

Identifying Innovation Attributes and Factors that Predict Social Media Adoption in  
U.S. Public Relations Practitioners

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By

LINDAN A. MOYA

Prescott Valley, Arizona  
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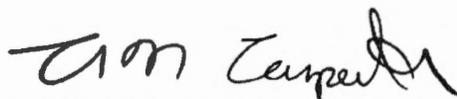
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Lindan A. Moya

Approved by:

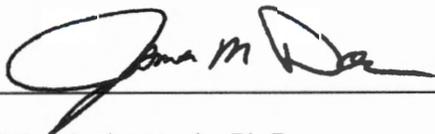


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## Abstract

The inherent dialogic features of social media may be a valuable tool for public relations practitioners as they endeavor to communicate more effectively with their publics, while striving to practice excellent public relations. The problem addressed in this study was that the factors that best predict social media adoption and early adoption versus late adoption, among U.S. public relations professionals are largely unknown. Previous studies with respect to Internet and social media adoption by public relations professionals indicated that they were slow to adopt these new technologies; this study was an attempt to discover if this was the current situation in the United States, and what variables may predict social media adoption. In this quantitative survey study, the slightly modified instrument was a questionnaire from a previously validated self-administered survey used for Internet adoption among public relations practitioners. This instrument was self-administered to a convenience sample of U.S. public relations practitioners which resulted in 186 usable surveys. Only 13 respondents indicated that they did not use social media, rendering the first two hypotheses concerning adoption versus non-adoption moot. Those 13 non-adopters were evaluated as part of the late adopter group for the remaining two hypotheses. Logistic regression was the method used to test hypotheses 3 and 4 because of the multiple predictor variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type) and the dichotomous outcome variable, early adoption. Results showed that trialability was a significant predictor while observability was nearly significant; age group was the only significant predictor of the demographic variables. Public relations scholars may use these findings to expand their

research of social media adoption regarding whether it is being used to its fullest extent, and how the use of social media contributes to the excellence theory of public relations as a best practice in dialogic, two-way symmetrical communication. Public relations managers can use these findings to improve the speed of adoption of future innovations in information and communication technology.

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## Chapter 1: Introduction

The rapid diffusion of the Internet has had a significant influence on the theory and practice of public relations (Chung, Kim, Trammell & Porter, 2007; Lewis & Nichols, 2012; Pavlik, 2007; Wright & Hinson, 2010). As Rogers (2003) explained, the Internet has caused an increase in the speed of adoption of certain innovations, such as free Web-based email services. Berners-Lee (1992) developed the World Wide Web, an Internet-based hypermedia initiative for global information sharing. The term Web 2.0 was used to describe the platform on which users create and modify content in a participatory and collaborative manner (Kaplan & Haenlein, 2010). The development of social media was made possible via this platform (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). Social media includes social networking sites such as Facebook and Twitter, as well as blogs, and user-generated content sites like YouTube and other online communities (Li & Bernoff, 2008).

The primary function of public relations practitioners is to create and sustain positive relationships between an organization and its various publics through dialogic communication (Bey-Ling, 2011; Broom, 2009; Seitel, 2011). Mass communications researchers have argued that public relations practitioners should have primary control over the social media strategy of an organization (Avery, Lariscy, & Sweetser, 2010; Falls, 2008; Rose, 2008). However, public relations practitioners having been accustomed to traditional communication media may be hesitant in adopting social media for dialogic, two-way symmetrical communication (Kavanaugh et al., 2012).

Rogers' (2003) diffusion of innovations theory has been used as a theoretical framework in the study of social media adoption by public relations practitioners (Avery,

Lariscy, Amador, et al., 2010; Kelleher & Sweetser, 2012; Kitchen & Panopolous, 2010). However, there remains much to learn about the factors and innovation attributes that may predict social media adoption among public relations practitioners in the United States (Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008; Sweetser, Avery, Lariscy, & Howes, 2009). Public relations researchers have found that a variety of demographic data, when used as predictor variables have offered significant findings in previous Internet and social media adoption studies (Alikilic & Atabek, 2012; Al-Shohaib, Frederick, Al-Kandari, & Dorsher, 2010; Kitchen & Panopoulos, 2010; Sallot, Porter, & Acosta-Alzuru, 2004).

The intent of this study was to identify the factors that best predict social media adoption and early adoption among public relations practitioners in the United States using Rogers' (2003) diffusion of innovations as the theoretical framework and Grunig's (1992) excellence theory of public relations. Innovation attributes, and demographic data were examined to determine which, if any, best predict social media adoption, and early adoption. By understanding what factors best predict social media adoption, both executive leadership and public relations practitioners may benefit by leveraging this information to increase its adoption (Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Payne, 2008; Sweetser & Kelleher, 2011). Public relations practitioners may benefit because they may be viewed as technologically innovative and the authorities for social media use, thereby increasing their value, power, and respect within their organization (Diga & Kelleher, 2009; Keeton & McCann, 2005; Porter & Sallot, 2005; Porter, Sweetser, Chung, & Kim, 2007; Porter, Sallot, Cameron, & Shamp, 2001; Sallot et al., 2004; Smith & Place, 2013).

## Background

“Social media is a phenomenon that has transformed the interaction and communication of individuals throughout the world” (Edosomwan, Prakasan, Kouame, Watson, & Seymour, 2011, p.79). More definitively, social media is the term used to describe Web-based applications that are interactive, dialogic, and which enable users to create content (Kietzmann et al., 2011). Examples of the more popular social media sites include Facebook and Twitter (Boyd & Ellison, 2007); blogs, a type of social media, are written logs kept on the Web that need not be application specific and may be a part of an organizations website (Du & Wagner, 2006).

Although most social media applications began by connecting people with other people, usually with a common interest, recently companies, nonprofits, and government agencies have come to realize the inherent potential of social media as a means to reach the public (Wyckoff, 2010). Public relations scholars have asserted that the overall responsibility for social media implementation belongs to public relations practitioners (Avery, Lariscy, Amador, et al., 2010; Falls, 2008; Rose, 2008). Social media has the potential to enhance the practice of public relations, and the reputation’s of practitioners themselves, as senior executives will value public relations practitioners who adopt two-way communication with activist publics (Grunig, 2009; Grunig, Grunig, & Dozier, 2009).

Successful public relations practitioners must be able to expertly communicate information that is complex, accurate, and critical to the public, and manage their organizations’ reputation (Grunig, 2006; Lariscy, Sweetser, Avery, & Howes, 2008;

Sweetser & Metzgar, 2007; Taylor & Perry, 2005). The excellence theory of public relations was based on the principle that public relations practitioners can attain power through knowledge of the practice, and the demonstration of expertise (Grunig, 1992; Grunig et al., 2009; Hon, 2008). Therefore, the adoption of social media by public relations practitioners should be a key element in achieving an excellent model of public relations practice.

However, adoption of a seemingly useful innovation, such as social media is not always immediate or pervasive. Rogers' (2003) diffusion of innovations theory has been used as a theoretical framework in the study of social media adoption by public relations practitioners (Avery, Lariscy, Amador, et al., 2010; Kelleher & Sweetser, 2012; Kitchen & Panopolous, 2010). In order to benefit from social media, it must be first adopted; by identifying the predictors of social media adoption, action can be taken to improve its adoption.

### **Statement of the Problem**

Public relations practitioners must be able to provide information rapidly and manage their organizations' reputation (Grunig, 2006; Lariscy et al., 2008; Sweetser & Metzgar, 2007; Taylor & Perry, 2005). In 2012, 66% of Fortune 500 companies had a Facebook page, and only 28% had a blog (Barnes, Lescault, & Andonian, 2012). A study of the Inc. 500 revealed that 22% of companies had no social media plan (Barnes & Lescault, 2012).

The specific problem addressed in this study was that the factors that may predict social media adoption and early adoption, among U.S. public relations professionals, are largely unknown because previous studies have been conducted in other countries, or

only examined specific organizations types, and none have examined both adoption and early adoption (Alikilic & Atabek, 2012; Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008). This hinders efforts to encourage early adoption of a technology that could increase an organization's effectiveness (Grunig & Grunig, 2011). Public relations practitioners' hesitancy to adopt social media as a professional communication medium is a problem because it may result in less overall efficiency as the number of people who rely on social media for information continues to increase (Curtis et al., 2010; Eyrich, Padman, & Sweetser, 2008; Lariscy, Avery, Sweetser, & Howes, 2009; Porter, Sweetser, & Chung, 2009; Wright & Hinson, 2009). The excellence theory proposed that the individual public relations practitioner can achieve power through knowledge of the practice, and the demonstration of expertise (Grunig, 1992; Grunig et al., 2009; Hon, 2008). By identifying the factors that predict social media adoption, a case can be made to improve the adoption of this innovation in order to increase the power, expertise, and influence of public relations practitioners resulting in an increase in an organization's effectiveness.

### **Purpose of the Study**

The purpose of this non-experimental, predictive, quantitative study was to identify innovation attributes and demographic variables that best predict social media adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. The predictor variables of this study were Rogers (2003) five attributes of innovation, relative advantage, compatibility, complexity, trialability, and observability, with the demographic variables consisting of age group, gender, education level, position type, and organization type (private sector,

public sector, or nonprofit). A few studies have used some of these variables as predictors, but did not consider the combination of all these variables at the same time, nor have any studies examined the adoption of social media among the general population of U.S. public relations practitioners. Rogers (2003) five attributes of innovations have been used by Al-Shohaib et al., (2010) in Saudi Arabia, and by Kelleher and Sweetser (2012), and Avery, Lariscy, Amador, et al., (2010) in the United States to examine the adoption of social media among public relations practitioners. In studies conducted in the United States and other countries, public relations researchers found that age (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010; Sallot et al., 2004), gender (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010; Kitchen & Panopoulos, 2010; Sallot et al., 2004), education, level position type, and organization type (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010), when used as predictor variables have offered significant insight in previous Internet and social media adoption studies. The dichotomous outcome variables were adoption of social media and early adoption. Using a slightly modified survey instrument the research method was quantitative with a predictive design. Research questions 1 and 2 could not be answered because only 13 respondents reported being non-adopters. Logistic regression was the method used to test hypotheses 3 and 4 because of the multiple predictor variables and dichotomous outcome variable. A priori power analysis for logistic regression was conducted using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007). The power analysis for logistic regression indicated that 134 participants were required with a power of .80 and the standard alpha level of .05. The sample was derived from public relations practitioners in the United States using convenience sampling. The convenience sample was obtained three ways: (1) a list of

public relations practitioners gathered through an Internet search, approximately 2000 email addresses, were sent the invitation letter found in Appendix A, (2) the invitation letter to complete the survey online was posted to two public relations groups on LinkedIn, consisting of approximately 175,118 members, (3) the invitation letter was also posted to the San Antonio Public Affairs League's closed Facebook group, which has 121 members. The San Antonio Public Affairs League is a group of military and government public relations professionals that meets monthly to share and exchange information relevant to the field.

### **Theoretical Framework**

Rogers' (2003) diffusion of innovations theory and Grunig's (1992) excellence theory of public relations provided the theoretical framework for the current study. Rogers' (2003) diffusion of innovations theory has been useful in explaining why beneficial innovations, whether in the form of technology, ideas, or best practices succeed or not succeed as anticipated, while the excellence theory of public relations describes the characteristics of effective public relations. Diffusion of innovations theory will be discussed followed by the excellence theory of public relations.

The basic premise of Rogers (2003) diffusion of innovations theory sought to explain what circumstances increase or decrease the probability that persons of a given group will adopt an innovation. Before individuals can adopt an innovation, they must first know about it, form an opinion, decide to accept or reject it, and finally confirm their decision (Rogers, 2003). The circumstances that influence the rate of adoption, known as the perceived attributes of innovation, are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Innovations perceived by a recipient as

having greater relative advantage, compatibility, trialability, observability, and less complexity should be adopted more rapidly than other innovations. The element of time was used to segment adopter categories into innovators, early adopters, early majority, late majority, or laggards (Rogers, 2003). Innovators, early adopters, and early majority account for the first half of Rogers' (2003) adoption curve, with late majority and laggards making up the second half. From this perspective this theory is useful in the study of the adoption of information communication technology (ICT) and especially interactive communication technology such as the Internet and social networking media.

Al-Shohaib, Al-Kandari, and Abdulrahim (2009) and Al-Shohaib et al. (2010) used Rogers' diffusion of innovations as the theoretical framework for the study of Internet adoption among Saudi public relations practitioners. The diffusion of innovations theory was integral to the modified instrument used to collect the data used in both studies. Specifically, the modified instrument measured the five perceived attributes of innovations using questionnaire items adopted from similar studies that had been tested for validity and reliability (Moore & Benbasat, 1991; Premkumar & Roberts, 1999). This same instrument was used for the current study, modified to examine social media adoption with U.S. public relations practitioners. Avery, Lariscy, Amador, et al. (2010), Kitchen and Panopoulous (2010), Kelleher and Sweetser (2102) and Avery et al. (2010) and Waters (2009) all used Rogers' diffusion of innovations theory to analyze adoption of social media with public relations practitioners.

The strength of diffusion of innovations theory has been its widespread applicability (Straub, 2009). Validity is a concern when a researcher deviates from a well-tested and accepted theory. From this perspective, it was more practical to use a

proven theory, especially in dissertation research, and if necessary, add variables in order to examine other relationships rather than attempt to prove the validity of an entirely new theoretical framework. Diffusion of innovations theory has been a very effective theoretical framework in previous adoption studies and will continue to function as an important foundation for future research (Hornik, 2004).

The excellence study conducted by Grunig (1992) provided research based support for the activities thought to contribute to effective public relations, and therefore excellent organizations. The two parts of the excellence theory essential to the current study are empowerment of public relations practitioners and the use of two-way symmetrical, dialogic communication. Social media applications provide a platform for conducting two-way symmetrical, dialogic communication; applications such as Facebook and Twitter allow people to engage in a dialogue with each other, and with organizations.

The excellence theory of public relations proposed that the individual public relations practitioner can achieve power through knowledge of the practice, and the demonstration of expertise (Grunig, 1992; Grunig & Grunig, 2011; Grunig et al., 2009; Hon, 2008); top management will value public relations practitioners who adopt two-way communication with activist publics (Grunig, 2009; Grunig & Grunig, 2011; Grunig et al., 2009; Smith & Place, 2013). Public relations practitioners are in a position to take advantage of the interactive, two-way symmetrical communication social media offers and may be able to realize the applied principles of the excellence theory in order to increase the efficiency, power, expertise, and influence of public relations practitioners and elevate their overall status within an organization.

## Research Questions

The purpose of this research study was to examine factors that may predict the adoption of social media, and early adoption, in public relations practitioners in the United States. Rogers' (2003) diffusion of innovations theory was used to formulate research questions 1 and 3. Through a review of previous research on Internet adoption by public relations practitioners, as well as more current literature regarding social media adoption, the following research questions were developed:

**RQ1:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict social media adoption by public relations practitioners in the United States?

**RQ2:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict social media adoption by public relations practitioners in the United States?

**RQ3:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

**RQ4:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

## Hypotheses

- H1<sub>0</sub>: There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.
- H1<sub>a</sub>: There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.
- H2<sub>0</sub>: There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.
- H2<sub>a</sub>: There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.
- H3<sub>0</sub>: There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), by public relations practitioners in the United States.
- H3<sub>a</sub>: There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

H4<sub>0</sub>: There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

H4<sub>a</sub>: There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

### **Nature of the Study**

The purpose of this quantitative predictive study was to identify variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type) that may predict social media adoption and early adoption versus late adoption among U.S. public relations practitioners. The study utilized a slightly modified survey instrument that was adapted from a previous instrument used for Internet adoption by Al-Shohaib (2005). A field test was conducted to receive feedback on any issues with the instrument and assess the appropriateness of the items. The survey instrument contains Likert-type scales for each of the innovation attributes; ordinal and nominal scales were used for the demographic predictor variables. The survey instrument included a dichotomous question to determine social media adoption, and used a discrete ratio scale to determine early adoption.

Appendix B includes a copy of the consent form and the survey instrument is exhibited in Appendix C.

The sample size was determined by a priori power analysis for logistic regression which was conducted using G\*Power (Faul et al., 2007). The power analysis for logistic regression indicated that 134 participants were required with a power of .80 and the standard alpha level of .05. For this convenience sample, participants received either an emailed invitation letter, (Appendix A) from the email list which was generated through the Google, Bing, and Yahoo! search engines using search terms such as public relations, communications, and media relations, with a link to the online survey instrument, or responded to the invitation letter posted on two LinkedIn groups, Public Relations and Communications Jobs Community with 37,077 members, and the Public Relations and Communications Professionals group with 138,041 members. The invitation letter (Appendix A) was posted to the San Antonio Public Affairs League's closed Facebook group, which had 121 members. The San Antonio Public Affairs League is a group of military and government public relations professionals that meets monthly to share and exchange information relevant to the field.

SPSS version 22 statistics software was used to analyze the data using descriptive and inferential statistics. Descriptive statistics were computed for the demographic variables and to check for outliers in the data. Data were tested for normality. Mean and standard deviation were reported for normally distributed variables, otherwise, median and interquartile range (25th and 75th percentiles) were calculated. Simple descriptive tests were applied using appropriate parametric and non-parametric tests. The assumption of normality was not met, therefore a non-parametric correlation test was used to determine the correlational level between the predictor variables, relative advantage, compatibility, complexity, observability, trialability, age group, gender,

education level, position type, and organization type, and the remaining outcome variable, early adoption. Two logistic regressions were performed, the first with the attributes of innovation and the outcome variable early adoption, and the second with the demographic variables and the outcome variable early adoption. The logistic regression was selected because of the dichotomous outcome variable.

### **Significance of the Study**

Although previous research suggested that dialogic, two-way symmetrical communication was key to excellent public relations (Grunig, 1992; Grunig & Grunig, 2011; Grunig, et al., 2009; Stacks & Watson, 2008), the factors that best predict the adoption of social media, which may be used to facilitate such communication, have been largely unknown with respect to U.S. public relations practitioners (Alikilic & Atabek, 2012; Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008). Recognizing what may predict the adoption of social media by public relations practitioners has several benefits. Both executive management and public relations practitioners can apply the results of this study to increase the adoption of social media (Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Payne, 2008; Sweetser & Kelleher, 2011). Adopting social media for two-way communication with activist publics may increase the value and power of public relations practitioners which according to the excellence theory will benefit the entire organization (Grunig, 2009; Grunig & Grunig, 2011; Grunig et al., 2009; Smith & Place, 2013). In addition, this study contributes to the literature on the excellence theory in public relations which identified relationship building using a two-way symmetrical communication model as one of the characteristics of effective public relations (Grunig, 1992; Grunig & Grunig, 2011;

Grunig et al., 2009). Understanding the predictors of social media adoption may facilitate further research into the specific methods public relations practitioners are using with these applications to facilitate dialogic, two-way symmetrical communication.

### **Definition of Key Terms**

This section defines key terms in order to facilitate an understanding of this research study.

**Adopter.** Adopter refers to a member of a social system who may accept or reject implementing an innovation (Rogers, 2003).

**Adoption.** Adoption is the result of an organization or individual deciding to fully use an innovation (Rogers, 2003).

**Adopter Category.** The element of time is used to segment adopter categories into innovators, early adopters, early majority, late majority, or laggards (Rogers, 2003). Innovators, early adopters, and early majority account for the first half of Rogers' (2003) adoption curve, with late majority and laggards making up the second half.

**Blog.** Blog is the short form of the original term weblog. Blogs make it easy for individuals to publish content on the Internet. As the name suggests, it is a log kept on the Web and it is usually posted in a reverse chronological order with the most recent post at the top of the page (Du & Wagner, 2006).

**Chat room.** A chat room is a location on a network that supports real-time text communication between two or more users at one time (Rutenbeck, 2006).

**Commercialization.** Rogers (2003) described commercialization as, "the production, manufacturing, packaging, marketing, and distribution of a product that embodies an innovation" (p.152).

**Compatibility.** Compatibility is one of the five perceived attributes of innovation. As explained by Rogers (2003), “The degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters” (p.473).

**Complexity.** Complexity is one of the five perceived attributes of innovation, which measures how complicated the innovation is perceived to be by potential adopters (Rogers, 2003).

**Dialogic.** Dialogic is related to dialogue, in the sense that it characterizes a two-way conversation (“Dialogic,” n.d.; “Dialogue,” n.d.). Kent and Taylor (1998) have suggested that dialogic communication on the Web was an innovative way for public relations practitioners to build relationships with their audiences.

**Diffusion.** Diffusion refers to the progressive communication of an innovation throughout a social system (Rogers, 2003).

**Facebook.** Facebook is currently the leading social networking site with over one billion active users as of November 26, 2012 (<http://newsroom.fb.com/content/default.aspx?NewsAreaId=22>).

**Innovation.** Something perceived as new by a potential adopter; it might be a process, tool, idea or product (Rogers, 2003).

**Observability.** Observability is one of the five perceived attributes of innovation. Rogers (2003) noted that innovations that are literally easy to see, such as solar water heaters, diffuse faster than less visible innovations.

**Public Affairs.** Public affairs is the term used for the practice of public relations in government as opposed to the private sector. The use of this label was influenced in

part by the 1913 Gillett Amendment, which prohibits federal agencies from spending money on publicity unless explicitly authorized by Congress (Kosar, 2005).

**Public Relations.** Public relations is considered a management function. The public relations practitioners' mission is to manage relationships between the organization and various publics with which they interact. Depending on the organization, the various publics may be citizens in the local community, business leaders, government officials, news media, and any other party interested in that particular organization (Broom, 2009).

**Rate of adoption.** The rate of adoption quantifies how quickly an innovation is implemented (Rogers, 2003).

**Relative advantage.** Relative advantage is one of the five perceived attributes of innovation and measures the extent an innovation is perceived as better than the status quo (Rogers, 2003).

**Social media.** Social media refers to mobile and web-based technologies that employ an interactive structure in which people and organizations can communicate in a number of ways such as messaging, posting, creating content and commentary (Kietzmann et al., 2011).

**Social Network(ing) Sites.** Social networking sites provide web-based software/services that enable individuals and organizations to create a profile, which can link to and/or communicate with other profiles. Facebook and Twitter are among the many examples of social networking sites (Boyd & Ellison, 2007). The terms social media and social networking are often used interchangeably.

**Social Software.** Social software is a type of software application that enables

two or more people or organizations to share and interact, in effect to be social. Social software applications make social networking sites like Facebook or Twitter possible (Fichter, 2004).

**Social system.** Rogers (2003) explained, “A social system is defined as a set of interrelated units involved in joint problem solving to accomplish a common goal” (p.23).

**Trialability.** Trialability is one of the five perceived attributes of innovations; it measures how easy an innovation can be tested while considering the adoption of it (Rogers, 2003).

**Twitter.** A type of social networking site that allows users to publicly share updates, links, and opinions within a maximum of 140 characters (Solis & Breakenridge, 2009).

**Web 2.0.** The term used to describe the platform in which users create and modify content in a participatory and collaborative manner (Kaplan & Haenlein, 2010).

## **Summary**

Public relations practitioners must be able to rapidly communicate information that is complex, accurate, and critical to the public, and manage their organizations’ reputation in order to be successful (Grunig, 2006; Lariscy et al., 2008; Sweetser & Metzgar, 2007; Taylor & Perry, 2005). Adopting social media to engage in dialogic, two-way symmetrical communication with activist publics may help public relations practitioners to be more effective, and consequently more valued by organizational leadership as hypothesized in the excellence theory (Grunig, 2009; Grunig & Grunig, 2011; Grunig et al., 2009).

There have been several studies regarding social media adoption by public relations practitioners, specific to various countries and industries (Avery, Lariscy, Amador, et al., 2010; Kelleher & Sweetser, 2012; Kitchen & Panopolous, 2010). However, the factors that can be used to predict social media adoption and early adoption versus late adoption, among U.S. public relations practitioners are largely unknown (Alikilic & Atabek, 2012; Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008).

The foundations of this study were based upon the diffusion of innovations theory, used as a framework to predict adoption, and the excellence theory of public relations. Using a quantitative survey design, the purpose of this study was to identify the factors that can be used to predict the early adoption versus late adoption of social media, in order to improve the adoption of this innovation. The perceptions of the innovation attributes, and demographic data were examined to determine which, if any, best predicted social media adoption, and early adoption. By understanding what factors best predict social media adoption, both executive leadership and public relations practitioners can benefit by leveraging this information to increase its rate of adoption (Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Payne, 2008; Sweetser & Kelleher, 2011). The following chapter provides a comprehensive literature review in the areas of public relations, social media, and the theoretical foundations for this study.

## Chapter 2: Literature Review

This chapter provides an overview of the most significant literature associated with social media adoption and public relations. The evolution of the excellence theory and diffusion of innovation theory are presented along with studies related to social media and Internet adoption. The literature review consists of ten sections. The first section discusses the excellence theory, and the diffusion of innovations theory is discussed in the next section. The third section reviews other adoption theories related to diffusion of innovations theory, and the fourth section discusses studies that used the diffusion of innovations theory as a framework to examine adoption. The fifth section is dedicated to social media and public relations, while the sixth section contains social media adoption studies. Sections seven through ten present literature on issues surrounding privacy and security, bureaucratic constraints, governmental issues, and HIPAA (health insurance portability and accountability act), concerns which may affect technology adoption, such a social media, in various organizations.

Sources for this literature review came from peer reviewed journals, scholarly books, and research studies. Initially the literature search focused on articles related to social media adoption by public relations practitioners found mainly in the Journal of Communication Management, Journal of Public Relations research, and Public Relations Review. Next the literature search was expanded to include recent studies regarding public relations theory, diffusion of innovations, and social media adoption in general. Reference lists for recent studies were then used to find other significant papers. The names of researchers who appeared to be experts in public relations and social media were used to locate additional scholarly papers and books. Databases such as ProQuest, EBSCO, Science Direct, and Taylor and Francis were most frequently used, along with

Google Books, Google Scholar, the Army Medical Department Library, Brooke Army Medical Center Library, San Antonio Public Library, University of Texas Libraries, and WorldCat. The key search terms used were social media, social networking, Web 2.0, adoption, Internet, Facebook, Twitter, excellence theory, diffusion of innovations, public relations, government, and medical innovation.

### **Excellence Theory of Public Relations**

The excellence theory of public relations pre-dates Web 2.0 and social media. Yet it has practical application with respect to the research into the use of social media.

Public relations practitioners are in a position to take advantage of interactive, two-way symmetrical communication that social media offers and realize the applied principles of the dialogic model of public relations as proposed by Kent and Taylor (2002), and the excellence theory of public relations (Grunig, 1992; Grunig & Grunig, 2011; Macnamara, 2012).

The International Association of Business Communicators (IABC) commissioned a study of public relations that became known as the excellence project (Grunig, 1992; Grunig, 2009; Grunig & Grunig, 2011). This project resulted in the 1992 IABC Excellence Study, a benchmark body of work examining best practices in the field of public relations. The purpose of the study was to answer several very broad questions, what characteristics are associated with an excellent public relations department, how does excellent public relations affect the overall success of an organization, and what is this worth monetarily (Berger, 2008). Measuring return on investment is a fundamental business process, but it has been a challenge to place monetary value with respect to public relations (Grunig, 2006; Grunig & Grunig, 2011; Grunig et al., 2009; Van Ruler,

Verčič, & Verčič, 2008). It follows that a management function, such as public relations, should be more valued if proven to have a positive return on investment.

The excellence theory sought to identify the activities that contribute to effective public relations and therefore excellent organizations (Grunig, 1992). The excellence theory evolved from Grunig and Hunt's (1984) four models of public relations: press agency/publicity, public information, two-way asymmetrical, and two-way symmetrical. The first two models consist of completely one-way, non-dialogic methods of communicating; information is given to the public, but none is sought from the public (Grunig, 1992; Grunig & Grunig, 2011; Grunig et al., 2009). A press release is the primary example of press agency, designed mainly to garner media attention, while public information is just information, like event hours, or a vice-president's biography (Seitel, 2011). The two-way asymmetrical model relies on research to develop messages that will hopefully produce public support, but this is not an attempt to create dialogue, rather an effort to persuade the public (Terry, 1989). The research portion of the two-way asymmetrical model is used to explain to senior management what the public may accept (Terry, 1989). The two-way symmetrical model is the only truly symmetrical, interactive and therefore dialogic means to communicate with the public (Grunig, 2009; Grunig & Grunig, 2011; Grunig et al. 2009; Stacks & Watson, 2008).

The excellence study conducted by Grunig (1992) and further advanced by Grunig & Grunig (2011), provided research based support for the activities thought to contribute to effective public relations, and therefore excellent organizations. The excellence theory assimilated the situational theory of publics (Grunig, 2006; Sung, 2008). The situational theory of publics stated that people organize and communicate

about their concerns more often based on their degree of awareness of the issues, how much it impacts their lives, and whether they believe they have the power to make real change (Grunig, 1997; Sung, 2008). Social media can be used to increase the awareness of issues, and provides a platform for individuals to organize and communicate about issues that may affect them (Grunig, 2009; Macnamara, 2012).

The two parts of the excellence theory significant to this study were empowerment of public relations practitioners and the use of two-way symmetrical, dialogic communication. Social media applications provide a platform for conducting two-way symmetrical, dialogic communication; applications such as Facebook and Twitter allow people to engage in a dialogue with each other, and with organizations (Bortree & Seltzer, 2009; Gordon & Berhow, 2009; Rybalko & Seltzer, 2010). Simply stated, “the term social media describes a set of technology tools that are just as they sound—mediated opportunities for bringing people together and encouraging social networking and dialogic communication” (Sweetser & Lariscy, 2008, p. 180).

If an organization engages in a true dialogue with their publics, theoretically the issues most important will be understood by all parties, so that problems may be solved to the satisfaction of everyone (Heath, 2008; Grunig, 2006). However, there is debate as to whether two-way symmetrical communication equates to a true dialogue (Theunissen & Van Noordin, 2012). The theory of dialogue is profoundly philosophical, considered a process rather than an outcome (Heath, 2008; Kelleher, 2007; Theunissen & Van Noordin, 2012). Perhaps the most satisfactory description is that two-way symmetrical communication is the means, and dialogue the end (Kent and Taylor, 1998).

Grunig (1992) argued that the two-way symmetrical model is the most moral and ethical method for public relations, and the most effective model in practice. Pearson (1989) suggested that dialogic communication is a key component of ethical business practice. Although various researchers use dialogic and two-way symmetrical interchangeably, Kent and Taylor (1998) stated that there is a slight difference between two-way symmetrical communication and the dialogic communication model because dialogic communication implies a relationship and dialogue is a product not a process.

The two-way symmetrical model is more complex than the other models, and creating a dialogue with the public may involve risk, therefore this model is more often practiced by expert public relations managers who are in the dominant coalition at their organization (Grunig et al. 2006; Grunig & Grunig, 2011; Theunissen & Van Noord, 2012). In line with these arguments, the excellence theory of public relations proposed that the individual public relations practitioner can achieve power through knowledge of the practice, and the demonstration of expertise; ultimately public relations should be a management function with membership in, or at least access to the dominant coalition (Berger, 2008; Bowen, 2009; Grunig & Grunig, 2011; Grunig et al., 2009; Sung, 2008). Public relations practitioners who use social media for dialogic communication may be viewed as more technologically innovative, thereby increasing their value, power, and respect within their organization (Diga & Kelleher, 2009; Keeton & McCann, 2005; Porter & Sallot, 2005; Porter et al., 2007; Sallot, Cameron, & Shamp, 2001; Sallot et al., 2004; Smith & Place, 2013).

Moran and Gossieaux (2010) have theorized that Facebook offers a unique format for genuine symmetrical dialogic communication. In a study regarding who uses

Facebook in a crisis, Howell and Taylor (2011) found that 87% of respondents would use social media to communicate with friends and family, and 76% would use Facebook to share disaster information with others. Depending on the application, social media provides the ability to focus on specific publics with an instantaneous message (Avery et al., 2010), and provide an environment from which dialogic, symmetrical communication may be supported (Bortree & Seltzer, 2009).

Researchers have acknowledged social media as a major innovation impacting the practice of public relations (Flew & Smith, 2011; Macnamara, 2012), and a subject worthy of attention with respect to public relations (Breakenridge, 2008; Macnamara, 2012). However, whether public relations practitioners are using social media to implement two-way symmetrical, dialogic communication is uncertain. Macnamara (2012) reasoned that although excellence theory in public relations is theoretically aligned with social media, research indicates that the actual practice lags public relations theory. Similarly, Grunig (2009) explained that public relations practitioners may be using social media, but not all are necessarily using it to conduct two-way symmetrical communication. A study of university health centers' use of Facebook demonstrated that the application was not being used to its full dialogic potential (Waters, Canfield, Foster, & Hardy, 2011). Likewise, Nah and Saxton (2012) studied social media use and dialogic communication and found that membership-based nonprofits tended to not use social media as frequently as other types of nonprofits and used it rarely to engage in dialogue. Although social media can facilitate relationship building, a review of the literature and the results of a current study of public relations practitioners demonstrated that the dialogic potential of social media was not utilized to the extent possible (McAllister,

2012). However, research into the adoption and use of social media for two-way symmetrical communication by public relations practitioners continues to increase (Alikilic & Atabek, 2012; Grunig, 2009; Payne, 2008; Theunissen & Van Noord, 2012).

### **Evolution of Diffusion of Innovations**

The current diffusion of innovations theory began with Rogers' (1957) dissertation which expanded on adoption theory by proposing sociological concepts that were associated with the rate of adoption. Within five years Rogers published what was to become the foundational text in adoption theory in his first edition of Diffusion of Innovations (Rogers, 2003). The following section traces the origins of adoption and diffusion theories back to Tarde (1903), and its evolution up to Rogers' contemporary contributions to the body of knowledge.

Gabriel Tarde, a French lawyer and judge laid down some of the initial groundwork on diffusion of innovations theory that Ryan and Gross (1943) developed, and subsequently Rogers (1957, 2003) further refined over his own career. Tarde (1903) sought to answer why some innovations succeeded to diffuse while others failed. His objective was to understand why so many innovations failed to be adopted, and why the few that were adopted did so; he also observed that people of similar education and occupations tended to associate among themselves.

Homophily is the propensity for people to associate and communicate with others most similar to themselves (McPherson, Smith-Lovin, & Cook, 2001; Rogers, 2003). Understanding homophily is essential because it supports the diffusion of innovations laterally within a group, however it can impede diffusion to other dissimilar groups

(Rogers, 2003). Homophily is one possible explanation regarding why cultural diversity persists (Centola, González-Avella, Eguíluz, & San Miguel, 2007). Heterophily is the opposite of homophily, and according to Rogers (2003), heterophilous diffusion networks tend to involve followers and opinion leaders. As followers take their cues from opinion leaders, they break through the stove-pipe or silo of communications, furthering the diffusion of innovations across social groups.

Homophily also relates to compatibility, one of Rogers (2003) perceived attributes of innovations in that an innovation that is compatible with the values and norms of a group should be adopted faster. Another contribution Tarde made to the diffusion of innovations theory was to propose that “Logical causes operate whenever an individual prefers a given innovation to others because he thinks it is more useful” (Tarde 1903, p. 141). This proposition directly relates to Rogers (2003) concept of relative advantage, theorizing that innovations that are perceived as useful should be adopted more rapidly.

Ryan and Gross (1943) studied the diffusion of hybrid corn among Iowa farmers in two communities who grew corn before and after the introduction of the hybrid seed. One of the notable observations that Ryan and Gross witnessed, was that the farmers first used the hybrid seed corn on only a portion of their farm (Rogers, 2003). This relates directly to trialability, the innovation attribute that describes the extent to which an innovation may be experimented with to some degree, without a total commitment; an innovation that lends itself to experimentation will generally have a faster rate of adoption than one that requires a total commitment (Rogers, 2003). Another significant finding by Ryan and Gross was that there was a social element to the adoption of hybrid

corn; while salesmen were considered an important source of information, farmers were influenced far more by their neighbors' opinions rather than by a sales presentation. It bears mentioning here that the *like* feature in Facebook, the Web 2.0 version of a friend's opinion, is an area for possible future study concerning how social media itself may facilitate the diffusion of an innovation.

When the adoption rate of farmers in the study was plotted, Ryan and Gross (1943) realized the data charted an S-shaped curve as Tarde (1903) previously discovered in his studies. Another significant contribution to adoption theory by Ryan and Gross was the classification of the farmers into five types of adopters: innovators, early adopters, early majority, late majority and laggards. They also observed that farmers who tended to be innovators were more sophisticated, educated, and wealthier than late adopters (Ryan & Gross, 1943).

While Rogers spent a lifetime refining diffusion of innovations theory, other scholars made significant contributions as well. Abrahamson, Bartner, and Rosenkopf (1990) described *bandwagon pressures* as the theory that pressure to adopt an innovation develops as the number of adopters increases. Several years later, Abrahamson and Rosenkopf (1997) developed a theory of how bandwagon pressures may be affected by the structure of social networks. A related concept was what Schelling (1971) described as tipping, and what Gladwell (2006) popularized as the tipping point, and Rogers (2003) described as critical mass. Critical mass is the point at which there are a sufficient number of adopters of an innovation causing the rate of adoption to become self-supporting and fueling continued growth (Rogers, 2003). When the number of current adopters grows for an interactive innovation, such as a social media application, potential

adopters will perceive it as more valuable (Allen, 1988). In addition, existing adopters' perception of value may be influenced by the number of new adopters (Markus, 1987; Mahler & Rogers, 1999). Therefore, the assumption was that current users will find an interactive innovation more useful as more people adopt, and less useful if they perceive fewer people are adopting it.

The rapid diffusion of the Internet and social media have been both impacted by network externalities, a concept essential to understanding the theory of critical mass. Certain goods and services inherently become more valuable to an individual user as the total number of users increases; this characteristic is network externality (Mahler & Rogers, 1999). Additionally, a social networking site with a large market share will grow even larger due to network externalities (Belvaux, 2011).

Network effects have a significant impact on most Internet-based services, and communication technologies, and critical mass is an essential element due to its application to the expansion of these types of services (Arroyo-Barriguet, Ernst, Lopez-Sanchez, & Orero-Gimenez, 2009). An excellent example is the telephone; its usefulness grew as more people adopted the telephone (Mahler & Rogers, 1999; Rogers, 2003). However, network externalities also slow the initial adoption of an innovation until critical mass is reached, at which time adoption speeds up (Wiebe 1992, 1995 as cited in Rogers, 2003). Usually, an individual or organization must create an account profile on a social network, for example Facebook, in order to communicate with others members of Facebook. Social media applications like Facebook, Twitter, and LinkedIn are therefore affected by network externality; theoretically the more members these social media sites

have the more valuable they become to all members (Katona, Zubcsek, & Sarvary, 2011; Rose, 2011).

Rogers started out as a rural sociologist who became interested in diffusion through observing farmers in his hometown; he did not understand why these farmers would not adopt innovations that would be clearly advantageous to them (Rogers, 2003). His study of the diffusion of innovations theory eventually led him into the field of communications (Rogers, 2003). The diffusion of innovations theory is applicable to the study of public relations since the theory is about how new ideas as well as information are communicated; while generally considered a management function, public relations falls under the field communications in academic research. The diffusion process consists of four elements, “(1) an innovation which (2) is communicated through certain channels (3) over time (4) among the members of a social system” (Rogers, 2003, p. 11).

Communication channels are the means by which individual(s) who have knowledge of the innovation can share this information with another who does not yet know of, or has not adopted the innovation (Rogers, 2003). Innovations may be communicated through mass media, such as television or radio, or through interpersonal channels which tend to be more effective in persuading the adoption of an innovation (Rogers, 2003). However, for social media and other types of innovations, dialogic communication via the World Wide Web have increased diffusion exponentially.

The element of time impacts three parts of the adoption process: the innovation-decision process, innovativeness and adopter categories, and rate of adoption (Rogers, 2003). The innovation-decision process consists of five phases: knowledge, persuasion, decision, implementation and confirmation. Innovativeness and the adopter categories,

which are another key component of diffusion of innovations theory, are the next part concerning the element of time (Rogers, 2003). The five adopter categories intuitively map out the element of time from the innovators who adopt first, to early adopters, early majority, late majority and finally laggards – those who adopt an innovation last (Rogers, 2003). Using the bell-shaped adoption curve, innovators, early adopters, and early majority make up the first half of the curve, while the late majority and laggards make up the remaining half (Rogers, 2003). Innovators are adventurous and actively seek out new ideas, early adopters are less risk averse but are opinion leaders in their social system, the early majority describes those who are measured and more careful, the late majority tend to be skeptical and more sensitive to cost, and finally the laggards, the last to adopt are the most conservative with their resources and suspicious of change (Rogers, 2003). According to Agarwal, Ahuja, Carter, and Gans (1998), knowing the characteristics of early adopters can assist scholars in improving theoretical models to explain adoption behavior among the five adopter types.

The fourth element is the social system within which an innovation diffuses; it may be a village, professors at a university or all public relations practitioners in the United States as in the population under consideration in this study. Within the social system there is a social structure, communication structure, system norms, opinion leaders, and change agents, all exerting different influences on the diffusion of an innovation (Rogers, 2003). Among public relations practitioners there exists a social structure as well.

Within the subset of government public relations there is a very specific rank structure even among civilian employees. In the private sector the structure may appear

less rigid, but within the social system of public relations practitioners, professional accreditation, Associated Press style rules, and other regulations and policies serve to create structure. The Public Relations Society of America offers a credential, Accredited in Public Relations (APR) which was established in 1964 (“Accreditation”, n.d.). A similar organization, the National Association of Government Communicators offers education and networking opportunities (“Membership”, n.d.).

Within the military, both civilian and uniformed public affairs specialists attend the Public Affairs Qualification course conducted at the Defense Information School, at Fort Meade, MD. Public affairs is the term used for the practice of public relations in federal government as opposed to the private sector use of the term to denote government relations. The use of this label was influenced in part by the 1913 Gillett Amendment, which prohibits federal agencies from spending money on publicity unless explicitly authorized by Congress (Kosar, 2005). While methods and schools may vary, formally trained public relations practitioners can be said to share a common social structure.

Also within a social system are norms which are a code of conduct for the members, defining the acceptable behavior in the social system (Rogers, 2003). There may be norms based on religious beliefs, culture, or political ideology. In a professional setting, norms may also be influenced by the organizations’ policies. Norms can be a barrier to an adoption if the innovation is not perceived as compatible by the potential adopter (Rogers, 2003). In certain organizations such as the military, schools, or health care related institutions, privacy and security of information is guided by law and policy; therefore the use of social media applications may be perceived negatively as a potential risk to the unintended release of sensitive or restricted information.

One of the criticisms of diffusion of innovations theory is that it has focused on individual adoption and not enough research has been conducted explaining organizational adoption (Häggman, 2009). There is a gap in the research as to how innovations diffuse and spread within and across organizations (Lundblad, 2003). With respect to diffusion within an organization, Lundblad (2003) stated that it is influenced by organizational structure, leadership, and system openness rather than Rogers (2003) attributes of innovation. Innovation is key to organizational competitiveness and therefore survival, however many have yet to become proficient (Lindic, Baloh, Ribiere, & Desouza, 2010). Furthermore, Schumpeter and Wells (as cited in Smith, 2008) also noted, a lack of efficiency is not sustainable. Therefore, if an organization fails to adopt innovations that would increase efficiency, their competitive success and long term viability will be at risk. In recent years, researchers have used diffusion of innovations theory in conjunction with other theories to address perceived gaps in organizational adoption studies. Troshani and Doolin (2007) used stakeholder and social network theories in order to better analyze the roles of institutional stakeholders involved in the diffusion process.

Researchers have placed more significance on certain attributes over others in predicting adoption. In various studies, certain attributes have been revealed to be better predictors of adoption than others. Adoption studies often involve analyzing demographic information in addition to the five perceived attributes of diffusion theory in an effort to predict adoption (Laukkanen, Sinkkonen, Marke, & Laukkanen, 2007; MacVaugh & Schiavone, 2010).

From a sociological viewpoint, researchers have focused on the social system of potential adopters, (Slowikowski & Jarratt, 1997). Some scholars hypothesized that the relationship between people, (Häggman, 2009) and/or government and religion, (Al-Shohaib et al., 2009) are the main drivers of adoption or non-adoption. MacVaugh and Schiavone (2010) suggested that indigenous cultures must be considered when studying adoption.

### **Adoption Theories Based on Diffusion of Innovations**

Diffusion of innovations theory has been used to influence and shape other related adoption models and theories. Davis' (1989) Technology Adoption Model (TAM), and Venkatesh, Morris, Davis, and Davis (2003) Unified Theory of Acceptance and Use of Technology (UTAUT) have elements in common with Rogers' (2003) diffusion of innovations theory. These adoption theories are three of the more widely used theoretical frameworks for measuring computer and information technology adoption. This section covers these adoption models which are derivative to diffusion of innovations theory, and the Internet and social media adoption studies that use these closely-related adoption models.

Davis (1989) developed and validated new scales for the variables perceived usefulness and perceived ease of use in an effort to quantify acceptance of computer technology. In order to evaluate technology adoption better, instruments to quantify those constructs have been developed (Davis, 1989; Moore & Benbasat, 1991). UTAUT was created using the conceptual and empirical similarities of diffusion of innovations theory, TAM (Davis, 1989), plus six other theories (Venkatesh et al., 2003).

Benbasat and Barki (2007) explained how TAM has variously incorporated parts

of Rogers (2003) attributes as constructs. Davis (1989) used perceived usefulness and perceived ease of use which are parallels to Rogers' (2003) perceived relative advantage and perceived complexity. Moore and Benbasat (1991) recommended using all five of Rogers (2003) attributes. Because various researchers have added different constructs over time to try to improve TAM, Benbasat and Barki (2007) felt that this resulted in theoretical confusion as to which version of TAM is most useful.

Some scholars have proposed that diffusion of innovations theory alone was not a sufficient framework for their studies, while others have used other adoption theories exclusively. In a study of Internet banking, Gounaris and Kouritos (2008) used an extended innovation attributes framework and personal characteristics as variables in order to better predict Internet banking adoption. Lai, Chau, & Cui (2009), and Eid (2009) both suggested that using a combination of diffusion of innovation theory and TAM was considerably better for explaining the variance in Internet adoption than either theory alone. Hernandez and Mazzon (2007) created constructs from the diffusion of innovations theory, TAM, extended TAM and the decomposed theory of planned behavior to examine Internet banking adoption in Brazil. The authors concluded that this integrated model yielded superior results mainly because it analyzed not just intentions but actual adoption (Hernandez & Mazzon, 2007). However, they also conceded that in order to prove that this integrated approach was better than any single adoption theory it must be applied in a variety of studies apart from Internet banking (Hernandez & Mazzon, 2007).

Curtis et al. (2010), Alikilic and Atabek (2012), and Payne (2008) used UTAUT developed by Venkatesh et al. (2003) to study the adoption of social media among public

relations practitioners. UTAUT integrates features from eight different models of user acceptance, one of which is Rogers' Diffusion of Innovations (Venkatesh, et al., 2003). All three studies produced varied and somewhat inconclusive results which indicate that further research in the adoption and use of social media is warranted. Both Curtis et al. and Alikilic and Atabek found that women dominated the public relations profession in their respective studies. However, Curtis et al. found that women perceived social media to be advantageous while men were more confident of their social media skills, while Alikilic and Atabek, and Payne found no relationship between social media adoption and gender.

Chong, Keng-Boon, Lin, and Tan (2010) used perceived usefulness and perceived ease of use from TAM and extended the model by adding trust and government support in a study of Internet banking adoption in Vietnam. Trust and government support may be very important to certain populations; understanding how authenticity in online public relations communications can be achieved may in turn increase social media adoption (Gilpin, Palazzolo, and Brody, 2010). The role of trust has been an issue regarding social media; therefore such a construct could be beneficial in revealing its relationship in the adoption of social media (O'Brien and Torres, 2012).

Van Slyke, Ilie, Hao, and Stafford (2007) felt that the perception of critical mass was important to predicting the adoption of interactive communication technology and created a model combining the theory of reasoned action (Fishbein & Ajzen, 1975) and diffusion of innovation theory (Rogers, 2003). Achieving critical mass is necessary to sustain the ongoing use of an information communication technology (Van Slyke et al., 2007). Rogers (2003) explained that interactive communication technologies were

especially sensitive to critical mass since it has been almost always necessary for other individuals to adopt the new technology in order to communicate with each other. In order to communicate within Facebook the parties communicating must be members. Therefore, for Facebook to be successful and expand, it relies heavily on current members to invite their friends and relatives to join.

As Gounaris and Koritos (2008) noted Rogers' (2003) perceived relative advantage and complexity attributes are theoretically a reiteration of TAM's perceived usefulness and perceived ease of use. For studies of personal adoption, Gounaris and Koritos developed the *perceived characteristics of the innovation* which contained eight attributes, essentially splitting observability into visibility and image, and adding voluntariness to diffusion of innovations theory. Their hypothesis was that in personal adoption, voluntariness is an important attribute to measure since adoption in a work related setting tends to be strongly influenced by management.

In an effort to better understand how innovations are adopted, some researchers have examined multiple adoption theories in order to compare and contrast them. Straub (2009) compared diffusion of innovations theory, as well as the concerns-based adoption model (CBAM), TAM and UTAUT. Straub's interest was mainly in the adoption of technology in education, but he concluded in his paper that technology adoption is "a complex, inherently social developmental process" (p. 626). Curtis, et al., (2010) and Payne (2008) used UTAUT to measure the adoption of social media by public relations practitioners.

The strength of diffusion of innovations theory is its widespread applicability (Straub, 2009) yet this could also be considered a weakness which has resulted in

researchers trying to develop other models. The decision a researcher must make in selecting a theoretical framework for an adoption study is whether to use the diffusion of innovations theory, use alternate models such as TAM or UTAUT which share aspects of diffusion of innovations theory, or to create hybrid models by adding or subtracting constructs to any of the aforementioned. Validity is a concern when a researcher deviates from a well-tested and accepted theory. From this perspective, it appears more practical to use a proven theory, especially in dissertation research, and if necessary, add variables in order to examine other relationships rather than attempt to prove the validity of an entirely new theoretical framework.

### **Diffusion of innovations based adoption studies**

Diffusion of innovations theory has been seen as more effective in examining the adoption of new technologies by individuals (Bass, 1969; Mahajan, Muller, & Bass, 1990) than by organizations (Damanpour, 1991; Wolfe, 1994; Rogers, 2003). In this study public relations practitioners will be surveyed in order to identify innovation attributes and other factors that may predict their adoption of social media. Diffusion of innovations theory has been a very effective framework which has proven to be a useful theory for previous research and will continue to function as an important foundation for future research (Hornik, 2004; MacVaugh & Schiavone, 2010). The following studies used diffusion of innovations theory to study social media adoption and Internet adoption in a variety of organizations.

Avery, Lariscy, Amador, et al. (2010), Kelleher and Sweetser (2012), Kitchen and Panopoulous (2010), and Waters (2009) used Rogers' (2003) diffusion of innovations theory to analyze adoption of social media by public relations practitioners. Avery,

Lariscy, Amador, et al. examined the diffusion of social media among public relations practitioners working for health departments serving populations of different sizes and areas. Kitchen & Panopoulos examined the adoption of the Internet for public relations work by applying Rogers' diffusion of innovations theory in the context of demographic information in the Greek financial services industry. Waters studied the adoption of social media by nonprofits using Rogers' diffusion of innovations theory and demonstrated that innovators and early adopters were using social media.

Avery, Lariscy, Amador, et al. (2010), proposed that social media use would vary depending on the size of the area the department served with the assumption that metropolitan practitioners would use social media more than their rural counterparts. This study was the first demonstrating how the size of an organization and the audience it serves influences diffusion rates. And as the authors' hypothesized, community size was positively related to social media use.

Kitchen and Panopolous' (2010) study revealed that trialability was the strongest predictor of Internet adoption; the tangible application of this suggests that if an innovation is easy to try out, its adoption will be faster. Public relations experience was found to be negatively correlated to adoption of the Internet, which may indicate a resistance to change (Kitchen & Panopoulos, 2010). The authors believed that Internet training specific to public relations tasks could increase adoption by experienced public relations practitioners.

Kelleher and Sweetser (2012) indicated that the nature and degree of social media adoption by public relations practitioners remains uncertain. Therefore, the authors used diffusion of innovations theory as the theoretical framework in a qualitative study.

Kelleher and Sweetser observed that two groups emerged, believers and non-believers of social media. Believers found social media easy to use, and advantageous, therefore adoption was a simple choice; believers were classified as early adopters or early majority. Believers were also found to embrace the two-way symmetrical communication model, an underpinning of the excellence theory (Grunig, 1992; Grunig, 2009). Non-believers tended only to use social media to remain competitive with other organizations, not to specifically engage in two-way symmetrical communication. This would place them in the late majority, and might indicate that they were not practicing excellent public relations as put forth by Grunig (2009).

Diffusion of innovations theory was again used in a qualitative study. In Waters (2009) study public relations practitioners at nonprofits lagged in the adoption of social media. This study illustrated that although social media is essentially free and therefore *triable*, and *observable* it is not necessarily adopted faster by public relations departments with small budgets (Waters, 2009).

Hashim, Murphy, Purchase, and O'Connor (2010) used diffusion of innovations theory to analyze Internet adoption by hotels in Malaysia. Unique to this study were the application of multivariate statistical analysis and the use of time as a variable. The element of time allowed for the examination of early versus late adopters, which is one of the outcome variables in the study. Where in previous studies univariate analysis only linked large, high rated hotels positively with early Internet adoption, the addition of logistic regression and multiple regression demonstrated that it was not the hotel size that was significant but rather chain affiliation and star rating (Hashim et al., 2010).

Rutherford (2008) used the diffusion off innovations theory as the theoretical

framework in a qualitative study of social media adoption among public librarians. The most decisive factor in the successful adoption of social software was library staff acceptance. The learning curve (complexity) and human resource constraints also influenced adoption (Rutherford, 2008). Similarly Calvert and Neo (2012) found that lack of library staff resources negatively impacted adoption of Facebook while perceived compatibility with library culture and values positively affected adoption.

The Automated Teller Machine (ATM) has been in use for many years in many western societies; however it is a relatively new technology in developing nations. Igbinedion and Olatokun (2009) used diffusion of innovations theory as the framework for a study of ATM adoption in Nigeria. Because the researchers directly surveyed individuals regarding their perceptions about ATM use relative to their adoption, the diffusion of innovations theory fit well with the authors' objectives. Igbinedion and Olatokun (2009) hypothesized that by understanding what might inhibit ATM adoption, banks could use this information to eliminate barriers to ATM use and increase adoption.

In this study, the five perceived attributes of innovation, relative advantage, compatibility, complexity, trialability and observability were used as constructs in the study of ATM adoption. The 21-item questionnaire also included questions about demographic information. Items measuring the five perceived attributes used 5-point Likert scales. The results showed that observability had the most influence on adoption and trialability had the least amount of influence. The researchers suggested that since ATM's were very visible in public places, they were naturally observable (Igbinedion & Olatokun, 2009).

LaRose, Gregg, Strover, Straubhaar, and Carpenter (2007) also used diffusion of

innovations theory in combination with socio-cognitive theory to investigate the adoption of the Internet in rural America. This approach focused more on the role of the potential adopter than on the actual features of the innovation (LaRose et al., 2007). The researchers found that the attribute of relative advantage from diffusion of innovations theory and the socio-cognitive concept of expected outcomes were the most important predictors of broadband Internet adoption (LaRose et al., 2007).

Al-Shohaib et al. (2009) and Al-Shohaib et al. (2010) used diffusion of innovations theory as the theoretical framework for the study of Internet adoption among Saudi public relations practitioners. Diffusion of innovations theory was integral to the modified instrument used to collect the data used in both studies. Specifically, the modified instrument measured the five perceived attributes of innovations using questionnaire items adopted from similar studies that had been tested for validity and reliability (Moore & Benbasat, 1991; Premkumar & Roberts, 1999). Both studies examined the social systems public relations practitioners worked within and demonstrated that government public relations practitioners lagged behind their private industry counterparts in adoption of the Internet. Differences between government and corporate public relations practices have been evidenced in other studies (Liu, Horsely, & Levenshus, 2010). Trialability appears to be the most common predictor of Internet adoption in these previous studies (Al-Shohaib et al., 2009; Al-Shohaib et al., 2010; Kitchen & Panopolous, 2010). In addition, public relations practitioners who were younger, well-educated and reported higher earnings adopted the Internet more often (Al-Shohaib et al., 2009; Al-Shohaib et al., 2010).

The problem Al-Shohaib et al. (2009) addressed was determining what predicts

Internet adoption by public relations practitioners in Arab countries such as Saudi Arabia. Al-Shohaib et al. (2010) proposed that the perception of the Internet held by Saudi religious and political authorities negatively influenced Internet adoption. This was in contrast to studies in Western culture that showed market competition was positively related to Internet adoption (Al-Shohaib, et al., 2009; Grandon & Pearson, 2004; Xu, Zhu, & Gibbs, 2004). Furthermore, Golan and Stettner (2007) analyzed Internet adoption in 190 countries in a study that revealed a significant positive correlation between predominantly Christian nations and Internet adoption, and a significant negative correlation for predominantly Muslims nations and Internet adoption.

In a study of Saudi public relations practitioners, organizational structure which was uniquely influenced by the government and the Islamic religion was found to be a better predictor of Internet adoption when compared to demographics or innovation attributes (Al-Shohaib et al., 2009). The purpose of this study was to determine the influence of individual, organizational, and social perceptions on Internet adoption by Saudi public relations practitioners. The data collected from 354 Saudi public relations practitioners first surveyed by Al-Shohaib (2005) were used. The sample consisted of both public and private sector practitioners. Surveys went out to 500 public relations practitioners and 354 were returned and usable for a 71% response rate (Al-Shohaib, 2005). The authors found that only 46 per cent of Saudi public relations practitioners used the Internet for public relations-related tasks; however the data showed that only 59 per cent of employers offered Internet service (Al-Shohaib et al., 2009). Through data analysis, compatibility and complexity attributes were determined not to be significant factors in adoption, however relative advantage proved to be the strongest indicator of

Internet adoption (Al-Shohaib et al., 2009).

The authors contended that in Saudi Arabia managers have complete authority over their employees' adoption of new technologies (Al-Shohaib et al., 2009). The authors' downplayed the significance of relative advantage by stating that for the most part Saudi workers have guaranteed jobs and that there was essentially no motivation to learn new skills. They concluded that low adoption rates were related to organizational structure which was uniquely influenced by the government and the Islamic religion in Saudi Arabia (Al-Shohaib et al., 2009; Al-Shohaib et al., 2010). These studies highlight how religion and culture, which can be measured using the attribute of compatibility, have impacted the diffusion of the Internet in a professional setting.

Diffusion of innovations theory has been applied to many disciplines. Several researchers in the field of information technology have developed new methods to explain adoption and acceptance of computer related innovations (Davis, 1989; Moore & Benbasat, 1991; Venkatesh et al., 2003). It has been observed that the underlying motives for information communication technology adoption vary for different reasons (Howard, Anderson, Bush, & Nafus, 2009; Sweetser, Porter, Chung, & Kim, 2008). Politics and culture have tended to predict diffusion of information technology at the regional level and below, whereas at the global level, economic productivity has been positively correlated with diffusion (Howard et al., 2009). The adoption of blogs appeared to be slower because public relations practitioners did not view them as being as credible as other tools and source (Sweetser et al., 2008). Ilie, Green, and Hao (2005) studied another information communication technology, instant messaging, and were the first to investigate how gender impacted the adoption of an innovation.

## **Public Relations and Social Media**

The contemporary discipline of public relations in the United States began with Ivy Lee, Edward L. Bernays, and George Creel in the early 1900's (Podnar & Golob, 2009). It was the advent of muckraking journalism, which exposed both industrial and government corruption, that created the need for public relations (Broom & Sha, 2013). Companies, as well as politicians and government agencies needed to find effective methods to influence public opinion, and manage crises. In particular, Lee created the press release; having started his career as a journalist he recognized the need to keep the press informed (Broom & Sha, 2013). Creel pioneered public relations for the federal government during World War I, and subsequently Bernays was credited with publishing the first book about public relations (Broom & Sha, 2013).

In the federal government, public affairs is the term used for the practice of public relations, as opposed to the private sector use of the term to denote government relations. The use of this label was influenced in part by the 1913 Gillett Amendment, which prohibits federal agencies from spending money on publicity unless explicitly authorized by Congress (Kosar, 2005). Years later, Public Law 93-50, Section 305, enacted in 1973 explicitly forbid the use of appropriated funds for publicity or propaganda purposes (Broom & Sha, 2013). However, there are exceptions made for the public good, such as expenditures on military recruiting, or money spent communicating public health and social programs (Kosar, 2012). Also, advertisements promoting government programs may be funded by nonprofit advocacy groups; Organizing for Action has run paid advertisements supporting health care reform, among other issues (<http://www.barackobama.com/about/about-ofa/>).

The actual practice of public relations is often directed by how it is defined and by whom (Berger & Reber, 2006). Furthermore, current perceptions of public relations have been impacted by past practitioner performance and how leaders define and value this function (Berger & Reber 2006). There are multiple definitions of what the practice of public relations is and is not. Seitel (2011) described the practice of public relations as a planned process to sway the public's attitude, by ethical means, based on mutually acceptable two-way communication. Broom (2009) reviewed several lengthy definitions and distilled his definition to, "Public relations is the management function that establishes and maintains mutually beneficial relationships between an organization and the publics on whom its success or failure depends" (p. 6).

Unfortunately, public relations is often confused with marketing, and this may be because public relations practitioners may perform functions in promoting new products (Broom, 2009). Companies often use press releases to announce new products, with the expectation that this will generate favorable stories in trade and consumer publications. The American Marketing Association's most recent definition of marketing is that it is an activity or process for creating, communicating, delivering, and exchanging offerings that have value (Ferrell & Hartline, 2012). There is even a field called marketing public relations that is involved in integrated marketing communications (Harris, 1993). Integrated marketing communications combines advertising, direct response, sales promotion, and public relations for maximum communication effect (Belch & Belch, 2011). And more recently, marketing professionals are also being encouraged to use online tools such as blogs, podcasts, and online media to reach consumers directly (Scott, 2007).

Both public relations and marketing activities may utilize paid media placement, the essential difference being the message. Paid advertisements explaining BP's commitment to cleaning up an oil spill are public relations driven; advertising that BP's gasoline is good for car engines falls under marketing. Similarly, many companies may be using social media to market products, while others are using it to engage the public as a part of a public relations plan, or a combination of both. However, in the end both excellent public relations and marketing programs contribute to an organizations' profitability; or in the case of a nonprofit or public sector organization, increased contributions and funding respectively.

There is debate as to what constitutes social media and when social media originated, which largely depends on the researcher's definition. Some scholars have suggested that use of the telegraph in 1792 was the first instance of social media (Edosomwan et al., 2011). According to Boyd and Ellison (2007), SixDegrees.com, which launched in 1997, was the first recognizable social networking site, but may have been too far ahead of its time to succeed. However, for the purposes of this paper, social media includes social networking sites such as Facebook and Twitter, as well as blogs, and user-generated content sites like YouTube and other online communities (Li & Bernoff, 2008). These sites have pushed social media into the mainstream (Hampton, Goulet, Rainie, & Purcell, 2011; Solis, 2010). The following section is a brief review of the more popular social media sites, Facebook, Twitter, and YouTube, and why these sites are important for public relations practitioners.

Social media provides public relations practitioners the opportunity to engage in dialogic, or two-way symmetrical communication with the public, which is what makes it

a significant innovation in current public relations practice and research. As a result, social media is important for public relations practitioners because it allows almost anyone to be an online journalist voicing a positive or negative subjective opinion; particularly in a crisis, active publics must be engaged in order to mitigate disinformation and address the issue of concern (Mei, Bansal, & Pang, 2010).

Facebook is the current leading social media site, reporting over one billion active users as of June 2013 (<http://newsroom.fb.com/Key-Facts>). The basic structure of Facebook is that a unique user, internally identified by an email address, creates an online profile, which may include place of work, school, birthday, photographs, and video. Facebook will help new users find friends, if allowed access to their email address book. From there on, users may search for friends, post a status, create an organizational page and like other pages. Depending on the users' privacy setting friends and others can post comments on status comments, photographs, and more (Mital & Sarkar, 2011). Users may also post links to outside Web sites and news stories. Also, depending of privacy settings, users can read and see all of their friends' recent postings and activities (Mital & Sarkar, 2011). In addition, when others users comment on posts or other material on a profile, the user can receive a notification via email or Smartphone application. Facebook may be accessed through a personal computer or a Smartphone, which also allows instant upload of video or photographs.

The public relations draw of Facebook for many organizations is the ability to create a page, which is free of charge, and have users become a fan by *liking* it. This is where an organization must decide if they want to allow people to post comments or not. In order to practice symmetrical, two-way communication and organization should allow

posts. But, this includes accepting negative comments as well, and responding to them. In addition, some highly regulated industries must take care that posts do not jeopardize compliance with Federal laws. Pharmaceutical companies that use Facebook encounter the risk of increasing the number of adverse reporting events which then must be submitted to the FDA (Alkhateeb, Clauson, Khanfar, & Latif, 2008; Norman, 2011).

Twitter, another popular social networking site, was founded in 2006 (Lovejoy, Waters, Saxton, 2012; Ye, Fang, He, & Hsieh, 2012). It can be described as a micro-blog since it only allows a message length of 140 characters, called a tweet (Thompson, 2007). The reason behind the message size limit is so that tweets can be transmitted between mobile devices via Short Message Service (SMS) (Ye et al., 2012). Similar to Facebook, a Twitter user can follow other Twitter users in order to see what they are tweeting. Unlike the friend feature on Facebook, following on Twitter is one-way, like a subscription, but people can follow each other, as well as deny a request to be followed (Rybalko & Seltzer, 2010; Ye et al., 2012). Twitter can be used to let a follower know about a lengthier posting that is hosted on an organization's Web or Facebook page. Tools specific to Twitter are hashtags, public messages, and re-tweets (Lovejoy et al., 2012). Hashtags are represented by the pound sign (#), for example #sequestration means that the tweet pertains to that topic, which makes searching Twitter easier, and an organization usually recommends using a specific hashtag for those interested in the topic (Lovejoy, et al., 2012). Similarly, the use of the "@" symbol before a username will direct that tweet to that user. Re-tweeting is the reposting of a tweet and acknowledging the originator (Rybalko & Seltzer, 2010).

YouTube was founded in 2005 and purchased by Google in 2006, and is thus far

the most popular online video site (Edosomwan et al., 2011). YouTube hosts user generated video content as well as commercially created content. Content may be viewed without signing in as a member, however being a member has benefits such as creating a channel and also subscribing to other channels. YouTube also has a feature called Social which allows a user to connect their Twitter and Facebook accounts to YouTube (<http://www.youtube.com/feed/social>). With respect to public relations, a user can upload a video from a smartphone in a matter of seconds which has serious crisis response implications.

The power of social media cannot be ignored. In 2012, Susan G. Komen for the Cure privately told Planned Parenthood it would no longer give the organization money for mammograms and other preventative health procedures; however word soon got out and the backlash on social media was almost immediate, with 1.3 million tweets citing Planned Parenthood (Belluck, Preston, & Harris, 2012; Siegel, 2012). Yet, it took Komen 24 hours to respond (Sebastian, 2012; Wallis, 2012). A week later Komen attempted to reverse course by issuing an ambiguous statement and within days Karen Handel, vice-president stepped down and the impact of this one decision continued to have long-lasting effects (Sebastian, 2012). Funds from events such as the Race for the Cure have been reported to be down from previous years (Wallis, 2012). The public relations mistakes made by Komen were elementary - trying to keep a controversial decision out of the public eye, not knowing their audience, and not having a communication plan in place to respond to anticipated criticism. This is what can occur when fundamental public relations practices are ignored, compounded by the speed in which social media disseminates information.

Disgruntled customers are increasingly turning to social media to attack companies they feel have wronged them. After a musician discovered his guitar was broken by United Airlines he attempted to file a claim, but after several months was informed he was not eligible (Tripp & Gregoire, 2011). The unhappy musician created a video parodying United baggage handlers playing football with a guitar case, which had 150,000 views on YouTube the first day, and 5 million one month later, almost 13 million views by 2013, plus sharing this incident on social media is claimed to have reached 150 million people, and finally it became the subject of a book (Carroll, 2012).

These incidents resulted in financial losses to both organizations, yet companies continue to fall victim to negative commentary via social media, and not take steps to address this problem. In a recent study of Fortune 500 companies, 22% reported they did not have a social media plan, while most incorporated it into their marketing or business plan (Barnes et al., 2012). Tripp and Gregoire (2011) suggested that companies must act quickly to address complaints and issues, and in fact some hotel chains have begun proactively searching online for customer complaints in an attempt to address the issue before they check out. The contemporary public relations practitioners must be at least able to monitor social media for potential problems, and have a plan to address such issues.

### **Social Media Adoption Studies**

Among public relations researchers, there is general agreement that the managerial responsibility for social media implementation belongs to public relations and/or strategic communications departments (Avery, Lariscy, Amador, et al., 2010; Falls, 2008; Rose, 2008). In many organizations, the use of social media has been shared

between public relations and marketing resulting in an overlapping of the two fields (Avery, Lariscy, Amador, et al., 2010; Scott, 2007). Although professional/commercial use of social media is relatively new, there have been several studies examining public relations practitioners and the adoption of social media tools (Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Dow Jones & PRSA, 2007; Eyrich et al., 2008; Payne, 2008; Schwartzman, Smith, Spetner, & McDonald, 2009; Waters et al., 2009). A few studies have focused on public relations practitioners' adoption of social media in varying types of organizations (Avery, Lariscy, Amador, et al., 2010; Lariscy et al., 2010). However, none of these studies have compared social media adoption rates and early adoption in a national study.

Several previous studies have demonstrated that as a group, public relations practitioners tend to be laggards when it comes to adopting new technologies (Anderson, & Reagan, 1992; Avery, Lariscy, Amador, et al., 2010; Payne, 2008; Porter et al., 2005). In addition, past studies regarding Internet adoption also showed that public relations practitioners also lagged in this area as well compared to associates in a related field such as marketing (Hill & White, 2000; Kitchen & Panopolous, 2010; Sallot et al., 2004; Taylor & Perry, 2005). This is especially notable since other researchers have suggested that public relations practitioners who use social media applications perceived that this capability gave them more authority in their organization (Avery, Lariscy, Amador, et al., 2010; Diga & Kelleher, 2009; Porter et al., 2007; Porter & Sallot, 2005; Sallot et al., 2004). Avery, Lariscy, Amador, et al. (2010) noted that as of mid-2010, the potential benefits of adopting Facebook and Twitter, in particular, had not been studied.

Facebook began as a non-commercial venture by a college student, however, as

its popularity grew, it spread to other universities and eventually to the general public (Kaupins, 2011). Providing the ability for dialogic communication has turned Facebook into a useful application for public relations. Sweetser and Lariscy (2008) reviewed political candidates' implementation of Facebook during the 2006 midterm election; they suggested that Facebook has enormous dialogic communication capabilities. Public relations practitioners have utilized their own Web sites with chat, blogs or message boards for dialogic communications. However, Facebook and other social networking sites offer an online community experience that has become immensely popular in spite of trade-offs involving privacy and control (Drapeau & Wells, 2009; Godwin, Campbell, Levy, & Bounds, 2008; Kaupins & Park, 2011; Langhenreich & Karjoth, 2010; Weimann, 2010).

Social networking sites are web-based applications that enable both individual users and organizations to create profiles within a semi-closed system in order to share content, connect to others on the site, and view and search profiles through these connections (Boyd & Ellison, 2007; Lariscy et al., 2009). However, the aforementioned description is not all-inclusive. Within the different social media sites, various algorithms analyze user data to enhance not only the users' experience but also to optimize advertising and other revenue streams. According to Facebook, the private information users place on their profile is not shared with advertisers ("Data Use Policy," n.d.). Nevertheless, when Facebook advertisers choose the option of demographic targeting, users who match the selected characteristics will have specific advertisements displayed to them ("Facebook Ads," n.d.).

## Security, Privacy and Ethics

Particularly for the federal government, the adoption of social media has fueled an ongoing debate weighing operational security threats against the benefits of its use (Drapeau & Wells, 2009; Godwin et al., 2008; Weimann, 2010). Employee use of social media has raised concerns among labor attorneys, security experts, and ethics professionals (Kaupins & Park, 2011; Langhenreich & Karjoth, 2010). In the area of medicine, hospitals and other health care organizations must take care that patient information is not disclosed via social media. All organizations must weigh the benefits against the risks of allowing access to social media on their networks.

When Facebook was still relatively new, it introduced two features, news feed and mini feed; although these new features did not reveal more information about a user, the perceived loss of control by users resulted in mass criticism (Hoadley, Xu, Lee, & Rosson, 2010). Social networking sites are creating new privacy challenges not only for the people who use these sites, but also for the organizations they may be associated with, such as students at educational institutions, or employees of a corporation (Clark, 2010). The information users post and share on Facebook worries leaders in both private sector (Kaupins & Park, 2011; Wilkerson, 2011; Wyckoff, 2010) and public sector (Halchin, 2004; Weiman, 2010) organizations. The Facebook privacy page posts an explanation on how to control what information is returned by public search engines (“Data Use Policy,” n.d.). However, researchers have demonstrated that publicly available information on Facebook can be analyzed to predict sexual orientation (Jernigan & Mistree, 2009). This suggests that such algorithms could be utilized to draw inferences about any person whose information is publicly available on Facebook.

### **Bureaucratic constraints**

Perceptions that bureaucracies are inefficient because of vague agency goals and a lack of incentives to inspire bureaucrats into action persist (Haga, Richmond, & Leavitt, 2010; Heckman, Heinrich, & Smith, 2002). Public sector agencies in several different countries and disciplines have demonstrated slower rates of adoption compared to corresponding private sector organizations (Al-Shohaib et al., 2009, Knudsen, Ducharme, & Roman, 2006; Sood, Negash, Mbarika, Kifle, & Prakash, 2007). Scholars continue to develop theories to explain bureaucratic inefficiencies (Wise, 2006). Innovation in government is usually driven by policy makers, therefore it has been impossible to innovate using social media as quickly as the private sector (Mergel, 2012)

Wise (2006) hypothesized that most government agencies tend to adopt innovations at a lesser rate than the private sector because there is little incentive to innovate. Until the federal government finds a way to create a sustainable performance based management structure, functions such as public relations will most likely have a tendency to occupy the late majority and laggard segments regarding the adoption of innovations (Haga, et al., 2010; Heckman et al., 1994).

### **Governmental control and censorship**

Unlike private enterprise, the public sector is subject to bureaucratic constraints, in large part because it must uphold the public trust and be good stewards of tax payer dollars. Previous studies have demonstrated that there are differences between public and private sector public relations practices (Al-Shohaib et al., 2009; Al-Shohaib et al., 2010; Liu et al., 2010). The bureaucratic organizational culture found in government agencies has been known to impede innovation (Borins, 2001; Van Duivenboden & Thaens,

2008). The military has variously allowed and banned social media; finally in 2010 the Department of Defense allowed access to social media site via government networks (Montalbano, 2011). However, this decision came with a significant caveat; a local commander could still deny access to social media at his/her discretion. While such a directive may seem empower leaders, it can also block innovation and lead to inconsistent policies.

Government censorship of communication continues to be an issue (Bodle, 2010; Greengard, 2010; Martinsons, Ng, Wong, & Yuen, 2005; Søraker, 2008; Willmore, 2002). Since the 15<sup>th</sup> century success of the printing press, governments have sought to control of the dissemination of information (Willmore, 2002). Currently, it is the use of social media by dissidents, rebels, terrorists, or protestors that concerns government leaders. Throughout the revolts of the *Arab Spring*, which affected many countries in the Middle East in early 2011, Facebook was acknowledged as being a key factor in regime change by facilitating communication among protestors (Giglio, 2011; Gulbrandsen & Just, 2011). And although it did not result in an insurrection, the so-called *Twitter Revolution* was the consequence of social media facilitating the uproar following the 2009 Iranian presidential election (Bodle, 2010; Keller, 2010). In the United States, social media applications were found to be widely used by voters for information on the 2008 presidential election (Smith & Rainie, 2008) and also during the 2010 mid-term elections (Bodle, 2010; Smith, 2010). Some scholars have even suggested that social media may be instrumental in creating a direct style of democracy where everyone can participate (Giridharadas, 2009; Hickins, 2009).

The participative nature of social media and its sustainability based on public

interactions may create even more fear and distrust among some government officials, resulting in lower adoption rates. Social networking sites can be used to evade government censors, elevate public awareness, and foster democratic ideas therefore making it difficult for oppressive governments to suppress free speech (Bodle, 2010; Greengard, 2010). This free flow of information is particularly dangerous for dictatorships because their people are no longer as isolated (Robertson, 2011). Conversely, legitimate democratic governments fear that social media and the Internet are being used by terrorists and other enemies as a tool of both espionage and covert communication (Halchin, 2004; Weimann, 2010).

However, some federal agencies are using social media applications to build trust, especially during a crisis or emergency. Reynolds (2010) studied how the Center for Disease Control (CDC) used Facebook to communicate H1N1 flu virus information with the public in an interactive format; the results showed that according to the American Customer Satisfaction Index (ACSI) the CDC's quarterly score increased from 74 to 82 (out of a possible 100). Further research revealed that people using social media gave the CDC higher satisfaction ratings than people who did not (Reynolds, 2010). Most notably the Federal Emergency Management Agency has over 125,000 followers on Facebook (<http://www.facebook.com/FEMA>). NORAD and U.S. Northern Command have over one million followers on their joint Facebook page (<http://www.facebook.com/noradnorthcom>).

### **Health Insurance Portability and Accountability Act (HIPAA)**

Privacy and confidentiality have been the primary factors associated with the slow adoption of the Internet and electronic business applications in the health care field (Eng,

2002; Kellen & Van Kuiken, 2000). The passage of HIPAA has made ensuring patient privacy a primary concern for everyone involved in health care. Safeguarding patient information consists of implementing physical security procedures, but also must address electronic and Internet security. Consequently, HIPAA has most likely been an issue to some degree in the adoption of social media applications by public relations practitioners in the health care field. However, even individuals and organizations not involved directly in health care must take precautions to insure that an individual's private health information is not divulged via social media.

HIPAA's purpose was to provide people with greater access to health care insurance, protect patient privacy, support standardization and promote efficiency in the health care industry ("HIPAA 101", 2003). The 104th Congress enacted Public Law 104-191 which is known as the Health Insurance Portability and Accountability Act of 1996 ("HIPAA Law", 1996). The U.S. Department of Health and Human Services (HHS) was designated to establish national standards for electronic health care transactions and national identifiers for providers, health plans, and employers ("HIPAA Law, 1996"). Subsequently, HHS issued the HIPAA Privacy Rule and the HIPAA Security Rule ("Summary", n.d.).

Standards for Privacy of Individually Identifiable Health Information, commonly known as the Privacy Rule, were the basis for national standards to protect particular health information. The Security Standards for the Protection of Electronic Protected Health Information, known as the Security Rule, codified a national set of security standards for safeguarding specific health information that is saved or transmitted in an electronic format ("Summary", n.d.). In combination, both of these rules help ensure that

health care organizations implement safeguards to protect an individual's electronic protected health information (e-PHI).

HIPAA violations can occur via social media applications in a variety of ways. Hospital administrators' and their public relations' executives cannot avoid HIPAA violations by simply refusing to adopt social media or by blocking these applications on their internal networks. According to Manhattan Research, 81% of U.S. physicians own smartphones and 38% of U.S. consumers own smartphones. ("Mobile health trends", 2011; "Taking the pulse", 2011)

Smartphones may be used to access social media applications, as well as take photographs or record video. Therefore, while a hospital may ban photographic equipment from patient care areas, smartphones with camera capabilities open up the possibility that staff, visitors and/or patients may violate a patient's privacy at any time. Smartphones also present a security problem if hospital staff use these devices to store and/or transmit patient information. In order to protect e-PHI that is stored on a smart phone, Yale University's policy requires that the smartphone have password protection, the data be encrypted and it must limit the number of messages stored on the device ("Smartphones", n.d.).

In the past, cellular telephones have often been banned from hospitals because previous studies demonstrated that the radio frequencies could interfere with medical equipment (Tri, Hayes, Smith, & Severson, 2001; Tri, Severson, Firl, Hayes, & Abenstein, 2005; Tri, Severson, Hyberger, & Hayes, 2007) However, as cellular telephone technology has evolved, more recent studies have shown that normal use of mobile telephones do not interfere with medical equipment (Tri et al., 2007). As a result,

many hospital policies have changed in order to allow patients, visitors, and staff to use mobile telephones, smartphones, and other devices throughout a facility.

While innovations such as social media and smartphones may appear to facilitate potential HIPAA violations, policy development, management, and education may be the best methods to prevent people from committing HIPAA violations. Individuals must understand the requirements of HIPAA, and also the penalties associated with any violation of these rules. Wrongful disclosure of individually identifiable health information can result in a fine of up to \$250,000 and up to ten year of imprisonment (“Summary”, n.d.). Even part of the Hippocratic Oath sets a precedent regarding patient privacy, “whatever I see or hear in the lives of my patients, whether in connection with my professional practice or not, which ought not to be spoken of outside, I will keep secret, as considering all such things to be private” (Moskop, Marco, Larkin, Geiderman, & Derse, 2005; “Hippocratic oath”, n.d.). However, members of hospital staffs continue to be terminated because they have accessed patient information without authorization, even though they may not have broadcasted such information (Burkle & Cascino, 2011).

Health care organizations should consider drafting a comprehensive social media policy, whether or not social media is adopted by the organization (Clark, 2010; Langenreich & Karjoth 2010; Wyckoff, 2010). Within the organization a position designated to monitor social media and provide education and guidance could serve to ensure PHI (personal health information) or other sensitive information is not released via social media (Lyncheski, 2010). People have been fired over disparaging their employer or supervisor via social media (Clark, 2010; Pike, 2011). In Mississippi, a hospital worker was fired over a *tweet* on Twitter that divulged the PHI of the governor, who had

been a recent patient (Kaupins & Park, 2011; Wilkerson, 2011). Kaupins and Park (2011) have published a very detailed paper on best practices with respect to social media and employee relations; they suggested that corporate social networking policies should notify that employees are being monitored, and that existing laws and regulations should be applied to social media posts.

HIPAA violations surged by 32% in 2011, this included such violations as a physician posting information about a patient online, even though she did not include the patients identity (Savitz & Blau, 2012). What some health care professionals may not realize is that when enough pieces of information are put together, an otherwise anonymous patient can be identified by diagnosis, dates, place of care, and attending physician. Similarly in 2011, a nurse who posted patient information without naming the patient was fired (Savitz & Blau, 2012). Smartphones make it very easy to post photographs on social media sites, as in the case when a nurse posted a photograph of a patient x-ray (Freeman, 2009). Breaching patient confidentiality and exercising poor judgment when using social media can result in civil lawsuits, termination, disciplinary action by state licensing boards, and potential criminal investigations and sanctions (Hader & Brown, 2010). A hospital that can state that they have a social media policy in place, and records that show all employees have acknowledged that policy, will have the best defense against potential lawsuits resulting from an employee violating HIPAA via social media (Clark, 2010; Freeman, 2009; Hader & Brown, 2010).

### **Summary**

The purpose of this non-experimental, predictive, quantitative study was to identify innovation attributes and demographic variables that best predict social media

adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. Primary technology adoption research in the field of public relations has focused on the Internet (Al-Shohaib et al., 2009; Al-Shohaib et al., 2010; Kitchen & Panopolous, 2010). More recently, researchers have turned their attention towards social media adoption to include blogs (Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Eyrich et al., 2008; Dow Jones & PRSA, 2007; Payne, 2008; Schwartzman et al., 2009; Waters et al., 2009). Very few researchers have focused on specific social media applications such as Facebook and/or Twitter adoption (Avery, Lariscy, Amador, et al., 2010). Certain industries are highly regulated, such as hospitals and pharmaceutical manufacturers, which can impede the adoption of social media. The adoption of social media among public relations practitioners in the federal government, and in particular the military can be affected by policy and security concerns. Additional research is needed to examine organizational policies as well as individual perceptions of social media, which will ultimately affect adoption rates. Perceptions can change and the expectation is that the results of this research will not only add to the body of knowledge but also demonstrate that when put into practice responsibly there is much to gain from using social media applications in the field of public relations.

### Chapter 3: Research Method

The specific problem addressed in this study was that the factors that can be used to predict social media adoption and early adoption, among U.S. public relations practitioners, have been largely unknown because previous studies have been conducted in other countries, or only examined specific organization types, and none have examined both adoption and early adoption (Alikilic & Atabek, 2012; Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008). This may have hindered efforts to encourage early adoption of a technology that could increase an organization's effectiveness (Grunig & Grunig, 2009). By identifying the factors that predict social media adoption, a case can be made to improve the adoption rate of this innovation in order to increase the power, expertise, and influence of public relations practitioners resulting in an increase in an organization's effectiveness.

The purpose of this non-experimental, predictive, quantitative study was to identify innovation attributes and demographic variables that best predict social media adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. The predictor variables of this study were Rogers (2003) five attributes of innovation, relative advantage, compatibility, complexity, trialability, and observability, with the demographic variables consisting of age group, gender, education level, position type, and organization type (private sector, public sector, or nonprofit). The following studies used these variables, but not a combination of all at the same time, or in an examination of the adoption of social media among the general population of U.S. public relations practitioners. Rogers (2003) diffusion of innovations theory was used by Kelleher and Sweetser (2012), Al-Shohaib et al., (2010) and Avery, Lariscy, Amador, et al., (2010) to examine the adoption of social

media among public relations practitioners. Public relations researchers have also found that age (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010; Sallot et al., 2004), gender (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010; Kitchen & Panopoulos, 2010; Sallot et al., 2004), education level, position type, and organization type (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010), when used as predictor variables have offered significant insight in previous Internet and social media adoption studies. The dichotomous outcome variables were adoption of social media and early adoption. However, because only 13 respondents reported being non-adopters, only early adoption could be examined further. Using a slightly modified survey instrument the research method is quantitative with a predictive design. Logistic regression was the method used to test hypotheses 3 and 4 because of the multiple predictor variables and dichotomous outcome variable.

A priori power analysis for logistic regression was conducted using G\*Power (Faul et al., 2007). The power analysis for logistic regression indicated that 134 participants were required with a power of .80 and the standard alpha level of .05. The sample was derived from U.S. public relations practitioners using convenience sampling. The convenience sample was obtained three ways: (1) a list of public relations practitioners gathered through an Internet search, approximately 2000 email addresses, (2) an invitation to complete the survey online was posted to two public relations groups on LinkedIn, totaling approximately 175,118 members, (3) the invitation letter (Appendix A) was posted to the San Antonio Public Affairs League's closed Facebook group, which has 121 members. The San Antonio Public Affairs League is a group of military and government public relations professionals that meets monthly to share and exchange information relevant to the field.

In order to address the research problem, this chapter provides the design strategy for the research questions and hypotheses. The chapter starts with a review of the research questions and a discussion of the research method and design. Then, the selection of participants, procedures for conducting the study and data processing methods are presented. To conclude, this chapter presents the methodological assumptions, limitations, and delimitations, along with recommended ethical assurance measures to protect the participants in this research.

To identify the innovation attributes, and factors that predict the adoption of social media, the following research questions guided this non-experimental, predictive, quantitative study. Research questions 1 and 3 used Rogers' (2003) innovation attributes to predict the adoption of social media and the early adoption of social media. Research questions two and 4 used demographic characteristics to predict the adoption and the early adoption of social media. Hypotheses 1 and two are presented but could not be answered because only 13 respondents reported being non-adopters. Through a review of previous research on Internet adoption by public relations practitioners, as well as more current literature regarding social media adoption, the following research questions were developed:

**RQ1:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict social media adoption by public relations practitioners in the United States?

**RQ2:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict social media adoption

by public relations practitioners in the United States?

**RQ3:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

**RQ4:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

### **Hypotheses**

H1<sub>0</sub>: There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.

H1<sub>a</sub>: There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.

H2<sub>0</sub>: There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.

- H2<sub>a</sub>: There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.
- H3<sub>0</sub>: There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), by public relations practitioners in the United States.
- H3<sub>a</sub>: There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.
- H4<sub>0</sub>: There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.
- H4<sub>a</sub>: There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

### **Research Method and Design**

This cross-sectional quantitative research design was selected to investigate which variables best predict social media adoption and early adoption, which were the two dichotomous outcome variables. Data relevant to the research questions were collected

using a survey methodology intended to identify predictors of social media adoption among U.S. public relations practitioners. A self-administered online survey, that was field tested/expert reviewed, was used to collect respondent data.

This research methodology was chosen because it allowed the collection of data from a large number of desirable participants, and data was collected only once (Vogt, Gardner, & Haeffele, 2012). The dichotomous outcome variable permitted the use of logistic regression which may be used for prediction (Menard, 2009). Regression is an essential tool for prediction (Vogt, 2007). Therefore, logistic regression analyses was the method used to test hypotheses 3 and 4, because of the multiple predictor variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type) and the remaining dichotomous outcome variable, early adoption.

Surveys are one of the more common research methodologies used in public relations research (Stacks, 2010). Using questionnaires for quantitative research in this field of study is appropriate as the objective is to identify what attitudes, beliefs, and opinions U.S. public relations practitioners hold regarding social media (Black, 2005). The main disadvantage is that Web survey response rates may be lower compared to other modes of collecting data (Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008; Millar & Dillman, 2011; Nair & Adams, 2009). The major advantages of a Web survey are lower cost, speed, and electronic data collection (Dillman, Smith, & Christian, 2008). In an extremely Internet knowledgeable sample population with complete access to the Internet, Millar and Dillman (2011) found that Web response rates could be improved by offering a Web response first and later on a postal mail follow-up.

Descriptive statistics were computed for the demographic variables and to check for outliers in the data. The data were tested for normality. Mean and standard deviation were reported for normally distributed variables; otherwise, median and interquartile ranges (25th and 75th percentiles) were calculated. Simple descriptive tests were applied using appropriate parametric and non-parametric tests. The assumption of normality was not met, therefore a non-parametric correlation was applied to determine the correlational level between the predictor variables relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type, and the outcome variable, early adoption. Statistical models were fit using logistic regression because of the dichotomous outcome variable (Menard, 2009). Two separate logistic regression models were fit, one for innovation attributes and the other for demographic variables.

The strategy was to conduct an expert review of the instrument to assess the appropriateness of items on the questionnaire. Experts in the field were asked to review the questions and offer feedback regarding whether the items were suitable, if they would be understood participants, and if the survey could be completed in 15 minutes or less. Experts in the field included practitioners from the private and public sector. Rogers (2003) diffusion of innovations theory is covered in the examination preparation materials for accreditation in public relations, therefore it was anticipated that many respondents would familiar with the theory and would understand the items ([www.praccreditation.org](http://www.praccreditation.org)). The field test did not include people who met the criteria for inclusion in the study; expert reviewers were only asked to provide feedback on the instrument, not complete the instrument. The field test was conducted before IRB

approval, so that any necessary changes to the instrument could be included in the IRB application.

### **Participants**

The population in this study was public relations practitioners in the United States. Due to time constraints, financial considerations, and limited sources of email addresses for public relations practitioners, a non-probability sample was necessary. As of a May 2012 report, there were an estimated total population of 254,800 currently employed public relations managers and specialists in the United States (U.S. Bureau of Labor Statistics, 2012). This study used a convenience sample of U.S. public relations practitioners. The sample was obtained in three ways: (1) a list of public relations practitioners gathered through an Internet search, approximately 2000 email addresses, were sent the invitation letter (Appendix A), (2) the invitation letter to complete the survey online was posted to two public relations groups on LinkedIn, consisting of more than 175,118 members, (3) The invitation letter was posted to the San Antonio Public Affairs League's closed Facebook group, which has 121 members. The San Antonio Public Affairs League is a group of military and government public relations professionals that meets monthly to share and exchange information relevant to the field. Both the email invitation and LinkedIn posts included an invitation to participate in the study, and a link to the questionnaire's website in which the consent form was presented. Because convenience sampling was used, a question on the survey instrument asked the respondents whether or not they were a public relations professional working in the United States. If the respondent indicated that they were not a public relations professional in the U.S., the survey used a skip pattern to exit the survey, and thanked

them for their interest.

A quantitative study must have adequate power in order to determine the number of respondents required to make accurate conclusions (Houser, 2007). Logistic regression analyses were the method used to test all hypotheses because of the multiple predictor variables and the dichotomous outcome variable. A priori power analysis for logistic regression was conducted using G\*Power (Faul et al., 2007). Cohen (1988) recommended using alpha levels of at least .05 with power levels of .80. Houser (2007) explained that large effects can be detected in smaller sample sizes and conversely small effects can only be detected in larger sample sizes. Cohen (1988) defined  $f_s$  of 0.1 (small), 0.25 (medium), and 0.4 (large) effects. Since there have not been previous similar studies in the United States, the rule of thumb approach (Cohen, 1988) was used for selecting a medium effect size of 0.25. The power analysis for logistic regression indicated that 134 participants will be required with a power of .80 and the standard alpha level of .05.

### **Materials/Instrument**

The instrument was a slightly modified questionnaire of a previously validated self-administered survey that was used to examine Internet adoption among public relations practitioners in Saudi Arabia. The only changes in the items consisted of substituting social media for Internet, eliminating items specific to Saudi/Muslim culture, and eliminating items that would not be useful in a predictive study. Specifically, the modified instrument was adapted from Al-Shohaib's (2005) survey, who has given his permission to use his instrument. A copy of the email provided by Dr. Shohaib granting approval for the modification and use of his survey instrument is included in Appendix

D.

Al-Shohaib's (2005) instrument incorporated items from an instrument Moore and Benbasat (1991) developed to measure the perceptions of adopters of an information technology innovation using Rogers' (2003) five perceived attributes of innovations. With respect to these items, Moore and Benbasat conducted tests for convergent and discriminant validity of the scales which were then redefined; three discrete field tests were conducted next and the scales verified for satisfactory levels of reliability. Finally, factor analysis and discriminant analysis were conducted to further test validity (Moore & Benbasat, 1991). This instrument was selected because social media, similar to the Internet, is considered to be an information technology innovation.

The slightly modified instrument was initially developed to measure the adoption of the Internet; the author conducted a pilot study and used Cronbach's alpha for internal consistency data to determine the reliability of the instrument (Al-Shohaib, 2005). Cronbach's alpha is an internal consistency indication of reliability (Cozby, 2009). If a test has a large alpha, more than .70, it demonstrates that much of the variance in the instrument is due to general and group factors, with modest item specific variance (Cortina, 1993). Cronbach's alpha test was performed after data collection to independently determine its reliability with the sample in the study.

There are five demographic variables, age group, gender, education level, position type, and organization type. Public relations researchers have noted that age (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010; Sallot et al., 2004), gender (Alikilic & Atabek, 2012; Al-Shohaib et al., 2010; Kitchen & Panopoulos, 2010; Sallot et al., 2004), education level, position type, and organization type (Alikilic & Atabek, 2012; Al-Shohaib et al.,

2010), when used as predictor variables have offered significant insight in previous Internet and social media adoption studies. There were five possible age groups, and six levels of education to choose from on the survey instrument. Two choices for position type were presented, manager or individual contributor. Three choices for places of work were presented, private sector for-profit, public sector (includes local, state, federal, and military organizations), or nonprofit organization. Because convenience sampling was implemented, using descriptive statistics on demographic data also added to an understanding of the sample and its diversity. The demographic data were used in the logistic regression to determine which, if any, best predicts early adoption. Logistic regression analyses was the method used to test the remaining two hypotheses because of the multiple predictor variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type) and the dichotomous outcome variable early adoption.

### **Operational Definition of Variables**

This section is an outline of the operational definitions of the constructs. Each variable is described to include the type of scale and questions to be asked. The two dichotomous outcome variables are followed by the predictor variables. The first five predictor variables are Rogers' (2003) perceived attributes of innovation, followed by the five demographic predictor variables.

**Adoption of Social Media.** Public relations practitioners' adoption of social media was the first outcome variable investigated in the study. This construct was measured with a dichotomous (yes/no) question, "Are you using social media for public relations activities?" representing nominal data.

**Early Adoption.** Early adoption was the second outcome variable. This construct was measured by asking, “When did you start using social media for public relations activities?” A discrete ratio scale to measure number of years from over four to less than one was used. Respondents answering three years ago, or four or more years ago were classified as early adopters. As a result late adopters were those indicating they only started using social media in the last two years or less, or not at all.

**Relative advantage.** Relative advantage was a predictor variable. It is the extent that an innovation is perceived as better than the status quo. This construct was measured by asking if social media enables the respondent to accomplish tasks more quickly, whether using social media allows them to better communicate with the public, if social media is a useful application for public relations tasks, and whether social media provides fast access to information. Each of these questions used a five-point Likert-type ordinal scale ranging from strongly agree to strongly disagree to evaluate the perception of relative advantage.

**Compatibility.** Compatibility was a predictor variable. It is the degree to which an innovation is perceived as being consistent with the current values, previous experience, and the requirements of potential adopters (Rogers, 2003). To measure this construct, respondents were asked if using social media is compatible with all aspects of their work, and if social media provides the information they need. Each of these questions used a five-point Likert-type ordinal scales ranging from strongly agree to strongly disagree to evaluate the perception of compatibility.

**Complexity.** Complexity was a predictor variable. It is the extent that an innovation is perceived as difficult to comprehend and/or implement. To measure this

construct, respondents were asked if learning to use social media applications was easy and if they thought social media applications were easy to access at work. Each of these questions used a five-point Likert-type ordinal scales ranging from strongly agree to strongly disagree to evaluate the perception of complexity.

**Observability.** Observability was a predictor variable. It is the degree that the consequences of an innovation are noticeable to other individuals. To measure this construct, respondents were asked about their ability to tell others about results of using social media, communicate the consequences of using social media, if the results of using social media are apparent to them, and whether social media applications are available on many computers in their organization. Each of these questions used a five-point Likert-type ordinal scales ranging from strongly agree to strongly disagree to evaluate the perception of observability.

**Trialability.** Trialability was a predictor variable. It measures how easy it is to test an innovation while considering the adoption of it. To measure this construct, respondents were asked if they have had a great deal of opportunity to try various social media applications, whether social media access was available in order to test, and were they able to properly try it out before deciding whether or not to use a social media application. Each of these questions used a five-point Likert-type ordinal scales ranging from strongly agree to strongly disagree to evaluate the perception of trialability.

**Age Group.** Age group was a predictor variable. To measure this construct, respondents were asked to select one of five possible age groups, representing ordinal data. The age groups use ten-year increments through age 58. Respondents could select either 18-28, 29-38, 39-48, 49-58, or 59 or older.

**Gender.** Gender was a predictor variable. To measure this construct, respondents were asked if they are female or male, representing nominal data.

**Education Level.** Education level was a predictor variable. To measure this construct, respondents were asked to select one of six possible answers representing ordinal data. Respondents could select either less than high school, high school graduate, some college-no degree, associate's degree, bachelor's degree, master's degree, or doctoral degree.

**Position Type.** Position type was a predictor variable. To measure this construct, respondents were asked to select one of two choices for position type representing nominal data. Respondents could select either manager or individual contributor.

**Organization Type.** Organization type was a predictor variable. To measure this construct, respondents were asked to select one of three choices for place of work representing nominal data. Respondents would select either private sector for-profit, public sector (includes local, state, federal, and military organizations), or nonprofit organization.

Only 13 respondents reported not using social media, therefore a logistic regression using adoption as an outcome variable was not conducted. Logistic regression analyses was the method used to test hypotheses 3 and 4 because of the multiple predictor variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type) and the dichotomous outcome variable, early adoption. Descriptive statistics were computed for the demographic variables and test for normality in order to decide which parametric or non-parametric test will be used. Correlation was used to examine the relationship between

variables and select the variables to be used in the logistic regression.

### **Data Collection, Processing, and Analysis**

The slightly modified survey instrument that was used to collect the quantitative data for the study was based on the diffusion of innovations theory and can be found in Appendix C following the informed consent form in Appendix B. Rogers (2003) diffusion of innovations theory is covered in the examination preparation materials for accreditation in public relations, therefore it was anticipated that many respondents would not find difficulty with the items, and may even be familiar with them (www.praccreditation.org). However, an expert review of the instrument was conducted to assess the appropriateness of items on the questionnaire. Experts in the field were asked to review the questions and offer feedback regarding whether the items are suitable, and if they will be understood participants. After the comments from the field test were evaluated, minor changes to the instrument were made. Once IRB approval was received, a link to the online survey instrument hosted on Survey Monkey was sent to the email list generated through the various Internet searches, and posted to two groups on LinkedIn, Public Relations and Communications Professionals which has 138,071 members, and Public Relations and Communications Jobs Community which has 37,077 members, and posted to the San Antonio Public Affairs League closed Facebook group. After clicking on the link, the prospective participants were presented first with the informed consent form (Appendix B); if they respond “no” to the consent form the survey ended and thanked them for their interest. If they answered “yes” to consent, the survey began. Participants were asked whether they are public relations professional in the United States in order to confirm that they met the study criteria, and if they did not the

survey ended and thanked them for their time.

Using the Internet to conduct survey research provided a degree of anonymity, easy access to participants, automated data collection, low preparation costs, and time saving (Wright, 2005). While economy and speed are the main advantages of an online survey, a major disadvantage is response rate as compared to postal mail (Manfreda et al., 2008; Millar & Dillman, 2011; Nair & Adams, 2009). In an extremely Internet knowledgeable sample population with complete access to the Internet, Millar and Dillman (2011) found that Web response rates could be improved by offering a Web response first and later on a postal mail follow-up; they also noted that sending a nominal cash incentive in advance also improved Web response rates. A comparable study by Messer and Dillman (2011) comprising of the general public also resulted in similar findings; however, a postal mail only design continually obtained higher response rates. Manfreda et al. (2008) also noted that repeat email reminders are less effective for improving Web response than repeat postal mail reminders are for improving mail response.

While it would have been advantageous to conduct a postal mail follow-up, obtaining addresses would have been difficult; if addresses could have been obtained, the time, labor, and additional cost associated with postal mail would have been prohibitive for this study. A major obstacle when conducting quantitative research in public relations is accessing a representative sample (Hazleton & Sha, 2012). Although this study used a convenience sample, the Current Population Survey (CPS) includes age and sex of both public relations managers and specialists which was used for comparison purposes (Hazleton & Sha, 2012). After approximately two weeks, the number of responses did not

meet the power requirement for this study, therefore a reminder was sent out to the email list, and the invitation was reposted to the LinkedIn groups. Also, additional email addresses were collected each week in order to send additional invitation letters. After three weeks a sufficient response was still not obtained, therefore a snowball sampling strategy was employed by asking known public relations practitioners to forward via email a link to the online instrument to public relations practitioners they knew personally (Black, 2005). As of December 9, 2013, only 83 surveys had been completed, therefore a request to extend data collection through December 23, 2013 was granted by the IRB. Additional email invitations were sent out, and over 2000 individuals were invited to fill out the survey instrument. Data collection ended on December 23, 2014.

Once the survey closed, the data was downloaded from Survey Monkey. The downloaded data was stored on a portable password-protected encrypted hard drive, and destroyed when no longer required. Out of 204 cases a total of 18 cases were deleted because three or more questions were not answered, leaving 186 usable surveys. Since this was a relatively brief survey of 23 items, cases were removed if missing three or more responses. SPSS version 22 statistics software was used to analyze the data using descriptive and inferential statistics.

Descriptive statistics were computed for the demographic variables to gain a better understanding of the sample and to check for outliers in the data. Parametric statistical procedures such as mean, frequency, and standard deviation were calculated to describe the demographic data collected, and compare the representativeness of this convenience sample with the CPS which includes age and sex of both public relations managers and specialists. Results are summarized in tables, as well as depicted

graphically.

A total of 15 Likert-type scales were used to assess the five perceived attributes (Rogers, 2003) of social media. To measure each construct a composite score of an index of the items were used. The reliability of each construct was evaluated using Cronbach's alpha measurements.

Logistic regression was the method used to test hypotheses 3 and 4 because of the multiple predictor variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type, and organization type) and the dichotomous outcome variable, early adoption. Descriptive statistics were computed for the demographic variables and to test for normality.

The five perceived attributes of innovation provided by Rogers (2003) were used as predictor variables. The bases of these attributes are the constructs of the diffusion of innovations theory - relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Five-Point Likert-type ordinal scales ranging from strongly agree to strongly disagree were used to evaluate the five perceived attributes of innovation as they apply to adoption of social media and early adoption. The 15 items that were used to measure the perceived attributes are from previous studies that were tested for validity and reliability (Al-Lehaibi, 2001; Al-Shohaib, 2005; Moore & Benbasat, 1991; Premkumar & Roberts, 1999; Sharif, 2003). To measure each construct, a composite score of an index of items was used. Logistic regression was used to determine which attribute(s) best predict social media adoption. Logistic regression was necessary due to the dichotomous outcome variable.

In order to answer research questions 3 and 4, two logistic regressions were performed using SPSS version 22. The outcome variable was early adoption. A separate logistic regression model was fit for the five innovation attributes and the five demographic variables. Early adoption was entered separately as an outcome variable, with the innovations attributes as predictor variables, relative advantage, compatibility, complexity, trialability, and observability entered as covariates. The second logistic regression was performed with early adoption as the outcome variable and the demographic variables age, gender, education level, position type, and organization entered as covariates. In each analysis the method selected was *Enter*, this option enters the covariates into the logistic regression. Under options, *CI for exp(B) 95%* was checked, this provided confidence intervals for the odds ratio of each predictor variable's influence to the equation (Leech, Barrett, & Morgan, 2005).

### **Methodological Assumptions, Limitations, and Delimitations**

Several assumptions were considered for this study. One assumption that impacts the entire study was that all study participants would understand the privacy and data confidentiality assurances stated in the consent form. Assurances of privacy and anonymity can increase the integrity of the participants' responses (Vogt, 2007). Therefore, an assumption was made that respondents did not misrepresent themselves, and were in fact public relations practitioners located in the United States, who answered all the questions in the survey instrument honestly. Another important assumption made was that the constructs assessed would be adequately measured by the survey items. Response to Internet surveys can be lower than for mail surveys; however an assumption was made that the study would have enough respondents to meet the power requirement.

With respect to logistic regression, an assumption was made that there would be a linear relationship between any continuous predictors and the logit of the outcome variable, and also that the observations were independent (Field, 2013). Another assumption was that the data input into SPSS would result in a correct answer; however, an incorrect answer could occur due to incomplete information or complete separation (Field, 2013).

Complete separation can occur when too many variables are fitted to too few cases (Field, 2013). An important assumption was that nearly all, if not all public relations practitioners in the United States were using a computer at work. The last assumption made was that although a random sample was not possible, the findings would still be relevant and significant, and useful for future research in this field.

The first limitation in this study was the use of Likert-type scales in the survey instrument. One reason was that the intervals between the points cannot be assumed to be equally spaced. While a Likert-type scale measures whether respondents are more or less in agreement with a statement, it was not possible to determine how much more or less they were in agreement (Kothari, 2009). The second issue with Likert-type scales was that attitudes are transient and measuring perception can be illusive (Black, 2005). Third, logistic regression may be used for prediction, but not for causation (Black, 2005). Therefore, certain factors such as education and age may be found to be strong predictors of social media adoption, but it cannot be stated that they caused social media adoption. Another limitation was that when using an online self-report survey instrument, participants may not provide truthful answers, resulting in measurement error (Dillman et al., 2008). However, the assurance of confidentiality in the consent form should have limited this possibility. Although it was assumed that computer use was ubiquitous in the

target population, coverage error was a possible, although unlikely limitation; if some public relations practitioners did not have access to a computer, they would not know about the survey or be able to respond, and most likely they would fall into the category of non-adopters of social media. A more likely limitation with respect to coverage error would be public relations practitioners who use computers, but who do not often use the Internet, or email, making it less likely that they would be able to respond to an invitation to complete the survey. A snowball sampling strategy was employed by asking known public relations practitioners to forward via email a link to the online instrument to public relations practitioners they know personally. This tactic can be useful in reaching potential respondents who would not otherwise have knowledge of the survey, such as those who use the Internet rarely. The last limitation of this study involved a threat to external validity because a convenience sample was used and the results may not be generalizable.

The study was delimited in the following ways. The main delimitation in this study was that it was limited to a convenience sample of public relations practitioners whose email addresses were found on the Internet or who were members of Public Relations and Communications Professionals group, or the Public Relations and Communications Jobs Community, both on LinkedIn, or the San Antonio Public Affairs League. The Current Population Survey (CPS) includes age and sex of both public relations managers and specialists which can be used for comparison purposes with the convenience sample to gauge its representativeness to the population (Hazleton & Sha, 2012). Another delimitation was that the study was intended to identify predictors of individual adoption of social media, versus organizational adoption. However,

organizations consist of individuals, and diffusion of innovations theory has been found to be better suited for examining individual adoption (Rogers, 2003). Another delimiting criterion was that the study concerned the adoption of social media, and did not examine whether social media was being used for dialogic, two-way symmetrical communication with active publics. Grunig (2009) has suggested that while some public relations practitioners may be adopting new technologies such as social media, they may not be using it for two-way symmetrical communication. Therefore, adoption of social media without using it to engage the public in dialogue may not increase the effectiveness or stature of public relations practitioners, nor result in building an excellent public relations program. But this is an area suggested for future study that may require more in-depth detailed analysis focusing on content analysis of social media sites and examination of the two-way symmetrical communication that is or is not occurring on these sites.

### **Ethical Assurances**

Because of past abuses of human subjects, ethical issues must be addressed regardless of how low-risk or anonymous a study involving people may appear. Ethical issues in human research are concerned with protection from harm, informed consent, right to privacy, and honesty with professional colleagues (Leedy & Ormrod, 2010). Northcentral University doctoral students are required to complete ethics training provided by the Collaborative Institutional Training Initiative ([www.citiprogram.org](http://www.citiprogram.org)). No data collection was conducted until approval was received from Northcentral University's Institutional Review Board (IRB).

Participants were provided with a consent form explaining that their responses would be used for research purposes only and assurance that their identities would remain

confidential. Financial compensation was not used to incentivize subjects to complete this survey. The survey instrument did not collect the names of individuals or organizations. The data was stored in a password protected spreadsheet, which was stored on a portable password-protected encrypted hard drive, and destroyed when no longer required. The computer used to conduct the statistical analysis is password protected and only used by the researcher.

### **Summary**

Rogers (2003) diffusion of innovations theory and Grunig's (1992) excellence theory of public relations were used as the theoretical framework for this study. A self-administered survey instrument and quantitative methodology were used to gather data and analyze results. The purpose of this study was to discover which of Rogers (2003) attributes, as well as select demographic variables best predict adoption of social media and early adoption versus late adoption, in public relations practitioners in the United States.

The findings of this research may be used to assist public relations practitioners in elevating their effectiveness, performance, and stature at their organizations, as well as increase their social media awareness and adoption. The body of knowledge in this area continues to expand. Data gathered in this study may be further analyzed to stimulate additional research in the adoption of new communication technologies.

## Chapter 4: Findings

The purpose of this non-experimental quantitative study was to identify innovation attributes and demographic variables that best predict social media adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. The sample was derived from public relations practitioners in the United States using convenience sampling. An invitation to complete a self-administered online survey was posted on two LinkedIn public relations groups; one small local public relations group, and emailed to over 2000 public relations practitioners whose names and email addresses were obtained from various publicly available websites. The instrument used was a slightly modified questionnaire of a previously validated self-administered survey that was used to examine Internet adoption among public relations practitioners.

At the beginning of the study there were two dichotomous outcome variables, adoption and early adoption. Due to the extremely small number of respondents reporting non-adoption of social media, nothing significant can be concluded regarding the predictors of adoption versus non-adoption. However, the 13 respondents who reported not using social media were evaluated as part of the late adopter group. The predictor variables were Rogers (2003) five innovation attributes - relative advantage, compatibility, complexity, observability, trialability, plus five demographic variables - age group, gender, education level, position type, and organization type. Categorical predictor variables were dummy coded. Regression is an essential tool for prediction (Vogt, 2007). Therefore, logistic regression was the method used to test the two hypotheses because of the multiple predictor variables (relative advantage, compatibility, complexity, observability, trialability, age group, gender, education level, position type,

and organization type) and the dichotomous outcome variable. All four research questions and hypotheses are listed below. However, because there were only 13 cases of non-adoption, only a crosstabulation was reported with respect to research questions 1 and 2; descriptive statistics, bivariate correlation, and the results of a binary logistic regression are reported for research questions 3 and 4:

**RQ1:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict social media adoption by public relations practitioners in the United States?

**H1<sub>0</sub>:** There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.

**H1<sub>a</sub>:** There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.

**RQ2:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict social media adoption by public relations practitioners in the United States?

**H2<sub>0</sub>:** There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.

**H2<sub>a</sub>:** There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.

**RQ3:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

**H3<sub>0</sub>:** There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), by public relations practitioners in the United States.

**H3<sub>a</sub>:** There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

**RQ4:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

**H4<sub>0</sub>:** There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

**H4<sub>a</sub>:** There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

A field test of the survey instrument was conducted with three public relations practitioners who did not participate in the final study. One was a self-employed private sector public relations specialist and the other two individuals worked in the public sector. The purpose of the field test was to determine (a) if the survey could be completed in no more than 15 minutes, (b) if the survey instructions and questions were readily understandable by the respondents, and (c) to identify any misspellings, omissions or other transcription errors that may have occurred when inputting the items into Survey Monkey. No data were collected during the field test.

The results of the survey, as well as details of the analysis methods, are included in this chapter. An overview is followed by a discussion of the characteristics of the participants. Descriptive statistics are presented followed by bivariate correlations, and finally binary logistic regression. Research questions and hypotheses are addressed separately and a summary of the study results is included. The results from these analyses are presented and discussed in the remainder of this chapter.

## **Results**

The survey instrument used in this study was a slightly modified instrument that was previously used for Internet adoption among public relations practitioners in Saudi Arabia. Specifically, the modified instrument measured the five perceived attributes of innovation using items adapted from similar studies that had been tested for validity and

reliability (Al-Shohaib, 2005; Moore & Benbasat, 1991). To address issues concerning validity and reliability in previous scales measuring perceived attributes of innovations, Moore and Benbasat (1991) conducted a meta-analysis of these scales. By examining previous items for validity and reliability and by adding newly developed items, Moore and Benbasat developed a better and more valid and reliable scale. According to Rogers (2003), this new scale was appropriate to research a wide variety of innovations; Rogers called it a significant methodological contribution to future research.

Although the survey used for this study was validated in the previous studies mentioned above, questions were modified replacing Internet/computer with the term social media, and questions regarding religion and English language skills were removed in order to make the survey more suitable for the intended audience. Therefore, in order to determine the construct reliability for the innovation attribute scales, Cronbach's alpha was computed based on the groups of questions that were used to measure each construct, and are presented in Table 1. Cronbach's alpha values were greater than .60 for all constructs except complexity which was close at .56. In the case of the observability score of .69, deleting item 15 would improve Cronbach's alpha to .77 for observability. Therefore it was removed, and the index recalculated before proceeding with further statistical tests. According to Hair et al. (2010), Cronbach's alpha is the most commonly used measure, and the established lower limit for it is .70 with a possible decrease to .60 with exploratory research. Although the research instrument was used several times in the past, this study appears to be the first time it was used in the United States. Therefore, this may be construed as exploratory. Morgan, Leech, Gloeckner and Barrett (2013), stated also that alpha should be above .70; however it is common to see studies with

alphas in the .60-.69 range if there are a small number of items in the scale. This would be a possible reason for the low Cronbach's alpha for compatibility and complexity.

Table 1.

*Cronbach's Alpha*

Innovation Attribute	Number of Items	Cronbach's Alpha
Relative Advantage	4	.78
Compatibility	2	.62
Complexity	2	.56
Observability	4	.69
Trialability	3	.82

The corrected item-total correlation was also above .40 except for the two items for complexity which were both .392, and for one of the four items for observability which was .311. Morgan et al. (2013) stated that a corrected item-total correlation above .40 suggests that the item is expected to reasonably correlate with the other items and was a good element of the summated rating scale. However, Field (2013) argued that the corrected item-total correlation was acceptable above the .30 level.

Complexity was the weakest construct in terms of reliability, with a Cronbach's alpha of .556 and a corrected item-total correlation of .392. Low Cronbach's alpha means that the respondents did not answer this set of items consistently. The construct for complexity originally contained three items; however, one of the items was removed because it pertained to fluency in the English language. In order to practice public relations in the United States, a high level on English language proficiency was assumed,

making that question irrelevant. Reliability may have been improved by developing an additional question for this construct.

Descriptive statistical analysis was conducted to describe and summarize the data and the characteristics of the convenience sample (Vogt, 2007). For the 15 Likert-type items used to measure Rogers (2003) five innovation attributes a composite score of an index of items was computed to measure those constructs. There has been some debate on how to treat Likert-type data and scales. As an initial analysis parametric procedures may be used, and sets of Likert-type items can be combined to form indexes, but it is recommended to treat Likert-type scalar data as ordinal (Allen & Seaman, 2007). Spearman's rank-order correlation was used because the variable relative advantage was not normally distributed and because ordinal data were being used (Field, 2013). Binary logistic regression was used to answer research questions 3 and 4.

**Characteristics of participants.** The convenience sample was obtained three ways: (1) a list of public relations practitioners names and email addresses gathered through an Internet search, totaling approximately 2000 email addresses to which the invitation letter (Appendix A) was sent, (2) the invitation letter to complete the survey online was posted to two public relations groups on LinkedIn, totaling approximately 175,118 members, (3) the same invitation letter was posted to the San Antonio Public Affairs League's closed Facebook group, which had 121 members.

Out of 204 cases a total of 18 cases were deleted because three or more questions were not answered, leaving 186. Since this was a relatively brief survey of 23 items, cases were removed if missing three or more responses. Nineteen cases which were only missing one or two items were retained along with the remaining completed surveys. For

Likert-type items the average for a particular construct was used if an individual item was missing a response. The power requirement of 134 for logistic regression was met. The variables for adoption, early adoption, gender, position, and organization were dummy-coded in order to be suitable for correlations.

As seen in Table 2, only 13 out of 186 respondents, or just less than seven percent, reported not using social media for public relations tasks. With such a small number of respondents reporting being non-adopters, nothing meaningful can be inferred about the characteristics of this group compared to the adopters, rendering research questions 1 and 2 moot. However, an implied assumption was that non-adopters may eventually adopt, those 13 cases were considered part of the late adopter group in order to analyze early versus late adoption (Brown & Venkatesh, 2003).

Table 2.

*Crosstabulation of Gender and Adoption*

Gender	Are you using social media for public relations activities?	
	Yes	No
Female	111	12
Male	58	1

The outcome variable early adoption consisted of respondents who reported adopting social media three or more years ago with late adoption consisting of those who reported adopting social media two or less years ago or not at all thus far. One hundred and twelve respondents were classified as early adopters, while 74 were classified as late adopters. Deciding how to categorize early and late adopters was based upon the

incremental popularity of social networking sites. By 2011, two-thirds of U.S. adult Internet users were using social media platforms such as Facebook, Twitter, MySpace, or LinkedIn (Smith, 2011).

Demographic data are reported in Table 3. Public sector included federal, military, state and local government agencies. Four respondents did not indicate their gender, while three respondents did not answer the question regarding education level. An individual contributor refers to a public relations specialist versus a manager.

Table 3.

*Respondent Demographics*

Demographic	Frequency	Percentage
<b>Age Group</b>		
18-28	16	8.6
29-38	48	26.3
39-48	51	27.4
49-58	49	26.3
59+	21	11.3
<b>Gender*</b>		
Female	59	32.4
Male	123	67.6
<b>Education Level**</b>		
< High School	0	0
High School	4	2.2
Associate' Degree	3	1.6

Bachelor's Degree	91	49.7
Master's Degree	75	41.0
Doctoral Degree	10	5.5
Position		
Individual Contributor	69	37.1
Manager	117	62.9
Organization Type		
For-profit	34	18.3
Non-profit	35	18.8
Public Sector	117	62.9

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\*Missing 4, \*\* Missing 3

Since this was a convenience sample there was no expectation that the sample would be representative of the population. Table 4 provides specifics by position type and gender. The overall ratio of males to females responding to the survey, female 67.6%, and male 32.4%, was somewhat characteristic of the overall population of public relations practitioners, based on the population of U.S. public relations practitioners reported in the Current Population Survey (CPS) for May 2012, which showed that women accounted for 61.2% of public relations practitioners, and men accounted for 38.7% (U.S. Bureau of Labor Statistics, 2012). However, 62.9% of respondents identified themselves as managers, compared with CPS data showing that managers accounted for approximately only 27.3% of public relations practitioners.

Table 4.

*Position Type and Gender*

Position Type		Gender	
		Female	Male
Individual Contributor	Count	50	19
	% with Position Type	72.5	27.5
	% with Gender	40.7	32.2
	% of Total	27.5	10.4
Manager	Count	73	40
	% with Position Type	64.6	35.4
	% with Gender	59.3	67.8
	% of Total	40.1	22

Nearly 65% of males reported being managers while 59.3% of females reported being managers. BLS data stated that males only accounted for 30.7% of public relations managers. Males also tended to report earlier adoption more often than females. More managers were classified as early adopters compared to individual contributors. Table 5 contains the counts for position and gender with respect to early and late adoption.

Table 5.

*Position, Gender and Early vs. Late Adoption of Social Media*

Category	Early adoption is 3 or more years ago	
	Early	Late
Individual Contributor	37	32
Manager	73	44
Female	67	56
Male	39	20

Table 6 shows the counts for early adoption versus late adoption by age group. Those who reported being age 48 or younger, reported earlier adoption more often than respondents 49 and older. This appeared to be reasonable considering that social networking applications such as Facebook and Myspace are much more popular among younger adults (Lenhart, Purcell, Smith, & Zichur, 2010).

Table 6.

*Crosstabulation of Age Group and Early vs. Late Adoption of Social Media*

Age Group	Early adoption is 3 or more years ago	
	Early	Late
18-28	13	3
29-38	31	18
39-48	33	18
49-58	23	26
59 or older	10	11

For education level reported in Table 7, respondents reporting less than a Bachelor's degree and those reporting to hold Doctoral degrees appear to be outliers. Overwhelmingly, most public relations practitioners reported holding a Bachelor's or Master's degree. Ninety-one practitioners reported having a bachelor's degree, and 75 reported holding a master's degree. More often those with Bachelor's degrees reported adopting social media earlier, followed by those with Master's degrees.

Table 7.

*Crosstabulation of Education Level and Early vs. Late Adoption of Social Media*

\*\*Education Level Early adoption is 3 or more years ago

	Early	Late
High School	2	2
Associate's Degree	3	0
Bachelor's Degree	56	35
Master's Degree	41	34
Doctoral Degree	5	5

\*\*Less than High School was a choice on the survey instrument however no respondents indicated that level of education.

**Statistical Assumptions**

Kurtosis and skewness were computed for all predictor variables. The index value of relative advantage had a positive kurtosis of 3.38 as shown in Table 8. In a normal distribution, kurtosis and skewness would be zero; a non-normal kurtosis will produce an underestimate of the variance for relative advantage (Tabachnick & Fidell, 2007). Therefore, Spearman's Rho, a non-parametric correlation was chosen to examine predictor variables correlated with early adoption before running the logistic regression.

Table 8.

*Descriptive Statistics Likert-type Index Items*

Predictor Variable	N	Mean	Std. Dev.	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Std. Error	
Relative Advantage Index	186	4.17	.61	-1.10	.18	3.38	.36
Compatibility Index	186	3.39	.84	-.10	.18	-.52	.36
Complexity Index	186	3.73	.93	-.75	.18	.17	.36
Observability Index	186	3.81	.70	-.53	.18	.66	.36
Trialability Index	186	3.30	.94	-.22	.18	-.49	.36

The mode is reported for nominal and ordinal data in Table 9. Median, 25<sup>th</sup> and 75<sup>th</sup> percentiles are reported for the variables age group and education level since these can be considered ordinal in Table 10. Age group was missing in only four cases, and gender was missing in only three cases.

Table 9.

*Descriptive Statistics Ordinal and Nominal Variables*

Predictor Variable	N	Mode	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Std. Error	Std. Error	
Nominal/Ordinal data						
Age group	182	39-48	.00	.18	-.88	.36
Gender	183	Female	-.76	.18	-1.44	.36
Education level	186	Bachelor's	-.43	.18	1.63	.36
Place of work	186	Public Sector	-.00	.18	-.28	.36

Position type	186	Manager	-.54	.18	-1.73	.36
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Table 10.

*Percentiles for Ordinal Variables*

Predictor Variable	25 <sup>th</sup>	Median	75 <sup>th</sup>
Ordinal data	Percentile		Percentile
Age group	29-38	39-48	49-58
Education level	Bachelor's	Bachelor's	Master's

Multicollinearity between predictor variables can make it difficult to assess the individual importance of a predictor, which would affect the results of the logistic regression (Field, 2013). Therefore, the correlation matrix was examined for correlations above .80 or .90 as a first step in detecting multicollinearity, and none were detected (Field, 2013). There is no option for collinearity diagnostics when conducting a logistic regression in SPSS. Therefore, a linear regression analysis was conducted with collinearity diagnostics checked. The average variance inflation factor, VIF was only 1.5 and since the average VIF was not substantially greater than 1.0 the regression was not found to be biased (Field, 2013). A VIF greater than 10 may be an issue, however the largest VIF was only 2.22, and none of the tolerances were below .1 (Field, 2013). Therefore, collinearity was not detected for this set of variables. Finally, the Independent Samples T-Test was used to test for homogeneity of variance since it provided Levene's Test for Equality of Variances. The group variances among the Likert-type indexes (innovation attributes) were treated as equal since the significance values were greater than .05. Therefore homogeneity of variance could be assumed.

## Correlation

Early adoption, gender, position type and workplace were dummy-coded in order to use nonparametric correlations suitable for at least ordinal variables. Spearman's Rho rank-order correlation was used for variables measured on at least an ordinal scale (Field, 2013). The correlations with the predictor variables and early adoption are shown in Table 11. Complexity, observability, and trialability correlated positively with early adoption at the .01 level. Age group was a negative correlation at the .01 level, demonstrating a relationship between younger respondents and early adoption. Relative advantage and nonprofit correlated positively with early adoption at the .05 level. There was a slight negative correlation between public-sector respondents and early adoption at the .05 level.

Table 11.

*Spearman's Rho Correlation for Early Adoption (N=186)*

Predictor variables with significant correlations	Correlation Coefficient	Sig. (2-tailed)
Relative Advantage	.15*	.04
Complexity	.25**	.00
Observability	.25**	.00
Trialability	.38**	.00
Age Group	-.19**	.01
Nonprofit	.15*	.04

Public Sector

-.19\*

.01

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\*\* Correlation is significant at the .01 level. \* Correlation is significant at the .05 level.

### Logistic Regression

Since the innovation attribute compatibility was not correlated with early adoption it was not entered into the first binary logistic regression, the results of which are depicted in Table 12. Relative advantage, complexity, observability, and trialability were entered as the covariates with the dichotomous outcome variable early adoption entered into the dependent box in SPSS. Trialability emerged as a significant predictor and observability was nearly significant at .07. Cox & Snell R Square was .159 and Nagelkerke R Square was .214. Theoretically, these two measures are similar; Nagelkerke is a modification to Cox & Snell so that the theoretical maximum of 1 could be achieved (Tabachnick & Fidell, 2007). Relying on Nagelkerke R Square in this case, 21.4% of the variances were explained by the variables used in the model.

Table 12.

*Logistic Regression of remaining innovation attributes and early adoption*

	Sig.	Exp(b)	95% CI. For Exp (B)	
			Lower	Upper
Relative Advantage	.26	.68	.35	1.32
Complexity	.58	.87	.54	1.42
Observability	.07	1.76	.97	3.22
Trialability	.00	2.63	1.60	4.33

A separate logistic regression using the three demographic variables that were correlated with early adoption was conducted for the outcome variable early adoption.

Age group was a significant correlation at the .01 level and nonprofit was significant at the .05 level. Public-sector was negatively correlated, significant at the .05 level. As Table 13 depicts, of the demographic variables only age group was a significant predictor for early adoption. In this model, Nagelkerke Square was .093; therefore 9.3% of the variances were explained by the variables used in the model.

Table 13.

*Logistic Regression of remaining demographic variables and early adoption*

	Sig.	Exp(b)	95% CI. For Exp (B)	
			Lower	Upper
Age Group	.01	.71	.54	.93
Nonprofit	.53	1.41	.49	4.09
Public Sector	.13	.53	.23	1.20

**Evaluation of Findings**

The purpose of this non-experimental quantitative study was to identify innovation attributes and demographic variables that best predict social media adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. As previously noted, research questions 1 and 2 could not be answered because only 13 respondents identified themselves as non-adopters. Therefore, with this sample the results suggest that social media is an innovation that has neared complete adoption among public relations practitioners in the United States. The reasons and implications are discussed in depth in chapter 5.

Research question 3 examined which of Rogers' (2003) innovation attributes -- relative advantage, compatibility, complexity, observability, and trialability -- could be

used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States. Spearman's Rho was used to first determine what if any of the innovation attributes correlated with early adoption. And while relative advantage, complexity, observability, and trialability were all correlated with early adoption, in the logistic regression only trialability was found to be a significant predictor of early adoption, with observability being nearly significant. Therefore, the null hypothesis that there were no innovation attributes that can be used to predict early adoption was rejected.

Research question 4 examined which demographic characteristics-- age, gender, education level, position type, and organization type -- could be used to predict the adoption of social media. Organization type was the original categorical variable which was dummy coded in SPSS to create three variables, private sector for-profit, nonprofit and public sector. Spearman's Rho was used to first determine what if any of the demographic characteristics correlated with early adoption. While age group, nonprofit, and public sector were all correlated with early adoption, in the logistic regression only age group was found to be a significant predictor of early adoption. Therefore, the null hypothesis that there were no demographic characteristics that can be used to predict early adoption was rejected.

### **Summary**

This non-experimental quantitative study was conducted to identify innovation attributes and demographic variables that best predicted social media adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. Two-hundred and four individuals responded to the survey, which

was hosted on Survey Monkey. However, a total of 18 cases were deleted because they were missing three or more items, leaving 186 cases which still met the power requirement of 134 for logistic regression. This study was guided by four research questions and the respective hypotheses. Due to the low number of non-adopters responding to the survey, no further statistical analysis could be performed rendering research questions 1 and 2 moot. The 13 respondents who reported not using social media were evaluated as part of the late adopters. The survey data were directly exported into SPSS version 22 statistics software for analysis. Descriptive statistics were used as a first step in interpreting the data. Tests for normality determined the need to use Spearman's Rho, a non-parametric method for correlation. Collinearity was not detected and Levene's test was not significant, therefore homogeneity of variance was assumed. The results of the correlation were used to determine which predictor variables would be used in the final two logistic regressions.

Findings supported rejecting the null hypotheses for research questions 3 and 4, since trialability and age group were the only significant predictors of early adoption. However, only one predictor variable for each hypothesis was found to be truly significant, concluding that the alternative hypotheses are only partially confirmed. In the final chapter, an overview of the study, its implications, as well as recommendations for further study are presented.

## Chapter 5

This study focused on the innovation attributes and demographic characteristics that could be used to predict social media adoption and early adoption, among U.S. public relations professionals; predictors of social media adoption for this population have been largely unknown because previous studies have been conducted in other countries, or only examined specific organization types, and none have examined both adoption and early adoption (Alikilic & Atabek, 2012; Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008). The purpose of this non-experimental, predictive, quantitative study was to identify innovation attributes and demographic variables that best predict social media adoption, and early adoption versus late adoption, among public relations practitioners geographically located in the United States. Rogers' (2003) diffusion of innovations theory and Grunig's (1992) excellence theory of public relations provided the theoretical framework for the current study.

The study was conducted using a convenience sample of public relations practitioners in the United States, and a self-administered survey instrument that was hosted on Survey Monkey. Out of 204 respondents who finished the survey, a total of 18 cases that were missing three or more items were deleted leaving 186 cases which exceeded the power requirement for logistic regression. Initially, there were two binary outcome variables, adoption and early adoption; however only 13 respondents reported not using social media which was insufficient to conduct any meaningful analysis of non-adoption. However, those 13 non-adopters were part of the late adoption group in order to examine early adoption. Two logistic regression analyses were used in order to examine what, if any variables predicted early adoption of social media. A bivariate correlation was conducted to determine which variables correlated with early adoption; variables that

correlated were used in the logistic regressions. Rogers (2003) innovation attributes were used in the first logistic regression with early adoption as the outcome variable. The demographic variables were used in the second logistic regression with early adoption as the outcome variable. Permission from the NCU IRB was obtained before any data collection began.

**Potential Limitations.** The study was not without limitations. However, these limitations could be a catalyst for further research. This was a single-mode survey and as such was subject to coverage, sampling, and nonresponse errors (Dillman et al., 2008). The convenience sample consisted primarily of invited respondents whose publicly available email addresses were located through Internet searches. Secondly, the invitation letter to the survey was posted on two LinkedIn public relations groups and one local public relations group. Therefore, public relations professionals who did not use the Internet very much beyond mandatory work related tasks would have been less likely to receive an email invitation or view the posts on LinkedIn. In addition, there may have been some non-response bias if some public relations professionals who did receive an invitation to the survey did not participate because they were not comfortable with participating in an online survey. Respondents interested in the subject matter of a survey have been found to be more likely to respond, which would explain the high number of social media users responding the survey, compared to the 13 non-adopters (Dillman et al., 2008). Although it was time consuming, emailed invitations were personally addressed to the recipients in an attempt to increase the response rate. Lastly, many organizations have resorted to using automated email filtering systems to block messages that may appear to be unsolicited email, commonly known as spam; there was

no way of knowing how many emailed invitations may have been identified as junk mail/spam and not delivered to the recipient.

Chapter 5 contains three sections, implications, recommendations, and conclusions. The first section discusses the implications of the research questions and hypotheses. The next section suggests recommendations for future study based on the current study. Last, the key themes of this study are summarized.

### **Implications**

The need to determine what factors predict the adoption of social media by public relations practitioners guided the research questions and associated hypotheses. The inherent dialogic features of social media may be a valuable tool for public relations practitioners as they endeavor to communicate more effectively with their publics, while striving to practice excellent public relations. Previous research had shown that as a group, public relations practitioners tended to delay when it came to adopting new technologies (Anderson, & Reagan, 1992; Avery, Lariscy, Amador, et al., 2010; Payne, 2008; Porter et al., 2005). In addition, past studies regarding Internet adoption also showed that public relations practitioners similarly lagged in this area as well, compared to associates in a related field such as marketing (Hill & White, 2000; Kitchen & Panopolous, 2010; Sallot et al., 2004; Taylor & Perry, 2005). Many previous studies have been conducted outside the United States, or only examined specific organizations types, and none have examined both adoption and early adoption (Alikilic & Atabek, 2012; Avery, Lariscy, Amador, et al., 2010; Curtis et al., 2010; Kelleher & Sweetser, 2012; Payne, 2008).

Using a quantitative survey design, the purpose of this study was to identify the factors that can be used to predict social media adoption and early adoption versus late adoption, in order to improve the adoption of this innovation, and perhaps improve the adoption of future innovations. The research questions and the associated null and alternate hypotheses are listed to address the problem statement of the study.

**RQ1:** Which of Rogers' (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict social media adoption by public relations practitioners in the United States?

**H1<sub>0</sub>:** There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.

**H1<sub>a</sub>:** There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict social media adoption by public relations practitioners in the United States.

**RQ2:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict social media adoption by public relations practitioners in the United States?

**H2<sub>0</sub>:** There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.

**H2<sub>a</sub>:** There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict social media adoption by public relations practitioners in the United States.

However research questions 1 and 2 could not be answered using the data collected because only 13 respondents reported not using social media. This construct was measured with a dichotomous (yes/no) question, “Are you using social media for public relations activities?” This may mean that public relations practitioners have nearly fully adopted social media. Perhaps non-adopters simply did not respond the survey for a variety of reasons such as lack of interest in the topic, or factors relating to how much they use the Internet overall. However, since there is an implied assumption that non-adopters may eventually adopt, those 13 cases were considered part of the late adopter group in order to analyze early versus late adoption for research questions 3 and 4 (Brown & Venkatesh, 2003).

**RQ3:** Which of Rogers’ (2003) innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

**H3<sub>0</sub>:** There are no innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early adoption (versus late adoption), by public relations practitioners in the United States.

**H3<sub>a</sub>:** There are innovation attributes (relative advantage, compatibility, complexity, observability, and trialability) that can be used to predict early

adoption (versus late adoption), of social media by public relations practitioners in the United States.

Rogers (2003) diffusion of innovations theory formed the basis of research question three. The element of time allowed for the examination of early versus late adopters. The five adopter categories intuitively map out the element of time from the innovators who adopt first, to early adopters, early majority, late majority and finally laggards – those who adopt an innovation last (Rogers, 2003). The outcome variable early adoption consisted of respondents who reported adopting social media three or more years ago with late adoption consisting of those who reported adopting social media two or less years ago or not at all thus far. Deciding how to categorize early and late adopters was determined by the incremental popularity of social networking sites. By 2011 two-thirds of U.S. adult Internet users were using social media platforms such as Facebook, Twitter, MySpace, or LinkedIn (Smith, 2011).

Relative advantage, complexity, observability, and trialability were all correlated with early adoption, but in the logistic regression only trialability was found to be a significant predictor of early adoption, with observability being nearly significant. Therefore, the null hypothesis that there are no innovation attributes that can be used to predict early adoption was rejected. An innovation that can be tried out before making a commitment to adopt, has inherently less risk to the individual who is considering it for adoption (Rogers, 2003). Observability, which is defined as how visible the effects of an innovation are to others, was nearly significant. This may mean that earlier adopters recognized that social media was effective for other public relations practitioners, which weighed into their decision to use it.

**RQ4:** Which demographic characteristics (age, gender, education level, position type, and organization type) can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States?

**H4<sub>0</sub>:** There are no demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

**H4<sub>a</sub>:** There are demographic characteristics (age, gender, education level, position type, and organization type) that can be used to predict early adoption (versus late adoption), of social media by public relations practitioners in the United States.

Research question four was developed to determine if demographic characteristics proved to be useful predictors of earlier adoption of social media. Public relations researchers have found that a variety of demographic data, when used as predictor variables have offered significant findings in previous Internet and social media adoption studies (Alikilic & Atabek, 2012; Al-Shohaib, Frederick, Al-Kandari, & Dorsher, 2010; Kitchen & Panopoulos, 2010; Sallot, Porter, & Acosta-Alzuru, 2004). Age group, nonprofit, and public sector were all correlated with early adoption, however, in the logistic regression only age group was found to be a significant predictor of early adoption, thus the null hypothesis was rejected.

Diffusion researchers have focused on what variables have been typically associated with adopter categories. The evidence has been inconsistent in the past as to

whether earlier adopters tend to be younger, however, in general earlier adopters have tended to be more educated and hold a higher social status than later adopters (Rogers, 2003). This may have been because certain innovations are higher in cost, particularly when first available. However, the cost of engaging in social media is largely related to an investment in time, since computers are generally available in the typical office environment in U.S. The fact that age was a factor that predicted earlier social media adoption was consistent with the fact that Facebook began as a non-commercial venture by a college student for college students (Kaupins, 2011). Also, social networking applications such as Facebook and Myspace are much more popular among younger adults (Lenhart, Purcell, Smith, & Zichur, 2010).

Rogers (2003) defines relative advantage as the ratio of the expected benefits versus the cost of adoption. Relative advantage, which according to Rogers has been one of the strongest predictors of an innovation's rate of adoption, was not found to be a predictor in this study. This was because most respondents regardless of when they adopted social media tended to rank relative advantage very high. This was evident by its high kurtosis, and the insignificant difference in the means of relative advantage between early and late adopters. However, it still holds that innovations that are perceived to be advantageous are adopted faster, which would in part explain the high adoption rate reported in this study (Rogers, 2003).

Overall, the results demonstrated the only innovation attributes identified that predicted social media adoption were trialability, with observability being close to significant, and the only demographic characteristic identified as a predictor was age group. While the findings of this study make a significant contribution to Rogers (2003)

diffusion of innovations theory since it was useful in determining the early versus late adoption of social media, other factors must be considered since it appears that social media was adopted by more respondents more rapidly than expected.

As Rogers noted, since approximately 1990 the Internet has changed the nature of the diffusion process. Both the Internet and social media have been impacted to some degree by several related concepts with respect to diffusion and adoption, particularly critical mass and network externalities. *Bandwagon pressures* is the theory that pressure to adopt an innovation develops as the number of adopters increases (Abrahamson et al. 1990). As more and more people adopted social media it reached a tipping point, which has been also described as critical mass (Rogers, 2003; Schelling, 1971). Critical mass is the point at which there are a sufficient number of adopters of an innovation causing the rate of adoption to become self-supporting and fueling continued growth (Rogers, 2003). When the number of current adopters grows for an interactive innovation, such as a social media application, potential adopters will perceive it as more valuable, and existing adopters' perception of value may be influenced by the number of new adopters (Allen, 1988; Mahler & Rogers, 1999; Markus, 1987). The rapid diffusion of the Internet and social media has been impacted by network externalities. Social media becomes more valuable to an individual user as the total number of users increases; this characteristic is network externality (Mahler & Rogers, 1999).

However, network externalities can also slow the initial adoption of an innovation until critical mass is reached, at which time adoption speeds up (Wiebe 1992, 1995 as cited in Rogers, 2003). Usually, an individual or organization must create an account profile on a social network, for example Facebook, in order to communicate with others

members of Facebook. This initial barrier is what may initially slow down the adoption of an innovation. The same is true about the Internet; in order to communicate with others using the Internet one must have access to it. Rogers proposed that the Internet would greatly speed up the adoption of certain innovations, and social media is clearly one of those innovations. Therefore, it may be necessary to examine the adoption of future innovations differently depending on how much impact the Internet, and now social media has with respect to adoption theory.

**Significance of the findings.** This study shows that most public relations practitioners are using social media, which can be used to facilitate dialogic, two-way symmetrical communication, a fundamental underpinning of the excellence theory of public relations. In general, the current study significantly contributes to information communication technology adoption literature from a theoretical perspective while suggesting that the rapid adoption of social media may be advancing the excellence theory of public relations. Grunig's (1992) excellence theory of public relations was also used as a theoretical framework for the current study. It was proposed that the adoption of social media by public relations practitioners can be a key element in achieving an excellent model of public relations practice. The factors that predict the adoption of social media have been identified, and this study has demonstrated that many public relations practitioners are using social media. The remaining question for future study is whether public relations practitioners are actually using social media for two-way communication with activist publics.

## **Recommendations.**

The focus of recent research has been to examine social media use rather than concentrating on emerging questions relating to stakeholders, publics, communication, and interactive issues (Kent, 2014). Although social media appears simple to use, using it effectively was not a question addressed in this study. Measuring the effectiveness of public relations has always been difficult (Broom & Sha, 2013). With respect to social media, exposure to a message can often be quantified. The reach of a blog might be measured in the number of page views or comments posted. Similarly for Twitter, the number of times a message is re-tweeted can be measured. Facebook gives page administrators a variety of analytical measures such as number of likes and followers. As more forms of social media emerge, public relations practitioners must understand what tools to use, how to use them appropriately, and how to measure their effectiveness (DiStaso, McCorkindale & Wright, 2011). A precise and reliable measurement of social networking use is important to theory building as well (Zhang & Leung, 2014). A next step for future research would be to attempt to determine and measure whether or not public relations practitioners are using social media for truly two-way symmetrical communication with activist publics.

Ward and Sweetser (2014) have broken new ground studying dialogic theory with respect to blogs, their results concluded that the dialogic capacity of an organizational blog impacts how effectively two-way symmetrical relations are established. Other studies have examined dialogic communications in even greater depth; Avidar (2013) found that while public relations professional were participating in dialogic communication they were not promoting the continuation of an interactive relationship.

Similarly, in a study of Fortune 500 companies' and Philanthropy 200 nonprofit organization's use of Facebook, O'Neil and Schieffer (2014) found that neither type of organization was fully employing the interactive relationship cultivation strategies of networking and sharing of tasks.

Future studies may need to be longitudinal in order to measure the effects of social media on dialogic communication over time. In fact, between 2006 and 2011 only 7.1% of studies involving social networking were longitudinal with the majority being cross-sectional (Zhang & Leung, 2014). Content analysis can be a valuable tool for analyzing social media use, but less than 11% of studies from that same time period used content analysis (Zhang & Leung, 2014). Guo and Saxton (2013) specifically examined how nonprofit organizations utilized Twitter via content analysis and suggested that this type of study must be done with other social media tools.

Although organization type was not found to be a significant predictor of social media adoption in the present study, public sector was negatively correlated with early adoption and nonprofit was positively correlated with early adoption. Follow-on studies could be either more broadly focused as this study was comparing social media adoption between different types of organizations, or more narrowly focused by industry/organization type or size. In the past nonprofits have often been the subject of several social media studies (Curtis et al. 2010; Lovejoy et al. 2012; Nah & Saxton, 2012; Ready, 2011; Waters, 2009; Waters et al. 2009; Water & Jones, 2011; Waters & Lo, 2012). Relatively few studies have examined social media use in the private sector, in particular the Fortune 500 (Barners & Jacobsen, 2013; Culnan, Hughes & Zubillaga; Rybalko & Seltzer, 2010). Few studies have focused on the public sector and social

media (Bertot, Jaeger & Hansen, 2012; Hong, 2013; Mergel, 2013; Mergel & Bretschneider, 2013).

Newer technologies such as the Smartphone and tablet support social networking applications. Perhaps the next step in examining social media adoption and use would be to focus on how public relations practitioners are using Smartphone's and or tablets in order to more quickly engage with the public. Since the inception of the camera-phone, public relations practitioners have been playing catch-up with the public and the news media. An accident occurs, or a crime is committed and a bystander captures it on their cellular telephone or Smartphone and texts or shares it instantly. As a result, public relations practitioners need to mitigate their disadvantage since information travels almost immediately with these innovations.

### **Conclusions**

Rogers (2003) diffusion of innovations theory was used along with demographic variables to identify which if any predicted social media adoption among U.S. public relations practitioners. In this non-experimental predictive study, data were collected from public relations practitioners in the U.S. An invitation to complete a self-administered online survey was posted on several LinkedIn public relations groups, one small local public relations group, and emailed to over 2000 public relations practitioners whose name and email address were obtained from various publicly available websites. Out of 204 cases a total of 18 cases were deleted because they were missing three or more items, leaving 186 which exceeded the power requirement of 134 for logistic regression. The survey was self-administered and hosted on Survey Monkey. SPSS v. 22 was used for the statistical analyses. Cronbach's alpha was calculated for the index of

Likert-type items to determine construct reliability for the innovation attribute scales. Collinearity was not detected and Levene's test was not significant therefore homogeneity of variance was assumed. Tests for normality indicated that Spearman's Rho, a non-parametric method for correlation be used. The results of the correlation were used to determine which predictor variables would be used in the final logistic regressions. Logistic regression was used because of the dichotomous outcome variable. As previously noted, research questions 1 and 2 could not be answered because only 13 respondents identified themselves as non-adopters. However, those 13 respondents were evaluated as part of the late-adopters for research questions 3 and 4.

The variables early adoption, gender, position type and workplace were dummy-coded in order to use nonparametric correlations suitable for at least ordinal variables. Spearman's Rho rank-order correlation was used for variables measured on at least an ordinal scale (Field, 2013). Relative advantage, trialability, complexity, observability, and nonprofit were positively correlated with early adoption. Age group and public sector were negatively correlated with early adoption. The variables that were correlated with early adoption were then used in the two logistic regression analyses conducted.

Innovations that are perceived as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted faster (Rogers, 2003). Similar to previous research, Rogers (2003) diffusion of innovations theory demonstrated that trialability was a significant predictor with observability being nearly significant in the first logistic regression. Therefore, the null hypothesis that there are no innovation attributes that can be used to predict early adoption was rejected. In the second logistic regression using the demographic variables, age group was a significant predictor, as

younger respondents reported earlier adoption of social media compared to older respondents. The null hypothesis that there are no demographic variables that can be used to predict early adoption was rejected.

This study demonstrated that there are differences between earlier and later adopters, and that factors exist that can predict early adoption of this innovation among public relations practitioners in the U.S. The high adoption rate reported by respondents in this study indicated that social media has approached nearly complete adoption. This signals that public relations practitioners are using social media which can be used for dialogic, two-way symmetrical communication with activist publics, an important part of the excellence theory of public relations. The excellence theory of public relations proposed that top management will value public relations practitioners who adopt two-way communication with activist publics (Grunig, 2009; Grunig & Grunig, 2011; Grunig et al., 2009). Therefore, this study contributed to both the research on social media adoption, and support of the excellence theory of public relations which proposed that the individual public relations practitioner can achieve power through knowledge of the practice, and the demonstration of expertise (Grunig, 1992; Grunig & Grunig, 2011; Grunig et al., 2009; Hon, 2008).

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## Appendixes

## Appendix A: Invitation Letter

Dear Public Relations Professional:

You are invited to participate in a research study being conducted as part of a doctoral dissertation at Northcentral University, Prescott, AZ. The purpose of this study is to identify what predicts the adoption of social media by public relations practitioners in the U.S. Social media has become an important communication tool for public relations. However, factors related to its adoption are still being researched in order to develop methods to increase the use of social media. Your participation in this study is very important to the advancement of public relations adoption of social media.

The estimated time to complete this 23 question survey is fifteen minutes. Your participation is voluntary, your responses will remain anonymous, and used for research purposes only. You may stop the survey at any time, and skip any questions that you do not wish to answer. After clicking the link,

<https://www.surveymonkey.com/s/PRsocialmediasurvey> you will be brought to the informed consent form. At the end of the form you may check the first box to give your consent or the second box to decline taking the survey and exit. Please contact me if you have any questions related to this study.

The below persons are involved with this research project and may be contacted at any time:

Lindan A. Moya (Researcher-Primary contact) [lindan.a.moya@live.com](mailto:lindan.a.moya@live.com) or 732-379-2892

Dr. Abeer Yasin (Dissertation Chair) [ayasin@ncu.edu](mailto:ayasin@ncu.edu), or the IRB office at [IRB@NCU.edu](mailto:IRB@NCU.edu)

Lindan A. Moya  
732-379-2892  
[lindan.a.moya@live.com](mailto:lindan.a.moya@live.com)

## Appendix B: Informed Consent form

Dear Public Relations Professional,

You are invited to participate in a research study being conducted as part of a doctoral dissertation at Northcentral University, Prescott, AZ. The purpose of this study is to identify the innovation attributes and factors that predict the adoption of social media by public relations practitioners in the United States. Participants for this study are expected to be public relations practitioner located in the United States. However, because public relations practitioners may have various job titles, your job title need not include the exact words public relations in order to be eligible for this research.

There are no anticipated risks to participating in this study; however you may choose to skip any question that you do not wish to answer. There is no participation incentive offered. The data collected in this study is considered confidential. The Internet Protocol (IP) address of the computer used to complete this survey will not be recorded. If you received a personal email request to complete this survey, your email address will be deleted upon the close of this survey. Downloaded survey data is stored on a portable encrypted hard drive and only available to the researcher, with the data stored in a password protected spreadsheet. The computer used to store and process survey data is password protected and is only used by the researcher. This dissertation will be published and the results may be of interest to researchers, public relations practitioners, and executive managers.

Participation in this study is completely voluntary and you may withdraw at any time, or skip questions you do not want to answer. The survey is estimated to take 15 minutes or less. Please complete the survey only once.

The below persons are involved with this research project and may be contacted at any time:

Lindan A. Moya (Researcher-Primary contact) [lindan.a.moya@live.com](mailto:lindan.a.moya@live.com) or 732-379-2892  
Dr. Abeer Yasin (Dissertation Chair) [ayasin@ncu.edu](mailto:ayasin@ncu.edu), or the IRB office at [IRB@NCU.edu](mailto:IRB@NCU.edu)

### What if I have questions about my rights as a research participant or complaints?

If you have questions about your rights as a research participant, any complaints about your participation in the research study or any problems that occurred in the study, please contact the researchers identified in the consent form. Or if you prefer to talk to someone outside the study team, you can contact Northcentral University's Institutional Review Board at [irb@ncu.edu](mailto:irb@ncu.edu) or 1-888-327-2877 ex 8014.

Please check the first box to give your consent, or the second box to decline and exit.

I acknowledge that I have read the above statements and consent to participate in the survey.

No, I do not wish to take the survey

## Appendix C: Social Media Adoption Survey

Please place (X) in front of your chosen answer.

1) For the purpose of this survey, the participant is expected to be a public relations practitioner working in the United States. Please indicate whether you meet this requirement:

- Yes
- No

2) Are you using social media for public relations activities?

- Yes
- No - **If no, please skip to question 4.**

3) When did you start using social media for public relations activities?

- less than a year ago
- 1 year ago
- 2 years ago
- 3 years ago
- 4 or more years ago

For the following questions, the interest is in your *perception* of social media as a new technology **whether or not** you use it. Please indicate the extent to which you agree or disagree with each statement by circling the appropriate number.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4. Using social media enables me to accomplish tasks more quickly.	5	4	3	2	1
5. Using social media will allow us to better communication with the public.	5	4	3	2	1
6. In general, social media is a useful tool for public relations tasks.	5	4	3	2	1
7. Social media provides fast access to information.	5	4	3	2	1
8. Using social media is compatible with all aspects of my work.	5	4	3	2	1
9. Social media provides me with information I need.	5	4	3	2	1

*Please continue to next page*

10. Learning to use social media applications is easy for me.	5	4	3	2	1
11. I believe that it is easy to get access to social media applications at work.	5	4	3	2	1
12. I would have no difficulty telling others about the results of using social media.	5	4	3	2	1
13. I believe I could communicate to others the consequences of using social media.	5	4	3	2	1
14. The results of using social media are apparent to me.	5	4	3	2	1
15. In our organization, one sees social media applications on many computers.	5	4	3	2	1
16. I have had a great deal of opportunity to try various social media applications.	5	4	3	2	1
17. Social media access was available to me to adequately test-run several applications.	5	4	3	2	1
18. Before deciding whether to use any social media applications, I was able to properly try it out.	5	4	3	2	1

19) To what age group do you belong?

- 18-28
- 29-38
- 39-48
- 49-58
- 59 or older

20) Please indicate your gender:

- Female
- Male

*Please continue to next page*

21) Education level:

- Less than High School
- High School
- Associate's Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

22) Place of work:

- Private sector for-profit
- Public sector (includes local, state, federal and military organizations)
- Non-profit organization

23) Position type:

- Manager
- Individual contributor

**THANK YOU, YOU HAVE COMPLETED THE QUESTIONNAIRE.**

Appendix D: Dr. Al-Shohaib's Approval Letter

23 September 2013

Dear Lindan A. Moya,

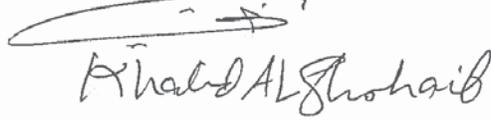
This is an official letter granting you permission to use my survey instrument freely in your academic endeavor. As a matter of fact, I consider it an honor to use it. Wishing you all the best of luck now and forever.

Best regards..

Dr. Khalid Alshohaib  
Naval Postgraduate School, DRMI,  
699 Dyer Rd. Halligan Hall, Room 102B  
Monterey, CA 93940  
(831) 402-5170 Cell

Wishing the best of luck...

Khalid Alshohaib



## Appendix E: NCU IRB Approval Email

From: Sherri Alamillo  
Sent: October 28, 2013 4:50 PM To: Jessica Hensley; Abeer Yasin Cc: 'lindan.a.moya.civ@mail.mil'  
Subject: FW: OMBUDS Student: Resubmission of the IRB application-Lindan Moya - complete  
October 28, 2013

Reference: Lindan Moya

IRB: 2013-10-28-176

Approval Date: 10/28/13

Continuing Review Due Date: 09/28/14

Expiration Date: 10/27/2014

Dear Dr. Abeer Yasin, Dissertation Chair:

On October 28, 2013, Northcentral University approved Lindan's research project entitled, Identifying Innovation Attributes, and Factors that Predict Social Media Adoption in U.S. Public Relations Practitioners.

As an investigator of human subjects, the student researcher's responsibilities include the following:

1. Report promptly proposed changes in previously approved IRB to your study such as changes to the sampling design, research procedures, consent/assent forms and any other study documents, regardless of how minor the proposed changes might be. (Review the modifications request procedures in the Dissertation Center, under the IRB thread).
2. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.
3. Report to the IRB the study's closing (i.e., completion of data collection and data analysis). Note the above expiration date of the IRB approval. It is the researcher's responsibility to report the closing of the study to the IRB before the study's expiration date. (Form is in the Dissertation Center, under the IRB thread).
4. If the study is to continue past the expiration date, student researcher must submit a request for continuing review prior. Note the above continuing review due date. It is the researcher's responsibility to obtain re-approval

from the IRB before the study's expiration date. (Form is in the Dissertation Center, under the IRB thread).

5. If re-approval for continuing review is not obtained (unless the study has been reported to the IRB as closed) prior to the expiration date, all activities involving human subjects and data analysis must cease immediately.

Sincerely,

Dr. Alice Yick

IRB Committee Chair  
Northcentral University

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