a source or a message are often obscured or absent in this online environment (Flanagin & Metzger, 2003). This can lead to negative outcomes if inaccurate information is trusted or acted upon.

It has therefore become progressively more important to understand how information seekers evaluate the credibility of the information they receive via social media, as they increasingly rely upon this user-generated and user-curated content themselves and perpetuate it by sharing it with others. Furthermore, because the veracity of information and its perceived credibility may be particularly significant for certain information subjects (e.g., health), and less so for others (e.g., entertainment), understanding the credibility assessment of social media-based information by different information subjects or domains is particularly critical.

Bandura (1997) demonstrated that observing others' performance and receiving feedback from others contribute to perceived self-efficacy within a domain, which is related to performance across a host of contexts (Bandura, 1997) due to elevated judgments of one's own abilities. We rely on Bandura's (1977, 1997) self-efficacy theory to conceptualize self-efficacy in the domain of social media in the form of *social media self-efficacy*, or a person's beliefs about his or her capabilities to perform desired functions specifically in the social media environment. We apply social media self-efficacy to examine the degree to which people vary in their evaluations of the trustworthiness of online information relative to offline information. Because self-efficacy may also relate to perceptions of *others*' behavior and information, particularly in the increasingly social online environment, we also examine how social media self-efficacy relates to reliance upon social means of information evaluation and verification.

Accordingly, we use data from a representative survey of adult Internet users in the U.S. to explore how social media self-efficacy is related to (a) people's evaluations of the trustworthiness of social online information in different domains and (b) the extent to which people are prone to be influenced by others' opinions when evaluating information credibility online. Because in the context of social media the judgments that people make about information may, in turn, have important implications for the content these users choose to pass on to others, we also explore the practical implications of our findings, as we simultaneously strive to extend self-efficacy theory.

* Corresponding author. Tel.: +1 805 893 4479.
E-mail addresses: kphocevar@umail.ucsb.edu (K.P. Hocevar), flanagin@comm.ucsb.edu (A.J. Flanagin), metzger@comm.ucsb.edu (M.J. Metzger).

http://dx.doi.org/10.1016/j.chb.2014.07.020
0747-5632/

2. Self-efficacy and the social media environment

Self-efficacy is defined as a person's judgment of his or her ability to execute a behavior (Bandura 1977; Bandura 1997). Perceived self-efficacy corresponds with performance in areas ranging from educational achievements to athletic performance to health-promoting behavior (see Bandura, 1997, for a review). Yet, the underlying theoretical premise of self-efficacy—that a person's judgment about a behavior influences that behavior—is quite intuitive, and research typically does not reach beyond individual performance or action outcomes.

This study, however, extends self-efficacy theory not only by examining it in the social media environment but more significantly by moving beyond self-focused and efficacy-based performance outcomes of traditional research to examine how self-efficacy can impact judgments and perceptions of *others*' behavior and input, such as the perceived trustworthiness of information from social online sources. Indeed, evaluations of the socially shared information inherent in the social media environment provide an exciting new direction for self-efficacy research because, in this environment, self-efficacy may influence not only perceptions of others' performance but also the methods through which individuals go about assessing the quality of others' performance in the form of the perceived credibility of online social information.

2.1. Conceptualizing social media self-efficacy

Individuals use four sources of information when making self-efficacy judgments: enactive mastery experience, vicarious experience, social persuasion, and physiological and emotional state (Bandura, 1986; Bandura, 1997). *Enactive mastery experience* involves prior experience with a task that builds skill and is perceived as successful by the individual, resulting in a heightened sense of self-efficacy. Prior experience producing social media content, for example, should contribute to social media self-efficacy, as should a person's confidence in his or her ability to successfully find specific information sought online, and his or her perceived social media skill. The second source of efficacy information is *vicarious experience*, which entails observing others' successful or unsuccessful performance in order to make a referential comparison and model successful behavior. Consuming social media content, such as reading or viewing blog entries, comments, or videos created by others, for example, should contribute to a person's level of social media self-efficacy via vicarious experience, because browsing this content entails observing others' performance in the social media environment.

The third source of information that affects self-efficacy perceptions is *social persuasion*, or performance feedback. Positive feedback tends to encourage self-efficacy perceptions, while negative feedback weakens them. Online, the level and type of feedback (e.g., comments about content producers' contributions) received can influence the amount of information contributed to a website (see, e.g., Burke, Marlow, & Lento, 2009; Cheshire & Antin, 2008; Heinz & Rice, 2009). Because someone must first contribute content in order to receive any feedback or posts about this content from other users, his or her level of content production, for example, should again contribute to perceived social media self-efficacy. The fourth source of efficacy information is an individual's *physiological and emotional state*, which impacts self-efficacy perceptions mostly in physical pursuits or other activities during which strong emotional reactions or arousal may cue anticipated success or failure and affect performance (Bandura, 1986; Bandura, 1997). These states, however, are not expected to impact perceptions of self-efficacy in the online environment to the same extent as the other three sources because physical impairments or strong emotional reactions are less likely to occur frequently and thus impact efficacy perceptions than social persuasion, vicarious experience, and enactive mastery experience.

Although self-efficacy has yet to be explored in the context of social media specifically, scholars have used self-efficacy to examine performance using contemporary technologies such as computers and the Internet (Compeau & Higgins, 1995; Eastin & LaRose, 2000). The Internet, however, is a broad environment, and people who are efficacious in one area (e.g., using the web to access and send email) may be much less efficacious in another (e.g., using social media). In fact, some scholars have differentiated between fluencies, defined as higher-level competence, with computers, email, and the web, respectively (Bunz, 2004; Bunz, Curry, & Voon, 2007). This suggests that a person's self-efficacy with the Internet generally may differ from his or her perceived efficacy with social media, and should therefore be distinguished from it. Thus, drawing from Bandura's theory of the sources of information that inform self-efficacy judgments, social media self-efficacy is based upon a person's level of social media content production and consumption, perceived social media skill, and confidence in his or her ability to successfully find information online.

3. Social media self-efficacy and information evaluation

There is a considerable research heritage on people's perceptions of the credibility of sources and messages. Although early work in this domain primarily examined face-to-face contexts and the factors influencing the credibility of human sources (see Wilson & Sherrell, 1993 for a review), recent work has naturally migrated to online environments by examining a range of phenomena, from the design elements that bolster a website's perceived credibility (Fogg et al., 2001), to factors influencing the credibility of blogs (Kaye & Johnson, 2011), to the elements of credible online product reviews (Willemsen, Neijens, & Bronner, 2012). In part, the motivations for examining credibility online stem from the considerable differences in this context that obscure how people have traditionally evaluated information and source credibility (Metzger, Flanagin, Eyal, Lemus, & McCann, 2003), coupled with the serious consequences of inappropriately relying on misinformation today, given its prevalence and prominence (Horrigan & Rainie, 2006).

Thus, in an environment where vital information repositories can be unreliable, and where information consumers are progressively more social in their behaviors online, social media users' level of trust in an information source is critical to how they evaluate information. Information from offline sources is traditionally judged to be more credible than that from online sources, although this varies depending upon the domain or subject of the information (Flanagin & Metzger, 2000). However, perceptions of the trustworthiness of information from online social sources in comparison to offline sources may vary with individuals' levels of social media self-efficacy. Prior experience with an information source, for example, can influence trust judgments (Gefen, 2000; Hardin, 2006), and familiarity has been found to positively predict trust in online information sources (Gefen, 2000; Kim, Ferrin, & Rao, 2008). From the perspective of self-efficacy theory (Bandura, 1997), self-efficacious social media users should have more experience with social information sources via enactive mastery experience and vicarious experience than those lower in social media self-efficacy. These users are therefore likely to be more familiar with such sources than those lower in social media efficacy.

While it is possible that variance in the perceived trustworthiness of online information can influence social media self-efficacy, research on the influence of prior experience and familiarity on trust judgments (Gefen, 2000; Hardin, 2006; Kim et al., 2008) as

well as Bandura's theory suggest that people higher in social media self-efficacy may be more likely to perceive information gleaned from social media to be trustworthy, even in comparison to information from offline sources that are traditionally judged to be more credible. Accordingly, a person's level of social media self-efficacy, earned through relevant prior experience and accrued familiarity, is proposed to impact his or her evaluations of online social information, as proposed in H1:

H1: Individuals' social media self-efficacy will be positively related to the perceived trustworthiness of information from social media sources relative to offline sources.

The strength of the positive relationship between social media self-efficacy and perceptions of online social information trustworthiness, however, may vary depending upon the information domain (i.e., the subject of the information). Prior research on perceptions of the credibility of online information has explored reference, news, entertainment, and commercial information, and found that commercial information is perceived to be less credible than the other three domains (Flanagin & Metzger, 2000), presumably due to the effect of the perceived persuasive intent of the source, the forewarning of which can inhibit persuasion (Hass & Grady, 1975; Petty & Cacioppo, 1986). This effect may decrease the perceived trustworthiness of product information that originates from offline sources such as salespersons, companies, or others who might have persuasive intent. Online, however, information about the satisfaction of other customers can positively impact trustworthiness perceptions (Benedicktus, Brady, Darke, & Voorhees, 2010), suggesting that aggregated online information systems may be perceived as more trustworthy sources of commercial information than their offline counterparts.

Some scholars posit that barriers to trust are lower when the potential harm of trusting and having one's trust betrayed are minimal, and barriers to trust are more likely when there is potential significant harm (Friedman, Kahn, & Howe, 2000). This suggests that people may be generally less likely to trust health information they find via social media as opposed to product or news information, particularly in comparison to offline sources. Not only is the potential harm from trusting incorrect health information likely to be perceived to be more significant than the potential harm from trusting incorrect information of other types, but people also tend to trust offline health information sources such as their physicians, who possess credentialed expertise through degrees and professional experience (Eysenbach, 2008).

Newspapers have long been a trusted information source, and are perceived to be more credible sources of news information than magazines, television, radio, and the Internet (Flanagin & Metzger, 2000). Blogs, on the other hand, which represent a popular source of social media news information, are often criticized for a lack of the journalistic ethics and standards of more traditional news sources (Johnson & Kaye, 2004). Thus, like health information, online social information about news may be perceived to be less credible than social information about products, which may benefit from effects of aggregation and posts from consumers who are motivated to truthfully share their experience (Resnick, Zeckhauser, Friedman, & Kuwabara, 2000). Thus, the positive relationship between social media self-efficacy and trustworthiness in H1 should be moderated by the information domain, as proposed in H2:

H2: The strength of the relationship between social media self-efficacy and perceived trustworthiness will vary across information domains, with a stronger relationship in the product information domain than in the domains of health or news information.

3.1. Social forms of information evaluation

While many studies have examined Internet users' judgments about the credibility of online content, fewer studies have explored *how* Internet users evaluate this content. Information seekers frequently do not spend time critically evaluating information they find online (Metzger, 2007), and often use heuristic cues that guide information evaluation while minimizing cognitive effort (Hilligoss & Rieh, 2008; Metzger, Flanagin, & Medders, 2010; Sundar, 2008). Two of the cognitive heuristic cues commonly used in this context are reputation and endorsement (Metzger et al., 2010), which suggest that people tend to perceive sources to be credible if others do as well and tend to trust sources that are recommended by others. Both of these cues suggest that many people may evaluate online information by using others' judgments to inform their own. *Social credibility assessment* is a process of information evaluation where an individual consults or relies upon the opinions of others when forming a credibility judgment.

Those self-efficacious in social media – which, by nature, involve shared information and interactivity between social media users – may be particularly motivated to interact with and seek out information from others. Indeed, personality traits such as extraversion and openness to experiences are both positively related to social media use (Correa, Hinsley, & Gil de Zúñiga, 2010). Furthermore, self-efficacy theory suggests that both social comparisons to and feedback from others contribute to perceived self-efficacy (Bandura, 1997). If a significant component of self-efficacy is socially built and prone to social influence, people who are more self-efficacious in social media may be more likely to be receptive to or even to consult others' opinions when evaluating information they find online, as proposed in H3:

H3: Individuals' social media self-efficacy will be positively related to their frequency of social credibility assessment.

A person's use of social credibility assessment may also vary by the type of information sought, as noted earlier, and the potential harm of trusting inaccurate information. While people generally tend to seek others' opinions in order to evaluate their own (Festinger, 1954), the likelihood of people to seek out others' input may vary depending upon the nature of the information being evaluated. On one hand, people may be more likely to consult others' opinions when making a judgment about the credibility of information that could harm them if the information were inaccurate. For example, people may more frequently consult others when the information they seek pertains to their work or health, which might have more significant negative outcomes if inaccurate, compared to other information types. On the other hand, people may also be more skeptical of others' opinions when trusting or acting upon that information might have a significant negative personal outcome. Thus, the relationship between social media self-efficacy and social credibility assessment is explored in RQ1:

RQ1: Will the strength of the proposed positive relationship between social media self-efficacy and frequency of social credibility assessment vary by the information domain (news, health, entertainment, product, work-related, or general)?

People may also use social media specifically to verify the credibility of information they find online. Indeed, Internet experience is positively related to the degree of verification of information obtained on the web (Flanagin & Metzger, 2000), suggesting that past experience using a medium may increase the verification of information from that medium. People who are self-efficacious in social media, for example, may perceive themselves to be

sufficiently skilled to use social media to verify the credibility of other information they find online, as noted in H4:

> **H4**: Individuals' social media self-efficacy will be positively related to their use of social media for online information verification.

However, like perceptions of trustworthiness, an Internet user's tendency to use social media to verify information may vary depending upon the domain of the information, and the question of the moderating effect of the information domain is posed in RQ2:

> **RQ2**: Will the strength of the proposed positive relationship between social media self-efficacy and use of social media for online information verification vary by the information domain (news, health, entertainment, product, work-related, or general)?

4. Method

4.1. Sample and procedure

The data for this study were collected from respondents ($N = 3568$) in the United States by the professional research firm Knowledge Networks, which maintains a probability-based panel of participants. A questionnaire was administered by Knowledge Networks to a random sample of adult Internet users (18 years of age and older) who completed the web-based survey in their homes. The survey was developed through an iterative process of pre-testing and refinement with separate samples from those used in this study, using both extensive interviews and quantitative empirical validation, in order to ensure that respondents fully understood the social media definitions and examples used in the study as well as the individual items derived from them in the questionnaire. Weights were used in all analyses to make results generalizable to the population of American Internet users based upon census data. Where applicable, respondents were randomly assigned to groups by information domain to address the moderation hypothesis (H2) and research questions (RQ1–2).

4.2. Measures

4.2.1. Social media self-efficacy

Based on Bandura's (1997) theory of the sources of information that inform self-efficacy judgments *social media self-efficacy* was derived from the average of a person's (a) perceived social media skill, (b) confidence in ability to successfully find information online, (c) level of social media content production, and (d) level of social media content consumption, as articulated earlier. *Perceived social media skill* was measured by a question that asked respondents to rate their skill in using social media technologies compared to other Internet users on an 11-point scale, where 0 = "I am much worse than other Internet users" and 10 = "I am much better than other Internet users." *Confidence in ability to successfully find information online* was assessed by asking respondents to rate their ability to find what they are looking for online compared to other Internet users, and was measured on an 11-point scale where 0 = "I am much worse than other Internet users" and 10 = "I am much better than other Internet users."

Scales for social media content production and consumption used items that measured how frequently respondents contribute to (e.g., comment on blogs, post to microblogs) or consume (e.g., obtain information from wikis, watch user-generated videos) information from different social media, examples of which were provided in each instance, where relevant. These items were measured on a 5-point scale where 1 = "never" and 5 = "very often." Eight items were averaged to measure *level of social media content production* (Cronbach's $\alpha = .89$). Sample items include, "How often do you create or update your own blog?" and "How often do you write or change some information on a Wikipedia page?" Five items were averaged to measure *level of social media content consumption* (Cronbach's $\alpha = .81$). Sample items include, "How often do you look up answers on social question and answer sites (like Yahoo! Answers or WikiAnswers)?" and "How often do you watch videos on video sharing sites (such as YouTube and Google Video)?"

Because they were measured on different scales (5-point and 11-point), the data were normalized across all four components of the social media self-efficacy scale by converting each to z-scores prior to the construction of the final scale. Bandura's (1997) theory of self-efficacy does not suggest that any of these components should be weighted more than another, as they are all posited to contribute equally to self-efficacy perceptions. Thus, *social media self-efficacy* was created from the mean value of the normalized measures of these components (Cronbach's $\alpha = .78$).

4.2.2. Perceived trustworthiness

Perceived trustworthiness of social media information relative to offline information was measured by a single item per domain (product, health, and news) assessing the trustworthiness of information from social media sources relative to offline ones. Each of these was measured on a 7-point scale, where 1 = "I am much more likely to trust information from [a salesperson, a doctor, newspapers or television]" and 7 = "I am much more likely to trust information from people online." Respondents were randomly assigned to a group by *information domain* (product, health, news) to assess the moderation hypothesis, which compared the strength of the relationship between social media self-efficacy and perceived trustworthiness between information domains.

4.2.3. Social credibility assessment

Respondents' frequency of use of social credibility assessment (i.e., using others' opinions to inform their own judgments of credibility) was measured using the average of four items measured on a 5-point scale where 1 = "never" and 5 = "very often" (Cronbach's $\alpha = .83$). Respondents were randomly assigned to respond to these items for only a single *information domain* (product, news, health, entertainment, work-related, or general). Sample items include, "When looking at [product, news, health, entertainment, work-related] information on the web, how often do you believe the information because other people also believe it?" and "When looking at [product, news, health, entertainment, work-related] information on the web, how often do you consider other people's opinions about the information in order to decide whether to believe it?"

4.2.4. Use of social media for online information verification

Respondents' frequency of using social media to verify the credibility of online information was measured on a 5-point scale, where 1 = "not at all likely" and 5 = "very likely" (Cronbach's $\alpha = .90$). Respondents were randomly assigned to respond to this item for only a single *information domain* (product, news, health, entertainment, work-related, or general). The question stem asked users, "Imagine you are considering [product, news, health, entertainment, work-related] information you have found online. How likely are you to use the following sources to check whether the information you found is believable?" Response options included a variety of online social information sources, such as blogs, Wikipedia, and ratings sites, and responses to these options were averaged to create the final measure.

5. Results

5.1. Correlational analyses

H1, which posed that social media self-efficacy would be positively related to the perceived trustworthiness of information from social media relative to offline sources, was supported ($r = .24$, $p < .001$). H3 suggested that social media self-efficacy would be positively related to frequency of use of social credibility assessment, and was supported ($r = .30$, $p < .001$). H4, regarding the positive relationship between social media self-efficacy and use of social media for online information verification, was also supported ($r = .50$, $p < .001$).

5.2. Moderation analyses

The general linear model (GLM) was used to test H2, which posed that the positive relationship between social media self-efficacy and the perceived trustworthiness of information from social media (relative to offline sources) would vary by the information domain, with a stronger relationship for product information than for health or news information. The GLM is based on regression and can be used to test the main effects of categorical and continuous independent variables as well as their interaction without the necessity of effects coding and manual calculation of interaction terms as would be required in traditional multiple regression moderation analysis (Tabachnick & Fidell, 2007). The nature of a significant interaction can then be explored using multiple regression as a follow-up test. These analyses offer greater power and more protection against potentially spurious conclusions about the impact of an individual independent variable when an interaction is significant than more traditional tests such as correlation or ANOVA (Aiken & West, 1991; West, Aiken, & Krull, 1996).

To test H2, the continuous independent variable social media self-efficacy (which was mean-centered for ease of interpretation), categorical independent variable information domain, and their interaction term were entered into the model, with the perceived trustworthiness of social media information (relative to offline information) as the dependent variable. There were main effects for both the information domain, $F(2,3531) = 796.74$, $p < .001$, $\eta_p^2 = .31$, and social media self-efficacy, $F(1,3531) = 337.27$, $p < .001$, $\eta_p^2 = .09$, as well as a significant interaction effect, $F(2,3531) = 19.01$, $p < .001$, $\eta_p^2 = .01$.

To probe this interaction, a simple slope analysis was performed using regression. Information domain was dummy coded with the product information group as the reference group, then the centered social media self-efficacy variable, the dummy coded information domain variables, and their interaction term were entered into the regression to predict perceived trustworthiness of social media information (relative to offline information). The slope of the prediction of perceived trustworthiness from social media self-efficacy is positive and significant for product information, $b = .76$, $t = 14.26$, $p < .001$. To test the strength of the simple slopes for health and news information, respectively, the information domain was then re-coded with health and news as the reference groups and a regression was run for each. The slope of the prediction of perceived trustworthiness of social media information from social media self-efficacy was positive and significant for health information, $b = .48$, $t = 9.27$, $p < .001$, and news information, $b = .43$, $t = 8.21$, $p < .001$. However, the b values indicate that the slope of the relationship between social media self-efficacy and perceived trustworthiness of social media information was steeper for product information than for both health and news information, as is depicted in Fig. 1. Thus, H2 was supported.

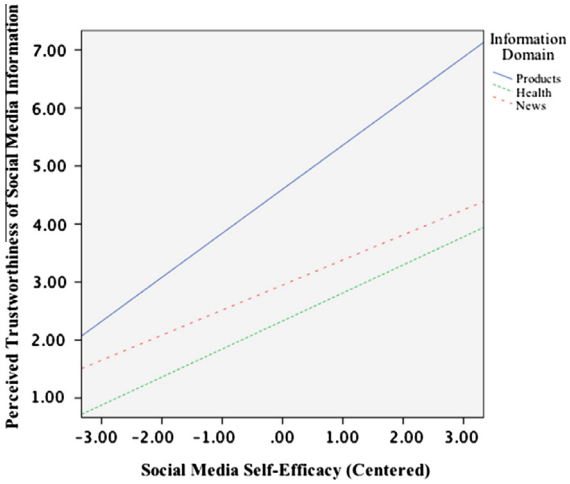

Fig. 1. Relationships between social media self-efficacy and perceived trustworthiness of social media information for products, health, and news.

RQ1 was also tested using the GLM. The independent variables (mean-centered social media self-efficacy and information domain) and their interaction term were entered into the model, with social credibility assessment as the dependent variable. While there was a main effect for both information domain $F(5,3533) = 14.83$, $p < .001$, $\eta_p^2 = .02$, and social media self-efficacy, $F(1,3533) = 373.30$, $p < .001$, $\eta_p^2 = .10$, there was not a significant interaction effect, $F(5,3533) = 1.90$, *n.s.* Thus, RQ1 showed that the positive relationship between social media self-efficacy and the use of social credibility assessment does not significantly vary by the information domain. Additionally, the effect size was larger for social media self-efficacy than information domain, suggesting the relative power of social media self-efficacy in predicting social credibility assessment.

RQ2 asked whether the relationship between social media self-efficacy and the use of social media for online information verification will vary by the information domain, and was again tested with the GLM. The independent variables (mean-centered social media self-efficacy and information domain) and their interaction term were entered into the model, with use of social media for online information verification as the dependent variable. There were main effects for both information domain, $F(5,3487) = 9.94$, $p < .001$, $\eta_p^2 = .01$, and social media self-efficacy, $F(1,3487) = 1143.34$, $p < .001$, $\eta_p^2 = .25$, as well as a significant interaction effect, $F(5,3487) = 3.37$, $p < .01$, $\eta_p^2 = .01$. Because a scatterplot of the data indicated that slopes of the relationship between social media self-efficacy and use of social media to verify information were relatively similar for each information domain, the differences between domain groups were tested at low and high levels of social media self-efficacy to probe the interaction effect. The group of respondents asked about their tendency to use social media to verify information generally was dummy coded as the reference group, and social media self-efficacy was centered at both low (one standard deviation below the mean) and high (one standard deviation above the mean) levels.

First, a regression was performed to test for differences in use of social media for online information verification between the information domains and the non-domain-specific reference group at low levels of social media self-efficacy. The re-centered low social media self-efficacy variable, dummy coded information domain, and their interaction term were entered into the regression, with use of social media for online information verification as the dependent variable. At low levels of social media self-efficacy, news, $b = -.19$, $t = -3.79$, $p < .001$, entertainment, $b = -.19$,

$t = -3.67$, $p < .001$, health, $b = -.18$, $t = -3.34$, $p = .001$, and product information, $b = -.12$, $t = -2.29$, $p < .05$, are all significantly less likely to be verified using social media than the non-domain-specific reference group, as indicated by the negative b values. The regression was then re-run for high social media self-efficacy. At high levels of social media self-efficacy, news, $b = -.12$, $t = -2.43$, $p < .05$, entertainment, $b = -.10$, $t = -2.12$, $p < .05$, and health information, $b = -.23$, $t = -4.57$, $p < .001$, were significantly less likely to be verified using social media than the non-domain-specific reference group. A graphic representation of the relationship between social media self-efficacy and use of social media for information verification for each information domain is displayed in Fig. 2 to illustrate these differences.

6. Discussion

This study introduced the concept of *social media self-efficacy* and demonstrated that it is a strong predictor both of perceptions of the trustworthiness of online social information as well as of *how* people go about evaluating information online via social credibility assessment and use of social media for credibility verification. Results of this study therefore indicate that self-efficacy is a useful construct beyond the traditional research areas of predicting self-focused and efficacy-based performance outcomes in offline venues.

6.1. Trustworthiness of online social information

The results of H1 reveal that as people accrue social media self-efficacy they tend to find information from social media to be more trustworthy, in comparison to information from offline sources. This may support research that suggests that prior experience and familiarity with an information source can influence trust judgments (Gefen, 2000; Hardin, 2006; Kim et al., 2008), as those who are higher in social media self-efficacy are more likely to be experienced and familiar with social media venues. This finding also extends self-efficacy theory to suggest that enactive mastery experience and vicarious experience not only positively impact self-efficacy perceptions, but may also impact perceptions of others' information, at least in the context of information trustworthiness in the social media environment. Further, these findings

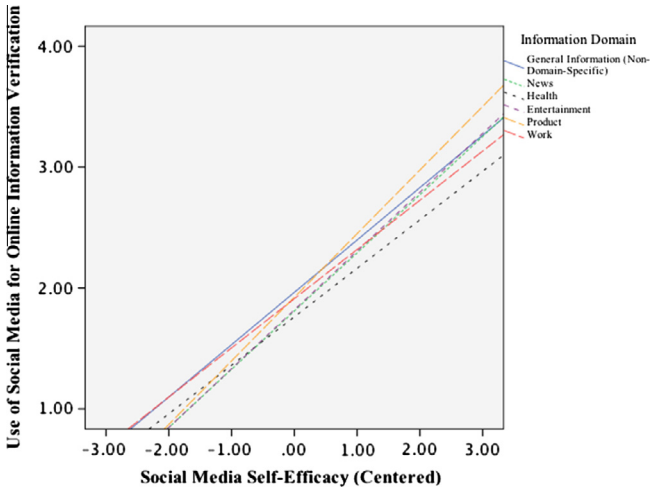

Fig. 2. Relationships between social media self-efficacy and use of social media for information verification by information domain. *Note.* Although use of social media for online information verification was measured on a scale of 1–5, for ease of viewing (and because values did not exceed 4) the graph limited the display of this scale to 1–4.

may suggest that perceived similarity (such as shared interests or traits) between those who are higher in social media self-efficacy could increase trust in the information shared by other social media users. This is consistent with prior research findings that similarity with an information source predicts positive evaluations of information from that source (e.g., Flanagin, Hocevar, & Samahito, 2014; Metzger et al., 2010; Sillence, Briggs, Harris, & Fishwick, 2007). However, additional research is required to test this possibility, as this study did not directly measure perceived similarity between self-efficacious social media users.

The results of H2 indicate that the strength of the positive relationship between social media self-efficacy and perceived trustworthiness varies by information domain, and is stronger for product information than for health and news information. The weaker relationship for social online health information may indicate that the barriers to trusting information are indeed more significant when trusting incorrect or inaccurate information could be more harmful (Friedman et al., 2000). However, the positive relationship between social media self-efficacy and the trustworthiness of online social health information is still significant, even when the trustworthiness of that information is evaluated relative to information from a physician. This indicates the predictive power of social media self-efficacy and also suggests the tremendous level of trust that those who are efficacious in social media have in others' online social information. Unfortunately, research has indicated that some health information on the Internet can be inaccurate or misleading (Eysenbach, Powell, Kuss, & Sa, 2002; Rice, 2001), suggesting that those who are particularly self-efficacious in social media may be especially at risk by trusting this erroneous information.

Prior research has shown that commercial information is perceived to be less credible than reference, news, and entertainment information on the Internet (Flanagin & Metzger, 2000). The present findings, which contradict this result, may be indicative of the change that social media have brought to assessments of commercial information on the Internet in the last 15 or so years as the availability of aggregated social information about products has grown. This may point to an interaction between perceived persuasive intent and trustworthiness, such that for those who are self-efficacious in social media, information from an aggregated online social information source is perceived to be much more trustworthy relative to an offline source that may have persuasive intent. This interpretation is consistent with recent work showing that individuals more conversant in online information provision see less difference between expert- and user-generated information contributions, and are more influenced by aggregated information online (Flanagin & Metzger, 2013).

6.2. Social processes of information evaluation

This study sought not only to examine perceptions of the trustworthiness of online social information, but also to explore the methods through which self-efficacious social media users go about evaluating information and what this suggests about how they may be distinct from less efficacious users. Results of H3 and H4 indicate that those who are more self-efficacious in social media are more interested in the opinions of others (regardless of whether those others are online or offline) when evaluating the credibility of information. This points to something qualitatively different about those who use social media most frequently and skillfully, suggesting that perhaps people higher in social media self-efficacy are simply more social by nature than those who are lower. This corresponds with research on the relationship between online social network use and social trust and civic engagement. While associations are generally small, social network use tends to positively correspond with indicators of social

capital and civic engagement (Gil de Zuniga, Jung, & Valenzuela, 2012; Valenzuela, Park, & Kee, 2009; Zhang, Johnson, Seltzer, & Bichard, 2010), suggesting that those who use social media more frequently are perhaps more socially connected and enjoy participating in social activities both on and offline. This social nature, then, may lead them to seek out others' opinions when evaluating information online.

Prior research on personality traits of social media users has indicated that extraversion, openness to new experiences, and sociability predict social media use (Burke, Kraut, & Marlow, 2011; Correa et al., 2010; Hughes, Rowe, Batey, & Lee, 2012; Ross et al., 2009). However, unlike this study, these studies have focused on use of social networking sites, which tend to enable interpersonal relationships formed offline to be moved or maintained online (or, in some cases, vice versa) more than they are used for information sharing between people who do not know each other offline (Ellison, Steinfield, & Lampe, 2007; Ross et al., 2009). Results of this study, which include only social media beyond social network sites, also indicate a social orientation – at least in terms of information evaluation – for users who are efficacious in social media that encourages information sharing between widely dispersed people who frequently do not know each other offline. This implies that those who are efficacious in social media more generally may share some of the social personality traits of frequent social network site users, even when sharing information with unknown recipients via social media such as blogs or question and answer sites. Future research is necessary to explore this possibility in greater depth, however.

The relationship between social media self-efficacy and frequency of using social media for information verification is particularly strong. Perhaps people who are more self-efficacious in social media are more likely to trust aggregated sources of information such as ratings or question and answer sites and to use these resources to verify the credibility of information. While aggregated information can help encourage trustworthy behavior (Resnick et al., 2000), even this collected information may or may not be more accurate than information from an individual. Some scholars argue that the average of a large number of information contributions by laypeople can generate a more accurate overall answer than one generated by an expert, but only if certain (relatively rare) conditions are satisfied, such as diversity and independence of opinion (Surowiecki, 2004). However, others note that collective information also needs to include contributions from some number of experts in order to be accurate (Sunstein, 2006). Thus, while those higher in social media self-efficacy may tend to use social information to verify credibility, whether or not this information is actually accurate – even if aggregated – is unclear, though people do tend to perceive user-generated information online to be credible when its volume is high (Flanagin & Metzger, 2013).

Although the relationship between social media self-efficacy and social credibility assessment does not vary by the information domain, the relationship between social media self-efficacy and use of social media for online information verification does. Results indicate that people are less likely to use social media to verify information when that information is domain-specific (i.e., relates to products, news, entertainment, or health) than they are information generally, particularly when they are lower in social media self-efficacy. This suggests some distinction between how people verify domain-specific and non-domain-specific information. For example, research that finds that motivation varies by different content domains (Wigfield, Guthrie, Tonks, & Perencevich, 2004) would indicate that people may not be as motivated to use social media to verify health and news information, for example, as they are information more generally.

Schema theory, which has been used to explain how people process the information in media messages (for a review see Wicks, 1992), proposes that people build schema, or cognitive structures that organize knowledge about concepts, based upon prior experience (Fiske & Linville, 1980). Perhaps those lower in social media self-efficacy, when cued to access existing schema for using social media to verify the quality of information about a specific domain, cannot access such schema because they have less skill and experience using social media. In this case, they might be less likely to indicate that they complete a domain-specific behavior than they are that behavior generally. However, the effect size is very small for both the main effect of information domain and the interaction effect between social media self-efficacy and information domain ($\eta_p^2 = .01$ for both), while more variance in use of social media for information verification is explained by the main effect of social media self-efficacy ($\eta_p^2 = .25$). Thus, while the implications of the interaction effect are intriguing, the significance is relatively negligible in comparison to the amount of variance explained by social media self-efficacy.

While diverse social media venues share some qualities (e.g., being primarily comprised of user-generated content), other qualities are distinct between venues. Although this study explored self-efficacy across social media venues to focus on how users' overall level of social media self-efficacy impacts how they evaluate information, social media self-efficacy may also vary depending on the specific medium (e.g., blogs, wikis, or video sharing sites). Future research, therefore, could explore venue-specific social medium self-efficacies and their impact on evaluation of information both within and outside of that medium, to help clarify whether the findings of this study might vary across different social media contexts.

Taken in their entirety, results show that people higher in social media self-efficacy have an increased tendency to trust and rely on social media, whether to verify the credibility of information they find on the Internet or as a medium to seek and share information with others. One practical implication of this is the potential creation and maintenance of information echo chambers populated with the opinions and knowledge of social media users, perhaps to the exclusion of other sources. While this study does not address the actual accuracy of social information, when this information is inaccurate or otherwise of low quality this trust could be detrimental not only to those who are higher in social media self-efficacy but also to those with whom they share information. While Bandura's (1997) self-efficacy theory explains that vicarious experience and feedback impact an individual's self-efficacy judgments and his or her performance in a domain, findings from this study suggest that people who are higher in self-efficacy are also more likely to seek out others' opinions and allow them to influence their own judgments about others' information. Determining the relationship between self-efficacy and social influence in areas beyond social media and online information is an intriguing direction for future self-efficacy research.

Additionally, social media self-efficacy may have implications for other research areas beyond self-efficacy. For example, some authors argue that instead of examining differences in sociodemographic factors and Internet use, digital divide research should focus on a "second-level" digital divide of disparities in Internet skills, Internet literacy, and motivations for Internet use (Ferro, Helbig, & Gil-Garcia, 2011; Min, 2010). The present study suggests that differences in skill and literacy represented by social media self-efficacy are indeed strong predictors of variance in users' information evaluation tendencies online, and may provide future explanatory value in digital divide research.

7. Conclusion

Social media comprise a dynamic and rapidly expanding information resource, yet the inconsistency in the quality of information

available via social media suggests that information consumers should potentially be wary of the online social information they trust (Agichtein et al., 2008; Rice, 2001). Results of this study indicate, however, that users with higher social media self-efficacy tend to be more likely to trust information shared by other social information sources, across information domains. Self-efficacious social information producers and consumers also rely more both on the opinions of others and on social media specifically when evaluating or verifying the information they find online. Thus, not only are these users interested in communicating with relatively unknown others via social media, they also behave more socially when considering the credibility of information and may be more prone to seek out and be influenced by input from others. Overall, findings indicate the theoretical value of the concept of social media self-efficacy by showing that those who are more self-efficacious in social media exhibit different behavior and information evaluation tendencies online than those who are less efficacious, which also suggests the future utility of social media self-efficacy in explaining variance in human behavior and attitudes about information online.

Acknowledgement

This research was supported by a grant from the John D. and Catherine T. MacArthur Foundation. The authors thank Dr. Ronald E. Rice for his thoughtful comments on an earlier draft of this manuscript.

References

Agichtein, E., Castillo, C., Donato, D., Gionis, A., & Mishne, G. (2008). *Finding high-quality content in social media. Proceedings of the international conference on Web search and web data mining*. New York, NY: ACM Press. http://dx.doi.org/10.1145/1341531.1341557.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications Inc.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. http://dx.doi.org/10.1037/0033-295X.84.2.191.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Cliffs, NJ: Prentice-Hall Inc.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.

Benedicktus, R. L., Brady, M. K., Darke, P. R., & Voorhees, C. M. (2010). Conveying trustworthiness to online consumers: Reactions to consensus, physical store presence, brand familiarity, and generalized suspicion. *Journal of Retailing, 86*(4), 322–335. http://dx.doi.org/10.1016/j.jretai.2010.04.002.

Bunz, U. (2004). The computer-email-web (cew) fluency scale-development and validation. *International Journal of Human-Computer Interaction, 17*(4), 479–506. http://dx.doi.org/10.1207/s15327590ijhc1704_3.

Bunz, U., Curry, C., & Voon, W. (2007). Perceived versus actual computer-email-web fluency. *Computers in Human Behavior, 23*(5), 2321–2344. http://dx.doi.org/10.1016/j.chb.2006.03.008.

Burke, M., Kraut, R., & Marlow, C. (2011). *Social capital on Facebook: Differentiating uses and users. Proceedings of CHI 2011*. New York, NY: ACM. http://dx.doi.org/10.1145/1978942.1979023.

Burke, M., Marlow, C., & Lento, T. (2009). *Feed me: Motivating newcomer contribution in social network sites. Proceedings of the SIGCHI conference on human factors in computing systems*. New York, NY: ACM. http://dx.doi.org/10.1145/1518701.1518847.

Cheshire, C., & Antin, J. (2008). The social psychological effects of feedback on the production of Internet information pools. *Journal of Computer-Mediated Communication, 13*, 705–727. http://dx.doi.org/10.1111/j.1083-6101.2008.00416.x.

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly, 19*(2), 189–211. http://dx.doi.org/10.2307/249688.

Correa, T., Hinsley, A. W., & Gil de Zúñiga, H. (2010). Who interacts on the Web?: The intersection of users' personality and social media use. *Computers in Human Behavior, 26*(2), 247–253. http://dx.doi.org/10.1016/j.chb.2009/09.003.

Eastin, M. S., & LaRose, R. (2000). Internet self-efficacy and the psychology of the digital divide. *Journal of Computer-Mediated Communication, 6*(1). http://dx.doi.org/10.1111/j.1083-6101.2000.tb00110.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143–1168. http://dx.doi.org/10.1111/j.1083-6101.2007.00367.x.

Eysenbach, G. (2008). Credibility of health information and digital media: New perspectives and implications for youth. In M. J. Metzger & A. J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 123–154). Cambridge, MA: The MIT Press.

Eysenbach, G., Powell, J., Kuss, O., & Sa, E. R. (2002). Empirical studies assessing the quality of health information for consumers on the world wide web: A systematic review. *Journal of the American Medical Association, 287*(20), 2691–2700. <http://www.ncbi.nlm.nih.gov/pubmed/12020305>.

Ferro, E., Helbig, N. C., & Gil-Garcia, J. R. (2011). The role of IT literacy in defining digital divide policy needs. *Government Information Quarterly, 28*(1), 3–10. http://dx.doi.org/10.1016/j.giq.2010.05.007.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117–140.

Fiske, S. T., & Linville, P. W. (1980). What does the schema concept buy us? *Personality and Social Psychology Bulletin, 6*(4), 543–557. http://dx.doi.org/10.1177/014616728064006.

Flanagin, A. J., Hocevar, K. P., & Samahito, S. N. (2014). Connecting with the user-generated web: How shared social identity impacts online information sharing and evaluation. *Information, Communication, & Society, 17*(6), 683–694. http://dx.doi.org/10.1080/1369118X.2013.808361.

Flanagin, A. J., & Metzger, M. J. (2000). Perceptions of Internet information credibility. *Journalism & Mass Communication Quarterly, 77*(3), 515–540. http://dx.doi.org/10.1177/107769900007700304.

Flanagin, A. J., & Metzger, M. J. (2003). The perceived credibility of personal Web page information as influenced by the sex of the source. *Computers in Human Behavior, 19*(6), 683–701. http://dx.doi.org/10.1016/S0747-5632(03)00021-9.

Flanagin, A. J., & Metzger, M. J. (2013). Trusting expert- versus user-generated ratings online: The role of information volume, valence, and consumer characteristics. *Computers in Human Behavior, 29*, 1626–1634. http://dx.doi.org/10.1016/j.chb.2013.02.001.

Fogg, B. J., Marshall, J., Laraki, O., Osipovich, A., Varma, C., Fang, N., et al. (2001). *What makes Web sites credible?: A report on a large quantitative study. Proceedings of the SIGCHI conference on human factors in computing systems*. Seattle, Washington, United States: ACM.

Friedman, B., Kahn, P. H., & Howe, D. C. (2000). Trust online. *Communications of the ACM, 43*(12), 34–40. http://dx.doi.org/10.1145/355112/355120.

Gefen, D. (2000). E-commerce: The role of familiarity and trust. *Omega, 28*(6), 725–737. http://dx.doi.org/10.1016/S0305-0483(00)00021-9.

Gil de Zuniga, H., Jung, N., & Valenzuela, S. (2012). Social media use for news and individuals' social capital, civic engagement and political participation. *Journal of Computer-Mediated Communication, 17*(3), 319–336. http://dx.doi.org/10.1111/j.1083-6101.2012.01574.x.

Hardin, R. (2006). *Trust*. Cambridge: Polity.

Hass, R. G., & Grady, K. (1975). Temporal delay, type of forewarning, and resistance to influence. *Journal of Experimental Social Psychology, 11*(5), 459–469. http://dx.doi.org/10.1016/0022-1031(75)90048.

Heinz, M., & Rice, R. E. (2009). An integrated model of knowledge sharing in contemporary communication environments. In C. S. Beck (Ed.). *Communication yearbook* (Vol. 33, pp. 134–175). New York, NY: Routledge.

Hilligoss, B., & Rieh, S. Y. (2008). Developing a unifying framework of credibility assessment: Construct, heuristics, and interaction in context. *Information Processing and Management, 44*, 1467–1484. http://dx.doi.org/10.1016/j.ipm.2007.10.001.

Horrigan, J., & Rainie, L. (2006). Pew Internet & American Life Project report, *The Internet's growing role in life's major moments*. http://www.pewinternet.org/Reports/2006/The-Internets-Growing-Role-in-Lifes-Major-Moments.aspx. Retrieved 02.07.14.

Hughes, D. J., Rowe, M., Batey, M., & Lee, A. (2012). A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage. *Computers in Human Behavior, 28*(2), 561–569. http://dx.doi.org/10.1016/j.chb.2011.11.001.

Johnson, T. J., & Kaye, B. K. (2004). Wag the blog: How reliance on traditional media and the Internet influence credibility perceptions of weblogs among blog users. *Journalism & Mass Communication Quarterly, 81*(3), 622–642. http://dx.doi.org/10.1177/107769900408100310.

Kaye, B. K., & Johnson, T. J. (2011). Hot diggity blog: A cluster analysis examining motivations and other factors for why people judge different types of blogs as credible. *Mass Communication and Society, 14*(2), 236–263.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems, 44*(2), 544–564. http://dx.doi.org/10.1016/j.dss.2007.07.001.

Metzger, M. J. (2007). Making sense of credibility on the web: Models for evaluating online information and recommendations for future research. *Journal of the American Society for Information Science and Technology, 58*(13), 2078–2091. http://dx.doi.org/10.1002/asi.

Metzger, M. J, Flanagin, A. J, Eyal, K., Lemus, D. R, & McCann, R. (2003). Credibility in the 21st century: Integrating perspectives on source, message, and media credibility in the contemporary media environment. In P. Kalbfleisch (Ed.). *Communication yearbook* (Vol. 27, pp. 293–335). Mahwah, NJ: Lawrence Erlbaum.

Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and heuristic approaches to credibility evaluation online. *Journal of Communication, 60*(3), 413–439. http://dx.doi.org/10.1111/j.1460-2466.2010.01488.x.

Min, S. (2010). From the digital divide to the democratic divide: Internet skills, political interest, and the second-level digital divide in political Internet use. *Journal of Information Technology & Politics, 7*(1), 22–35. http://dx.doi.org/10.1080/19331680903109402.

Nielsen. (2012). *The social media report*. [PowerPoint slides]. <http://www.nielsen.com/us/en/reports/2012/state-of-the-media-the-social-media-report-2012.html>.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology, 19*, 123–205. http://dx.doi.org/10.1016/s0065-2601(08)60214-2.

Resnick, P., Zeckhauser, R., Friedman, E., & Kuwabara, K. (2000). Reputation systems. *Communications of the ACM, 43*(12), 45–48. http://dx.doi.org/10.1145/355112.3551.

Rice, R. E. (2001). The Internet and health communication: A framework of experiences. In R. E. Rice & J. E. Katz (Eds.), *The Internet and health communication: Expectations and experiences* (pp. 5–46). Thousand Oaks, CA: Sage.

Ross, C., Orr, E. S., Sisic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior, 25*(2), 578–586. http://dx.doi.org/10.1016/j.chb/2008.12.024.

Sillence, E., Briggs, P., Harris, P. R., & Fishwick, L. (2007). How do patients evaluate and make use of online health information? *Social Science & Medicine, 64*(9), 1853–1862. http://dx.doi.org/10.1016/j.socscimed.2007.01.012.

Sundar, S. S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. In M. J. Metzger & A. J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 73–100). Cambridge, MA: The MIT Press.

Sunstein, C. (2006). *Infotopia: How many minds produce knowledge*. New York: Oxford University Press.

Surowiecki, J. (2004). *The wisdom of crowds*. New York: Anchor Books.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Pearson.

Valenzuela, S., Park, N., & Kee, K. F. (2009). Is there social capital in a social network site?: Facebook use and college students' life satisfaction, trust, and participation. *Journal of Computer-Mediated Communication, 14*(4), 875–901. http://dx.doi.org/10.1111/j.1083-6101.2009.01474.x.

West, S. G., Aiken, L. S., & Krull, J. L. (1996). Experimental personality designs: Analyzing categorical by continuous variable interactions. *Journal of Personality, 64*(1), 1–48. http://dx.doi.org/10.111/j/1467-6494.1996.tb00813.x.

Wicks, R. H. (1992). Schema theory and measurement in mass communication research: Theoretical and methodological issues in news information processing. In S. A. Deetz (Ed.). *Communication yearbook* (Vol. 15, pp. 115–145). Newbury Park: Sage.

Wigfield, A., Guthrie, J. T., Tonks, S., & Perencevich, K. C. (2004). Children's motivation for reading: Domain specificity and instructional influences. *The Journal of Educational Research, 97*(6), 299–309.

Willemsen, L. M., Neijens, P. C., & Bronner, F. (2012). The ironic effect of source identification on the perceived credibility of online product reviewers. *Journal of Computer-Mediated Communication, 18*, 16–31. http://dx.doi.org/10.1111/j.1083-6101.2012.01598.x.

Wilson, E. J., & Sherrell, D. L. (1993). Source effects in communication and persuasion research: A meta-analysis of effect size. *Journal of the Academy of Marketing Science, 21*(2), 101–112.

Zhang, W., Johnson, T. J., Seltzer, T., & Bichard, S. L. (2010). The revolution will be networked: The influence of social networking sites on political attitudes and behavior. *Social Science Computer Review, 28*(1), 75–92. http://dx.doi.org/10.1177/0894439309335162.