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Examining the Relationship Between Communication Apprehension and Individual Innovativeness in Managers

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Abstract

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MBA, Florida Atlantic University, 2009

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Dissertation Submitted in Partial Fulfillment

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Abstract

Communicative challenges that hinder managerial engagement in social networks can impede innovation adoption and thereby damage the financial performance and competitiveness of a firm. The purpose of this correlational study was to examine the relationship between communication apprehension (CA) and individual innovativeness in managers. The focus of the research questions was determining if a relationship exists between these variables before and after controlling for demographic characteristics. With diffusion of innovation theory as the theoretical framework, this research involved an attempt to address how adoption categories relate to varying degrees of CA. One hundred and five American-based owner-executives, senior managers, and middle managers completed 2 preexisting survey instruments on the Internet measuring individual perceptions of CA and individual innovativeness. Results from a Pearson correlation analysis indicated that a significant negative correlation existed between CA and individual innovativeness. A multiple regression analysis showed that CA and individual innovativeness were negatively correlated after controlling for gender, age, and education level. Furthermore, participants' level of education was negatively related to both total CA score and public speaking CA score. Leaders may apply these findings to achieve positive social change by using tools to reduce CA in managers. Such initiatives could lead to greater social confidence in managers, improved organizational performance, and more meaningful social engagement in the innovations that continue to shape the world.

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Dedication

I dedicate this study to my nephews Daniel and Michael for proving to the world that having communicative challenges does not rob a person of the ability to accomplish great things. Never stop challenging yourselves. You both are beautiful, and you inspire me.

Acknowledgments

First, I give all of my thanks to God for listening to me and guiding me, and for offering His promise to be patient with me as I continue to learn and grow as a Christian. I am grateful to have had the opportunity to pursue my PhD online. This flexibility has given me the chance to view Joyce Meyer's program, *Enjoying Everyday Life,* which continues to help me to strengthen my relationship with God and to discover a deeper connection with the phrase "positive social change."

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Lastly, I am grateful for my amazing husband, Jake. His relentless encouragement provides reinforcement to all of my ambitions, and this doctoral journey was no exception. My dream became his dream, and with humor and determination, we were able to tackle this monumental milestone together. I appreciate the sacrifices that he made for us while we were on this journey. Regrettably for my husband, however, my PhD does not increase my knowledge about how to load the dishwasher properly.

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Chapter 1: Introduction to the Study

Innovation is essential to a firm's success. Innovation is also a driver of organizational competitiveness in all economies (World Intellectual Property Association, 2012) and a determinant of financial performance (Anderson, Potočnik, & Zhou, 2014). According to PricewaterhouseCoopers's (2017) *2016 Global Innovation 1000 Study*, the 10 most innovative companies in 2016 spent $74.3 billion on research and development, driven by the desire for innovation. In a survey of more than 400 executives from organizations with more than $100 million in revenue, two thirds of the participants reported that innovation was one of their top three priorities (Almquist, Leiman, Rigby, & Roth, 2013). Executive leaders from within the most profitable and innovative companies in the world consider innovation to be a critical function of management, and managers at all levels of an organization play a role in the innovation process.

Managers facilitate communication within social networks and often engage in "boundary-spanning activities" (Wong & Boh, 2014, p. 1180) that spark new idea generation and initiate change (Battilana & Casciaro, 2012). Social networks are important to increasing managers' social connectedness and individual innovativeness (Wong & Boh, 2014). The success of an innovation depends on managerial communication in social networks (Creasy & Anantatmula, 2013) and individual innovativeness (Lanzolla & Suarez, 2012). Potential obstacles to managers' communication and individual innovativeness therefore warrant investigation. Communicative challenges may be hindrances to managers' individual innovativeness.

Communication apprehension (CA) is a communicative challenge that handicaps individuals in the workplace. CA refers to fear or anxiety related to social interactions (McCroskey, 1977). Although researchers have linked the importance of managers' individual innovativeness to the innovation process (Alam & Dubey, 2014; Szczepańska-Woszczyna & Dacko-Pikiewicz, 2014; Wong & Boh, 2014) and the negative effects of CA on managers' effectiveness in the workplace (Beck, Cha, Kim, & Knutson, 2012; Russ, 2012, 2013a, 2013b), research regarding how CA may affect the individual innovativeness of managers is lacking. This area requires further study because CA may negatively affect managers' individual innovativeness, which could inhibit innovation and thus hinder the financial performance and competitiveness of a firm.

In this study, I examined the possible relationship between CA and individual innovativeness in managers. Establishing an understanding of this relationship may lead to increased awareness of the need to mitigate the effects of CA in the workplace and more effectively promote factors that affect managers' proclivities toward innovation adoption, which could, in turn, improve firm performance. Enhancing firm performance has the potential to increase leaders' capabilities to engage in societal initiatives, which could increase the potential for positive social change.

This chapter includes the study's problem statement, purpose, background, research question, theoretical framework, nature, definitions of terms, assumptions, scope and delimitations, limitations, and significance, concluding with a summary of the main points of the chapter.

Background of the Study

The nature of the global competitive business environment requires leaders within organizations to innovate. *Innovation* refers to the implementation of a new or significantly improved good or service, a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations (World Intellectual Property Association, 2012). Modern organizations experience heightened levels of competition and shortened product life cycles (Artz, Norman, Hatfield, & Cardinal, 2010). In the private sector, innovation helps to reduce costs, enhance products, and establish new markets by connecting individuals and businesses to exchange ideas on efficient resource allocation (Cankar & Petkovsek, 2013). In the public sector, which has traditionally included large and bureaucratic entities, innovation has the ability to transform the functional processes of many public institutions (Cankar & Petkovsek, 2013). All firms should innovate, regardless of their size or sector, to compete successfully. Failure to innovate could lead to a competitive disadvantage.

Nokia is an example of an organization that experienced a loss in performance and competitiveness due to its failure to innovate. By the end of 2010, Nokia was unable to produce a product innovation that could adequately compete in the mobile phone industry (Bergvall-Kåreborn & Howcroft, 2013). Nokia withdrew from software development, forfeited its position as the leading smartphone provider, and ultimately left the mobile phone business (Vuori & Huy, 2015). Blockbuster Video is another example of an organization that collapsed because of its failure to innovate. Blockbuster Video neglected to modernize its core business of in-store video rentals (Downes & Nunes,

2013) due to a lack of forward thinking about ways to transform in-store video rental services into rent-by-mail and video streaming services (Baskin, 2013; Satell, 2014). Blockbuster went bankrupt in 2010 (Satell, 2014). Companies that are slow to release new products or services into the market are not as successful as faster innovators (Boston Consulting Group, 2015). The rate of commercializing innovations can be a factor of longevity and profitability. Communication is necessary to carry out innovation expeditiously.

Communication inside social networks facilitates new idea generation and the transfer of knowledge. Throughout the innovation process, social networks position firms more effectively to integrate novel ideas into existing expertise, procedures, and organizational structures (Carnabuci & Diószegi, 2015). Successful innovation is also dependent on knowledge transfers through resource exchanges and reciprocal relationships (Neal, 2014). Social networks provide a platform for individuals to make exchanges throughout the development of an innovation. Part of a manager's job is to facilitate communication within social networks.

Managers play a mediator role in the innovation process and offer assistance to individuals inside and outside of social networks (Druskat & Wheeler, 2003). Because managers engage in boundary-spanning activities (Wong & Boh, 2014), they are more likely to transform new ideas into practice (Reay et al., 2013). Managers also provide the intellectual capital and individual innovativeness needed in the innovation process (Wong & Boh, 2014). Managers' individual innovativeness relates to how early in the innovation process they are likely to accept a change (Rogers, 2003). Higher levels of managers'

individual innovativeness may lead to greater tendencies to accept change earlier in the process of innovation adoption. Several factors can affect managers' individual innovativeness.

Social networks may enhance managers' individual innovativeness. Social networks expose managers to a wide array of information that they can synthesize to generate new ideas or disseminate across multiple contexts (Rodan & Galunic, 2004). Social networks also position managers to obtain reinforcements for innovation implementation (Paruchuri, 2010). According to Raina and Roebuck (2016), however, many research studies have shown that managers often lack the ability to communicate effectively. Although social networks offer the potential to enhance managers' individual innovativeness, such potential is dependent on a manager's individual capacity to communicate with others. Communicative challenges like CA may therefore hinder managers' individual innovativeness.

CA is a communicative challenge that handicaps managers' effectiveness in the workplace. CA refers to "anxiety with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 78). Managers with CA can experience varying degrees of physiological, cognitive, and behavioral hindrances (Horwitz, 2002) that can adversely affect their self-efficacy, self-esteem, willingness to communicate (WTC), and self-perceived communication competence (SPCC; Allen, O'Mara, & Long, 2014; Hassall, Arquero, Joyce, & Gonzalez, 2013; McCroskey, Richmond, Daly, & Falcione, 1977; Zarrinabadi, 2012). CA can also adversely affect managers' attitudes and behaviors in areas such as work alienation, job satisfaction, organizational commitment,

learning styles, X/Y orientations, participative decision making (PDM), feedback sharing, information sharing, adaptability, tolerance of ambiguity, creativity, and new idea generation (Beck et al., 2012; Comadena, 1984; Madlock, 2012; Madlock & Martin, 2011; Russ, 2012, 2013a, 2013b). Huy, Corley, and Kraatz (2014) found that emotional reactions such as fear and anxiety can significantly influence thinking and behavior related to the implementation of change. Rogers (2003) contended that individuals with lower levels of individual innovativeness are likely to adopt innovation in a firm more slowly than those with higher levels of innovativeness. CA may influence managers' individual innovativeness and therefore their individual tendencies toward innovation adoption.

There was a lack of research regarding how CA may affect the individual innovativeness of managers in the workplace. In this study, I investigated this relationship. CA can negatively affect managers' individual innovativeness, which could hurt innovation outcomes and therefore hinder the financial performance and competitiveness of a firm. The findings of this study can lead to an increased awareness about the need to decrease the effects of CA in the workplace and to promote factors that increase managers' tendencies toward innovation adoption more effectively, therefore improving innovation outcomes.

Problem Statement

Innovation is one of the greatest determinants of firm performance. According to Accenture (2016), more than 90% of executives attribute the long-term success of their organization's strategy to innovation. Managers' individual innovativeness affects how

early individuals adopt an innovation (Alam & Dubey, 2014). The general problem addressed in this study was that although researchers have linked the importance of managerial innovativeness to the innovation process, most managers continue to experience communicative challenges that affect their ability to innovate in the workplace. The specific problem was that CA may hinder the individual innovativeness of managers. In that embracing innovation requires additional engagement in social networks (Battilana & Casciaro, 2012), CA may affect managers' tendencies to adopt change. In this quantitative study, I examined the potential relationship between CA and individual innovativeness in managers across several organizations inside the United States.

Purpose of the Study

The purpose of this descriptive correlational study was to examine the relationship between CA and individual innovativeness in managers. I examined this relationship after controlling for demographic characteristics, and I examined the relationships between the predictor variables CA, gender, age, and education level and the criterion variable individual innovativeness. The results of this study fill gaps in existing research on CA and innovation.

The research design included two survey instruments to measure potential relationships between predictor and criterion variables. McCroskey's (1982) Personal Report of Communication Apprehension (PRCA-24) survey was suitable for examining the predictor variables by measuring varying levels of CA experienced by managers in different social contexts in the workplace. The study involved using Hurt, Joseph, and

Cook's (1977) Individual Innovativeness scale to examine the criterion variable by measuring varying levels of individual innovativeness that managers exhibit in the workplace.

The targeted population was managers at least 30 years of age. The research sample consisted of owner-executives, senior managers, and middle managers employed at varying organizations across the United States. The results from this study revealed insights into potential inhibitors of innovation, which constitute a management issue that affects firms' financial performance and competitiveness.

Research Questions and Hypotheses

The research questions and hypotheses in this study were as follows:

RQ1: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness?

$H1_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness.

$H1_a$: A statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness.

RQ2: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level)?

$H2_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness after

controlling for managers' demographic characteristics (gender, age, education level).

$H2_a$: A statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level).

Theoretical Foundation

Rogers's diffusion of innovation (DOI) theory served as the theoretical foundation in this study. DOI theory characterizes how individuals express their individual innovativeness by placing them into categories based on rate of adoption (Rogers, 1995). DOI theory also addresses which innovation attributes influence individual tendencies toward change (Rogers, 2003). In the DOI model, Rogers visually separated individuals of a social system into five adopter categories on the basis of innovativeness: innovators, early adopters, early majority, late majority, and laggards (Rogers, 1995). In addition to the five adopter categories, DOI theory includes the following five innovation attributes to help explain why individuals adopt some innovations more easily than others: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). A more detailed explanation of adopter categories and innovation attributes appears in Chapter 2.

Researchers have used DOI theory in numerous disciplines. Li and Sui (2011) identified more than 3,200 publications in the last 20 years pertaining to DOI theory. Diffusion of innovation applications have crossed a myriad of subject boundaries,

including hybrid seed corn in Iowa, school-based tobacco prevention, snowmobiles in reindeer herding, banking, nutrition policies in child care centers, and the STOP AIDS program in San Francisco (Malecki, 1977; McCormick, Steckler, & McLeroy, 1995; Müller-Wille & Pelto, 1971; Pollard, Lewis, & Miller, 2001; Rogers, 1995, 2004). Researchers have used Rogers's DOI theory to investigate the effects of new technology on areas such as sustainable laundry technologies for U.S. consumers (Hustvedt, Ahn, & Emmel, 2013); massive open online courses (Annabi, & Muller, 2015); Twitter diffusion in sports journalism (English, 2016); Facebook diffusion in public libraries (Neo & Calvert, 2012); and technological, relational, and cultural innovation in the news industry (Ekdale, Singer, Tully, & Harmsen, 2015). In the field of management, Wunderlich, Größler, Zimmermann, and Vennix (2014) employed DOI theory to study the communication processes that influence managerial implementation strategies of innovations within intraorganizational networks. In this study, I used DOI theory to support my investigation regarding the relationship between CA and individual innovativeness in managers.

Managers' individual innovativeness refers to mangers' tendencies to accept a change in the adoption process. CA may negatively affect managers' individual innovativeness because social relationships are necessary in innovation adoption (Jackson, Mun, & Park, 2013). DOI theory provided a foundation for understanding which innovation adoption categories could relate to CA and managers' individual innovativeness.

Nature of the Study

In this study, I used the quantitative research methodology to investigate the potential relationship between CA and individual innovativeness in managers. The quantitative method was appropriate for this study because researchers use it to measure and examine relationships and test hypotheses (Mackey & Gass, 2015). In contrast, researchers use the qualitative method to collect descriptive data that rarely go beyond the nominal and ordinal levels of measurement that they can accurately measure (Mackey & Gass, 2015). Quantitative research was suitable for addressing the research questions because it was able to elicit a form of data appropriate for testing the hypotheses and categorizing participants into innovation adoption classes, as outlined in DOI theory.

Quantitative research can be experimental or nonexperimental. Experimental research is suitable for manipulating one or more independent variables and measuring the effects of this manipulation on dependent variables to examine causality (Walliman, 2006). Conversely, nonexperimental research does not involve manipulating variables. Nonexperimental research relies on examining relationships between variables and cannot determine cause-and-effect relationships (Walliman, 2006). Correlational and causal-comparative studies are two types of nonexperimental research.

Descriptive, correlational research was the most appropriate for this study because the study involved examining the relationship between the predictor variables CA, gender, age, and education level and the criterion variable individual innovativeness. Researchers conduct descriptive correlational studies to examine relationships based on differing degrees of a characteristic in different people (i.e., CA and managers' individual

innovativeness), whereas causal-comparative studies rely on the past to find potential causes of current differences between or among groups (Mertens, 2003). One advantage of correlational research is that one study can include several variables more easily than in experimental or causal-comparative designs (Simon & Goes, 2013). The correlational research design was the most suitable to determine the relationship between the variables in this study.

Researchers use survey research to conduct correlational studies, as it provides an appropriate way to depict people's thoughts, opinions, and feelings. A survey was suitable for this study because the study involved using findings from McCroskey's (1982) PRCA-24 survey and the Individual Innovativeness scale by Hurt et al. (1977) to identify a potentially significant relationship between predictor and criterion variables. The first set of questions came from the Individual Innovativeness scale. These questions became Questions 1-20 in the survey. The second set of questions came from McCroskey's PRCA-24 survey. These questions became Questions 21-44 in the survey. The third set of questions consisted of demographic-related items pertaining to gender, age, education level, and industry. Industry information was not suitable for analysis but offered general insight into the types of industries represented in this study. These questions became Questions 45-48 in the survey. The survey was Internet-based.

There are many benefits to using Internet-based surveys. Internet-based surveys enable researchers to implement psychological assessments more efficiently compared to traditional written assessments (Denissen, Neumann, & van Zalk, 2010). As researchers can download data directly from the web, Internet-based surveys also help minimize

measurement error through eliminating transcription errors (Mertens, 2003). The population that received the Internet-based survey consisted of owner-executives, senior managers, and middle managers employed across organizations throughout the continental United States.

Definitions

Variables and operational terms used throughout this study included the following:

Communication apprehension (CA): An individual's level of fear or anxiety associated with real or anticipated communication with another person or persons (McCroskey, 1977).

Context communication apprehension (CCA): A relatively enduring, personality-type apprehension toward communication in a given type of context (McCroskey, 1984).

Individual innovativeness: The degree to which an individual is a relatively early adopter of innovations with respect to others in the social system (Rogers & Shoemaker, 1971).

Innovation: The implementation of a new or significantly improved good or service, a new process, a new marketing method, or a new organizational method in business practices, workplace organizations, or external relations (World Intellectual Property Association, 2012).

Innovation adoption category: Classification given to members within a social system that reflect varying degrees of individual innovativeness related to the rate of innovation adoption (Rogers, 2003).

Innovation attribute: Characteristics of an innovation that influence individual innovativeness and the grouping of innovation adoption categories (Rogers, 2003).

Manager: An individual who interacts with various stakeholders and who has the potential to exert a positive effect through leadership actions (Henson, 2016).

Middle manager: An individual who reports up to the senior manager level (Grootenboer, Edwards-Groves, & Rönnerman, 2014)

Owner/executive: An individual who has the power to select among, initiate, and execute new plans to pursue new and more desirable goals (Rabbitt, 1997).

Senior manager: An individual who has responsibilities and authority broader in scope than a middle manager and typically reports into a director or general-manager-level role (Reh, 2017).

Social networks: A set of individuals who are interconnected through social ties or links (Mascia, Magnusson, & Björk, 2015).

Trait-like communication apprehension (TCA): A relatively enduring personality-type apprehension toward a given mode of communication across a wide variety of contexts (McCroskey, 1984).

Assumptions

This study included six assumptions to contextualize the results of the study. The assumptions were as follows:

1. Each participant who completed the Internet-based survey was an owner/executive, senior manager, or middle manager.

2. The responses on the survey with respect to CA, individual innovativeness, and demographic characteristics were truthful.
3. The participants understood the concepts asked of them with respect to CA and individual innovativeness.
4. No participant submitted the survey more than once.
5. The sample selected was representative of the population.
6. A quantitative survey was the best approach to investigate the relationship between CA and individual innovativeness in managers.

Scope and Delimitations

In this quantitative study, I used an Internet-based survey to collect data regarding CA and managers' individual innovativeness. I also collected demographic information. Delimitations constrain the limits of the study; however, the researcher is able to control delimitations (Simon, 2011). The delimitations of this study were as follows:

1. Participants were managers. Nonmanager employees were not able to participate.
2. Participants were managers employed inside organizations across the United States. The results of the study may not be generalizable to managers employed in organizations outside of the United States.
3. The number of participants was 105 individuals.
4. The study involved examining CA solely through the PRCA-24 and individual innovativeness solely through the Individual Innovativeness scale. I excluded all other instruments that measure CA and individual innovativeness.

5. The length of the PRCA-24 instrument was 24 questions, and the length of the Individual Innovativeness scale was 20 questions.
6. The study involved examining solely gender, age, and education level as demographic characteristics.

Limitations

One limitation was that participants were not able to ask questions if they did not understand the questions asked. A reasonable measure that I used to address this limitation was including detailed instructions at the beginning of the survey. Another limitation was that I used a convenience sample of managers via SurveyMonkey's audience pool. As such, the participants in this study may not have been representative of typical managers working in the United States, which may have threatened the external validity of the study.

The sample included participants at different levels of management. As a result, participants may not have been comparable in terms of their individual roles in the innovation process, which could also have threatened the external validity of the study. The sample included individuals from different organizations and several different industries. As a result, the managers and managerial practices reflected by the sample may not have been comparable, which may have further threatened the external validity of the study.

Significance of the Study

Significance to Theory

The findings of this study enhance Rogers's DOI theory by providing insight into the potential relationship between CA and individual innovativeness in managers and the innovation adoption process. Rogers (2003) contended that individuals in a social system will adopt an innovation at different rates, depending on factors such as the nature of the innovation and individuals' feelings about communicating with others. For example, according to DOI theory, individuals in the innovators category are characteristically outgoing individuals who introduce new ideas into a social system (Rogers, 2003). Managers who are innovators are more likely to engage in frequent social interactions to promote the adoption of new idea (Rogers, 1995) and might therefore experience lower levels of CA in the workplace.

The present study fills a gap in knowledge about the potential relationship between CA and individual innovativeness in managers. Researchers use DOI theory to address individual factors that influence the rate of adoption of an innovation in a social system (Rogers, 2003). CA may affect managers' tendencies to adopt an innovation. The outcomes and findings of this study further support the application of DOI theory in management literature and expand the breadth of DOI theory in relation to individual factors that influence the rate of adoption of an innovation in social science research.

Significance to Practice

There is an increasing need for organizations to innovate. Managers increasingly face the task of communicating about organizational change (Luo, Song, Gebert, Zhang,

& Feng, 2016). Managers' positive attitudes and individual innovativeness are critical to the success of change initiatives (Choi, 2011). Organizational leaders who understand factors that affect managers' individual innovativeness may be better able to support firms' financial performance and competitiveness (Cankar & Petkovsek, 2013). The focus of this study was determining whether CA negatively affects managers' individual innovativeness, which could hurt innovation outcomes and hinder firm performance. The findings of this study may strengthen awareness of the need for organizational leaders to initiate programs in the workplace to reduce CA in managers, which could increase their individual innovativeness and their dynamic capabilities (Alam & Dubey, 2014) to share new ideas. Exchanging new ideas between social contexts has the potential to improve innovation outcomes (Wong & Boh, 2014) and strengthen firms' financial and strategic outcomes.

Significance to Social Change

Managers play roles inside and outside the organizations they serve. They are society's leaders, facilitators, coaches, trainers, and innovators. They bring out human potential in others and help to stimulate, create, and implement innovations in the world (Szczepańska-Woszczyna & Dacko-Pikiewicz, 2014; Yukl, 2012). A 21st-century manager must possess strong social skills (Wong & Boh, 2014). CA, however, includes a tendency to withdraw from communication transactions. Managers who withdraw from communication transactions do not make a full contribution to society or to their business or profession. Specifically, CA may obstruct the individual innovativeness of managers, which could hinder their abilities to make impactful innovations within society.

The results of this study identify CA as a hindrance to managers' individual innovativeness. Knowledge about the relationships between CA and individual innovativeness may lead to new perspectives about how to reduce the effects of CA for managers who communicate in several social contexts, such as group discussions, interpersonal engagements, meetings, and public speaking situations. Reducing the effects of CA may increase the individual innovativeness of managers not only within their firms, but also in outside businesses and communities. Such findings would have the potential to transcend contemporary organizations across industries, sectors, and geographic regions. Improving the individual innovativeness of managers could increase innovation outcomes, which could improve firm performance and create more social and financial capabilities for organizational leaders to engage in social change initiatives in their local communities and around the world.

Summary and Transition

Chapter 1 included background information on the study and the research literature to describe the gap in knowledge addressed in this study. The problem statement and the purpose statement staged the research problem and explained the importance of the research study. This study fills a gap in knowledge about the relationships between CA and individual innovativeness in managers. This study was necessary because managers can face challenges to innovation adoption that may threaten the financial success and strategic competitiveness of their firms.

I used the research questions presented in Chapter 1 to examine the research problem described in the problem statement. Rogers's DOI theory served as the

theoretical framework for this study, as it aligned with the research design and problem under investigation. DOI theory provided a foundational understanding for the research problem regarding which innovation adoption categories could relate to CA and managers' individual innovativeness.

Chapter 2 includes a review of the literature on CA, innovation, and individual innovativeness and connects the literature to key variables in the study. I build upon the foundation established in Chapter 1 and provide a rationalization for how Rogers's DOI theory appropriately underscores the basis of the study. I also reinforce the need to research the relationships between predictor and criterion variables and describe how this study extended knowledge in the field of management and in the discipline of leadership and organizational change.

Chapter 2: Literature Review

The problem was that CA may negatively affect individual innovativeness, which could therefore stifle managers' tendencies to adopt change, negatively affect innovation outcomes, and hinder the performance of a firm. The purpose of this quantitative study was to examine the relationship between CA and individual innovativeness in managers. Understanding this relationship can lead to increased awareness about the need to mitigate the effects of CA in the workplace and about how to support managers' propensities toward innovation adoption more effectively, which could lead to improved firm performance.

Chapter 2 begins with the literature search strategy, followed by a justification of DOI theory as the theoretical framework for this study. This theory addresses an individual's attitudinal inclinations toward innovation adoption and thus managers' individual innovativeness. The next section includes the review of literature, with a synthesis and comparative analysis of relevant research related to innovation, individual innovativeness, and CA. The primary objective of the literature review is to demonstrate how this research fills the gap in the existing body of knowledge and to provide further insight to practitioners about the effects of CA in the workplace. This chapter concludes with a summary and a conclusion of the literature review.

Literature Search Strategy

To understand the potential challenge that CA presents to managers' individual innovativeness, I gathered peer-reviewed literature from several scholarly sources found in the following Walden University Library databases: ABI/INFORM Complete,

Academic Source Complete, Business Source Complete, PsycINFO, SAGE Premier, Science Direct, Thoreau Multi-Database Search, and others. I checked the "peer-reviewed" checkbox and typically specified a publication date range between 2012 and 2017; however, I included older sources to support some portions of the study. This search strategy led me to reputable and relevant literature related to my research topic.

For the theoretical framework section of the literature review, I retrieved literature using keywords such as *Rogers's diffusion of innovation theory, individual innovativeness,* and *diffusion of innovation.* For the first section of the literature review, which relates to CA and its effect in the workplace, key words used in the search process included *communication apprehension, trait and state communication apprehension, causes of communication apprehension, workplace behaviors, career, communication, performance,* and *PRCA-24.* For the second section of the literature review that relates to innovation, the role of managers in the innovation process, and the individual innovativeness of managers in the workplace, key words used in the search process included *innovation, individual innovativeness, managers, role of managers in innovation, open innovation,* and *social networks in the innovation process.* The goal was to understand the importance of innovation to firm performance, the role of managers in the innovation process, the importance of managers' individual innovativeness in innovation adoption, and the influence of CA on workplace behaviors.

Theoretical Framework

Rogers's DOI theory served as the theoretical framework in this study. Since its inception, researchers have extensively applied DOI theory to social science research (Claiborne, 2008). DOI theory refers to

> the process through which an individual passes from gaining initial knowledge of an innovation, to forming an attitude toward the innovation, to making a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. (Rogers, 2003, p. 168)

Researchers can use DOI theory to explain the process involving the adoption of an innovation. The theory includes a DOI model that graphically portrays the process of innovation adoption.

The DOI model includes a visual depiction of the process of innovation adoption. Rogers (1995) revealed that the successful diffusion of an innovation depicts an S-shaped curve. Field saturation occurs when "an adopter distribution" (Rogers, 1995, p. 261) has achieved the "S-shape on a cumulative basis" (Rogers, 1995, p. 261). Rooted within the rate of adoption, Rogers (2003) developed five adopter categories that classify "members of a social system on the basis of innovativeness" (p. 22). The categories—innovators, early adopters, early majority, late majority, and laggards—have a normal distribution in the DOI model (Rogers, 2003). Adoption categories help to explain the different classifications of adopters in the innovation adoption process.

Members of each adoption category have unique characteristics. The first category of adopters is *innovators,* venturesome individuals who introduce new ideas into

a social system (Rogers, 2003). Innovators represent 2.5% of all adopters in a social system and are the most risk-prone individuals in the social system. The second category is *early adopters*, who represent 13.5% of all adopters in a social system. Early adopters are exemplars among potential adopters and strengthen convictions in favor of an innovation (Rogers, 2003). The next category is the *early majority*, which makes up about 34% of adopters (Rogers, 2003). Early-majority individuals embrace an innovation slightly ahead of average members of a social system, but seldom serve as the key drivers of an innovation. Skeptical individuals in the fourth category, the late majority, adopt an innovation after the average members within a social system, typically as the result of peer pressure (Gayadeen & Phillips, 2014). Similar to the early majority category, individuals in the *late majority* category comprise approximately 34% of adopters and are not leaders of innovation. *Laggards*, the fifth category, are last to adopt an innovation compared to all other members in a social system (Rogers, 2003). Laggards represent 16% of all adopters in a social system. As seen in Figure 1, the time of adoption varies among the adoption categories, with respect to the S-curve of innovation diffusion.

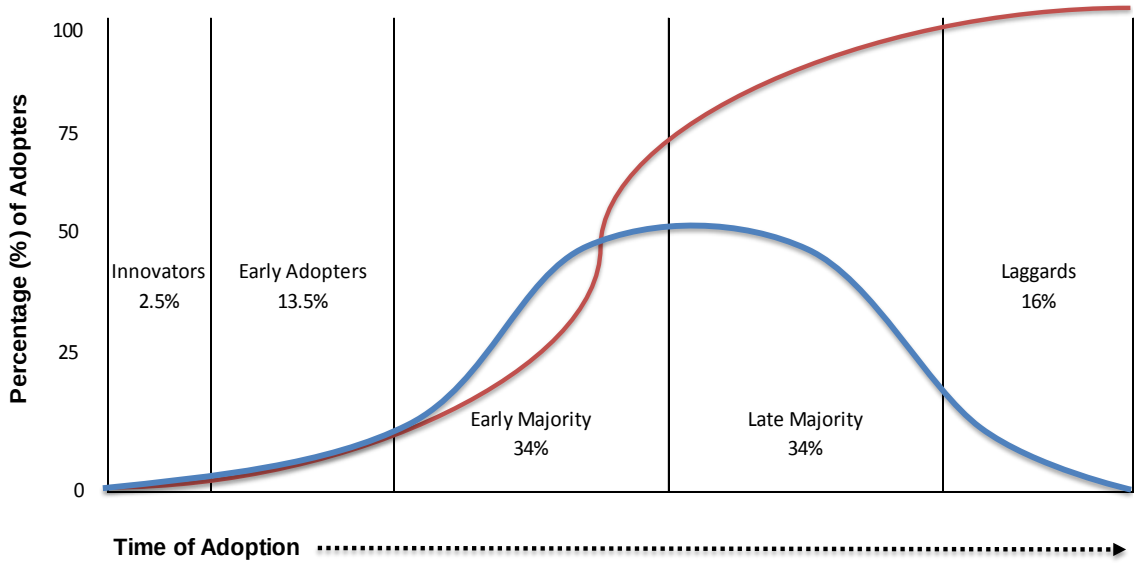

Figure 1. S-curve of adoption categorization based on the degree of innovativeness. From *Diffusion of Innovations* (5th ed., p. 261, by E. M. Rogers, 2003, New York, NY: The Free Press. Copyright 2003 by The Free Press. Adapted with permission (see Appendix A) of The Free Press: A Division of Simon & Schuster, Inc.

Different attributes may contribute to the rate of innovation adoption. Innovation attributes help to explain why individuals adopt some innovations more easily than others (Rogers, 2003). According to Rogers (2003), these innovation attributes are relative advantage, compatibility, complexity, trialability, and observability. Innovation attributes shed light on possible factors that influence an individual's propensity toward innovation. Innovation attributes affect adoption behaviors differently.

Innovation attributes pertain to the individual perceptions of the members involved in innovation adoption. *Relative advantage* refers to the extent to which individuals perceive an innovation as an improvement over a prevailing practice in use (Rogers, 2003). Relative advantage could even apply to an informal proposal of a new

innovation (Kohles, Bligh, & Carsten, 2013). *Compatibility* refers to the extent to which individuals perceive an innovation as being consistent with prevailing norms and is compatible with what potential adopters commonly do (Jackson et al., 2013). According to Rogers (2003), when individuals perceive an innovation as aligned with existing values, past experiences, and current needs, they may be more likely to connect with it, which may increase the likelihood of innovation adoption (Kohles et al., 2013). *Complexity* refers to "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers, 2003, p. 258). In an organizational context, if the vision behind an innovation is too abstract or if it is not easily understood regarding how the innovation would directly affect potential adopters' individual jobs, the innovation is likely to be disregarded (Kohles et al., 2013). *Trialability* refers to the extent to which an innovation can be experienced on a limited basis before adopting or rejecting it (Jackson et al., 2013). In an organizational context, followers may be more likely to adopt an innovation in the workplace if they are able to try it out with little effort and without the risk of falling behind, getting in trouble, or losing their jobs (Kohles et al., 2013). *Observability* refers to the extent to which the characteristics of an innovation are visible to potential adopters (Rogers, 2003). Observability, in the form of symbols, everyday procedures, or noticeable behaviors, can serve to encourage others to consider, discuss, or attempt to implement an innovation (Kohles et al., 2013). Adoption categories and innovation attributes serve as a part of DOI theory to explain the innovation adoption process.

Another element of DOI theory used to explain the innovation adoption process more effectively is communication channels. According to Rogers (2003), communication is "a process in which participants create and share information with one another in order to reach a mutual understanding" (p. 5), and "a channel is the means by which a message gets from the source to the receiver" (p. 204). Diffusion is a highly social process that involves building communication relationships across different channels (Rogers, 2003). Diffusion includes an innovation, two individuals or other units of adoption, and a communication channel. Communicative challenges might therefore affect the innovation adoption process. There are numerous applications of DOI theory.

Applications of DOI Theory

Scholars have used DOI theory extensively in research. Li and Sui (2011) identified more than 3,200 publications between 1991 and 2011 pertaining to DOI theory, with a variety of applications. Researchers have used DOI applications to cross a myriad of subject boundaries, including hybrid seed corn in Iowa, school-based tobacco prevention, snowmobiles in reindeer herding, banking, nutrition policies in child care centers, and the STOP AIDS program in San Francisco (Malecki, 1977; McCormick et al., 1995; Müller-Wille & Pelto, 1971; Pollard et al., 2001; Rogers, 1995, 2004). More recently, between 2012 and 2016, researchers have used DOI theory to research the effects of new technology in areas such as the use of sustainable laundry technologies by U.S. consumers (Hustvedt et al., 2013); massive open online courses (Annabi & Muller, 2016); Twitter diffusion in sports journalism (English, 2016); Facebook diffusion in public libraries (Neo & Calvert, 2012); and technological, relational, and cultural

innovation in the news industry (Ekdale et al., 2015). Researchers have applied DOI theory in the field of information technology and in communication research.

Researchers have used DOI theory to address the importance of individual communications in the innovation process. Rogers (1995) pointed out that person-to-person communication is crucial in the diffusion process among all kinds of adopters. Rogers noted the following in a 2001 interview published in the *Journal of Management Inquiry*: "It is people sharing their experiences with an innovation with others who have not yet adopted that ultimately is what convinces most people to adopt a new idea" (McGrath & Zell, 2001, p. 390). Finke, Ward, and Smith (1992) and Estes and Ward (2002) made a strong case that successful innovation is the result of a host of back-and-forth activities, where change agents propose, refine, and test ideas only to feed information back to the system to start the process again. A thought-provoking team brainstorming session, for example, will likely affect the thinking and idea generation of individuals in that team. DOI theory provides implications of social networks in the innovation process.

A few researchers have investigated the effects of social networks on innovation processes within the information technology industry. Jackson et al. (2013) found that early adopters exhibited greater social participation. According to DOI theory, ambiguity is not daunting to early adopters compared to late adopters (Rogers, 2003). Thatcher, Loughry, Lim, and McKnight (2007) also found that highly innovative individuals were more confident when adopting an innovation such as a new technology. DOI theory is also relevant as a theoretical foundation in management literature.

Relevance of DOI Theory

Members of the Institute of Scientific Communication designated DOI theory as a Citation Classic based on the 32,491 citations it had received as of October 2011 (Kohles et al., 2013). Rogers noted the following in a 2001 interview published in the *Journal of Management Inquiry*: "Management theory can both benefit from diffusion of innovation and be enriched by a good understanding of the diffusion of innovation literature" (McGrath & Zell, 2001, p. 390). DOI theory is valuable to the field of management, and researchers can apply DOI theory in management literature when analyzing the importance of communication in the workplace.

Researchers in the field of management have applied DOI theory when studying communications in the workplace. Kohles et al. (2013) applied DOI theory to leader–follower communications with a focus on vision integration processes. They found that both leader- and follower-initiated communications regarding Rogers's characteristics of the vision help managers and employees gain a better understanding of the vision behind an innovation (Kohles et al., 2013). Wunderlich et al. (2014) used DOI theory to analyze managerial influence on the diffusion of innovations within intraorganizational networks. The focus of the Wunderlich et al. study was the communication process within and between groups and the influence of managerial implementation strategies on DOI within intraorganizational networks. One of the weaknesses in the approach was that Wunderlich et al. examined only a limited number of different network structures. The results of the study indicated that senior management should consider the position of organizational groups in the intraorganizational network when deciding which groups to

influence. Further research should eliminate the assumption that all groups are homogeneous. Researchers have applied DOI theory when studying the role of managers in the innovation process.

Rogers's DOI theory related to the present study because of its focus on the process through which a person exhibits individual innovativeness. More specifically, the focus of DOI theory in this study was on the context of the individual innovativeness of managers. Thus, I employed the research questions in this study to examine the relationship between CA and individual innovativeness in managers. Additionally, the survey questions related to DOI theory helped to address the individual innovativeness of managers. The answers to these survey questions provided insight into the relationships between innovation adoption categories and the degree of CA experienced in different social situations. The examination of the relationship between CA and individual innovativeness in managers increased knowledge about how communication traits influence innovation adoption, bringing rise to new implications in the field of management.

The Importance of Innovation and Communication Apprehension

Innovation in business is imperative in a fast-paced, changing environment. The dynamic and aggressive market conditions of the 21st century have increased the need for managers to generate new market offerings more quickly and efficiently (Evanschitzky, Eisend, Calantone, & Jiang, 2012). Innovation refers to the implementation of a new or significantly improved good or service, a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations

(World Intellectual Property Organization, 2012). In the midst of "intensified competition, technological complexity and institutional instability" (Mascia et al., 2015, p. 102), organizational leaders are increasingly seeking innovation as a way to achieve a sustainable competitive advantage. According to Accenture (2016), 63% of companies surveyed had chief innovation officers. Many executive leaders view innovation as a critical function of management. Innovation offers competitive value to different types of businesses.

Innovation is vital to the success of many industries. The survival, growth, and financial performance of organizations in most industries have a close connection to their innovative competencies (Mascia et al., 2015). Industries such as fashion, art, videogame making, technology, publishing, and film rely on innovation for their growth (Godart, Maddux, Shipilov & Galinsky, 2015) and as a primary source of income (O'Connor, 2012). The central challenge of creative industries, like many industries, is ensuring continuous innovation (Pratt, Nathan, & Rincon-Azner, 2015). Alam and Dubey (2014) noted, "Existing products are vulnerable to changing customer needs and tastes, new technologies, shortened product life cycles, and increased international competition" (p. 38). Firms in the creative industry are dependent on innovation for their success. Numerous firms in the creative industry have grown sizably due to innovation.

Spotify is an example of a company in the creative industry that owes much of its recent success to innovation. Spotify, which is a Swedish company that streams music, video, and podcasts, ranked 10th out of 50 in Fast Company's annual World's Most Innovative Companies ranking (Fast Company, 2017). Manhattan Venture Research

(2016) valued Spotify at $9.4 billion as of 2016, which is twice its worth in 2013 (Viita & Campbell, 2015). Much of Spotify's success is due to its product innovations in sophisticated data collection, which enables the company to release new products regularly that excite its users (Fast Company, 2017). Fashion retailer Zara is another example of a company in the creative industry that owes much of its success to innovation. According to Denning (2015) at *Forbes* magazine, Zara, the largest apparel seller in the world, attained success through process innovation. Hausman and Thorbeck (2010) analyzed public data available from 53 retail and short product-life-cycle businesses (as cited in Thorbeck, 2014). Referred to as the "Zara Gap," Hausman and Thorbeck found that Zara was up to 4 times more profitable than most apparel retailers and consistently outperformed category averages for department stores, wholesale brands, specialty retailers, and athletic brands (as cited in Thorbeck, 2014). According to Hansen (2012), Zara's success resulted from its innovative supply chain that allows the company to restock with new designs twice a week, whereas other retailers update brands only once a season. Innovation is important to a firm's growth and financial performance. All firms should innovate regardless of their size.

Innovation is important to both large organizations and small and medium-sized enterprises (SMEs). Innovation is essential for the global competitiveness of these firms (Charoensukmongkol, 2015; Konsti-Laakso, Pihkala, & Kraus, 2012; Palacios-Marqués, Merigó, & Soto-Acosta, 2015; Palacios-Marqués, Soto-Acosta, & Merigó, 2015). Bamiatzi and Kirchmaier (2014) found that innovation is a critical component of SME growth, even in declining markets. Rosenbusch, Brinckmann, and Bausch (2011)

conducted a meta-analysis to examine the relationship between innovation and performance in 21,270 SMEs and concluded that innovation is the key to an SME's financial performance. Both large organizations and SMEs have thrived because of innovation.

Tesla is an example of a large company that continues to revolutionize the automobile industry because of innovation. According to Dyer and Gregersen (2016), Tesla was first on the *Forbes* 2016 list of the most innovative companies because of its innovations in three areas: their direct-to-consumer sales model, their platform that has collected over $4 billion in reservations for their upcoming Model 3 product, and their ongoing product innovations in autonomous driving. Tesla's Gigafactory in Nevada, once fully completed in 2020, will also become the world's largest producer of batteries, enabling Tesla cars of the future to have solar roofs with seamlessly integrated battery storage (Dyer & Gregersen, 2016).

Herschel, a global bag company based in Vancouver, is an example of an SME that has benefited from innovation. Hershchel achieved 75% growth in sales between 2014 and 2015 by reverse-designing new product innovations to meet the changing needs of their target market (Marlow, 2015). Hershechel also developed a resealable, water-resistant, nylon, ripstop backpack called the ApexKnit that allows consumers to redisperse its fibers to repair any holes in the material (Lagorio-Chafkin, 2016). The product sold out online quickly after its launch (Lagorio-Chafkin, 2016). Both large organizations and SMEs depend on innovation to achieve growth in their respective areas

of the market. Although size of the innovation can give companies scale, research shows that speed may be more critical.

The rate at which managers commercialize innovations can be a determinant of profitability. In the Boston Consulting Group's 2015 report *Most Innovative Companies 2015,* 42% of the 1,500 global innovation executives surveyed had reported that innovation development times are too long. According to the report, fast innovators are 42% more likely to be strong innovators, with 35% of fast innovators getting new products to market quickly and generating 30% more revenue than slower innovators (Boston Consulting Group, 2015). Google is an example of a company that is a fast innovator. In addition to allowing its engineers to spend 20% of their work week on product innovations that interest them, Google also releases several of its products into the market as beta launches and makes rapid iterations to perfect the product after it has already been on the market (G Suite, 2017). One advantage of this approach is that Google receives real-world user feedback in real time, so that managers can modify products based on the current needs and wants of the market (G Suite, 2017). Increasing speed to market can lead to financial benefits. Communication is necessary to carry out innovation as quickly and efficiently as possible.

Social competencies are essential to the innovation process. Innovation relies on managers and followers brainstorming beyond ordinary work tasks and taking the initiative to make cumulative changes over time (Carnabuci & Diószegi, 2015). When analyzing lean production practices, Lantz, Hansen, and Antoni (2015) found that innovation relies on teams to collaborate and take initiatives to create change. Managers

must be able to articulate new ideas and various areas of improvement frequently (Szczepańska-Woszczyna & Dacko-Pikiewicz, 2014). Managerial communication (Creasy & Anantatmula, 2013) and individual adoption decisions (Lanzolla & Suarez, 2012) are crucial to the success of an innovation. CA, however, may negatively affect managers' individual innovativeness in the workplace.

CA is a communicative challenge in the workplace. CA refers to "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p.78). As much as 15–20% of the U.S. population fears or is uncomfortable with oral communication, especially about matters that are difficult to conceptualize (Neuliep & McCroskey, 1997). Approximately 70% of the people in the United States report experiencing CA when they have to give a public speech and 15–20% of these people suffer from high CA (McCroskey, 2009). Many employees likely experience CA in the workplace, and many researchers have studied the effects of CA in the workplace.

One of the motivations behind studying CA is to understand the degree to which CA handicaps an individual's effectiveness in the workplace. McCroskey and Richmond (1976) asserted that employees with high CA typically avoid dialogic communication, prefer working independently, have difficulty expressing themselves, and exhibit a low task orientation. Managers who possess high CA are less likely to experience social connectedness with others in the workplace (McCroskey & Richmond, 1976). Innovation has a higher likelihood of success when managers are able to exchange good ideas and best practices openly in their social networks (Wong & Boh, 2014). Therefore,

understanding the effects of managers' CA in the workplace is important because their CA may hinder the success of an innovation, which could negatively affect a firm's financial performance and competitiveness.

The Importance Social Networks in the Innovation Process

Social networks feed the innovation process. A social network refers to a set of individuals "interconnected through social ties or links" (Mascia et al., 2015, p. 103). Social networks promote decision making at different stages throughout the innovation process (Baer, 2012). During the initial phase of an innovation, when individuals are brainstorming creative, out-of-the-box ideas, employees entrenched in social networks have an advantage (Carnabuci & Diószegi, 2015). During subsequent phases when individuals need to integrate novel ideas into the existing expertise, procedures, and organizational structures, employees who engage in small social networks are in a better position than those who do not (Carnabuci & Diószegi, 2015). Innovation is a social and communicative process. In social networks, individuals from different functional areas of an organization have the opportunity to exchange knowledge throughout the refinement and realization of an innovation.

Social networks assist in the transfer of knowledge. The success of an innovation can largely be due to the transfer of tacit and nontacit knowledge (Ellison, Vitak, Gray, & Lampe, 2014). According to Neal (2014), high-quality innovations are dependent on knowledge transfers through resource exchanges and reciprocal relationships. Sierzchula, Bakker, Maat, and Wee (2015) investigated how 24 automotive manufacturers used social networks to gain expertise in knowledge areas that drive the development and

commercialization of electric vehicles. One of the weaknesses in the approach was that they only analyzed electric vehicle manufacturers, which limited the generalizability of their findings. The results of the study indicated that firms pursued greater interorganizational collaborations with explorative partnerships during periods of industrial uncertainty (Sierzchula et al., 2015). These findings indicated that knowledge transfers that occur between social networks are important to the success of an innovation during periods of economic uncertainty. Future researchers should focus on replicating this study and extending its findings to more than one industry. Different types of social networks aid the innovation process.

Growing evidence highlights the relationships between multiple social networks and innovation outcomes. Companies that engage in a diverse set of social networks are in a better position than others are to enhance their innovation efforts (Wuyts & Dutta, 2014). Open innovation refers to when managers gather valuable ideas from a diverse set of networks inside or outside of the company (Chesbrough, 2003). Salazar, Gonzalez, Duysters, Sabidussi, and Allen (2016) conducted a meta-analysis based on 517 correlations, 156 studies, and 93,048 firms to investigate the direct and indirect relationships between innovation, networks, alliances, and firm performance. The findings indicated that innovation capabilities and strategic competitiveness increase as firms improve the number and quality of social networks (Salazar et al., 2016). These findings indicated that open innovation plays an important role in achieving improved financial performance as an innovation outcome. Part of a manager's job is to facilitate communication within numerous social networks throughout the innovation process.

Managers' Role in the Innovation Process

Managers play a vital role in the innovation process. Wong and Boh (2014) noted, "Managers fulfill an important innovative role in organizations because they not only provide resources for new ideas but also engage in boundary-spanning activities that make them ideal candidates for new idea generation" (p. 1180). Managers initiate knowledge transfers across several social networks and have a greater likelihood to initiative change due to their ability to cross-pollinate ideas between different departments within an organization (Battilana & Casciaro, 2012). Managers have a unique position to initiate change within an organization. Managers carry out numerous tasks throughout the innovation process.

Managers perform several functions to support the adoption of an innovation. Managers gather needed resources for new initiatives (Kanter, 1982), raise awareness and gather sponsorship (Howell & Boies, 2004), and partake in *issue selling* (Dutton & Ashford, 1993). Managers offer support to different members inside and outside of social networks (Druskat & Wheeler, 2003). Reay et al. (2013) noted that while macro-level theorizing was important in spreading the idea and rationale for the new practices, the transformation of ideas into practice took place through the supportive efforts of managers. Choi and Chang (2009) empirically revealed that management support significantly improves innovation implementation effectiveness by strengthening employees' collective innovation confidence and collective innovation acceptance. Managers reinforce the innovation process and need several attributes to carry out an innovation successfully.

Several managerial characteristics are necessary in the innovation process. According to Wong and Boh (2014), an innovative manager is competitive, is constantly seeking, is constantly introducing changes and improvements, is communicative, has good interpersonal skills; is able to inspire subordinates, and is able to listen to their opinions and recognize good ideas. Szczepańska-Woszczyna and Dacko-Pikiewicz (2014) identified competencies that managers must have to become successful in the innovation process. Examples of competencies include ability to cope with change, adapt flexibly to complex and vague situations, solve problems creatively, propose ideas, initiate change, make contacts, train others, support communication, manage conflicts, cooperate in the group, take care of subordinates, and build relationships and trust (Szczepańska-Woszczyna & Dacko-Pikiewicz, 2014). Managers need to have the ability to communicate effectively and to be flexible in the innovation process. Managers have individual orientations toward change. One of the main factors influencing the success of an innovation is managers' individual innovativeness.

Managers' Individual Innovativeness

Individual innovativeness is an important element of the innovation process. Individual innovativeness reflects an individual's underlying nature when exposed to an innovation and relates to how early in the process of adoption an individual is likely to accept a change (Rogers, 2003). An individual's attitudinal inclination toward innovation adoption relates to the success of innovation outcomes (Choi, 2011; Oparaocha & Oparaocha, 2016). Conceptual studies presented by Rogers (2003) indicated that individuals with greater levels of individual innovativeness will adopt innovation in a

firm earlier than those with lesser levels of innovativeness. Individual innovativeness is a determinant of innovation adoption. However, being innovative is not the same as having individual innovativeness.

There is a difference between being innovative and a person's individual innovativeness. Being innovative generally refers to the generation of new ideas (Hemphälä & Magnusson, 2012), while individual innovativeness refers to an individual's innovative performance, which may vary depending on that individual's perceived efficacy in embracing new ideas (Baer, 2012). People vary in their innovativeness, and behavioral tendencies may influence individual innovativeness.

Personal predispositions may affect individual innovativeness. Individuals' relational and cognitive characteristics are likely predictors of their dedication towards an innovation (Mascia et al., 2015). Schweisfurth and Herstatt (2015) investigated how relational and cognitive characteristics related to the diffusion of new product innovations in four German firms developing gaming hardware products. One of the strengths in the approach was that they only analyzed the opinions of employees to answer their research questions. This approach was a strength because employees, compared to external users, have direct connections to corporate knowledge and social networks and are on the ground floor of corporate innovation. Results of the study indicated that relational and cognitive characteristics positively related to the diffusion of new products (Schweisfurth & Herstatt, 2015). Future researchers should investigate if cognitive attachments to customers assist the data exchanges between employees and users. Researchers have

studied individual innovativeness extensively. The focus of most innovation literature is on either the factors that affect lower level employees or organizations in general.

Only a few studies include managers' individual innovativeness as their foundation. Alam and Dubey (2014) investigated the relationships between managers' innovativeness and product, strategy, and process innovation on 196 owners and managers of textile manufacturing SMEs at four main industrial areas in Karachi, Pakistan. One of the weaknesses of the approach was that Alam and Dubey only studied one industry, which limited the generalizability of the results. The results of the study indicated that owners' and managers' individual innovativeness had a positive and significant correlation with product, strategy, and process innovation (Alam & Dubey, 2014). The results revealed that managers' individual innovativeness can considerably affect the success of innovation outcomes. Future researchers should replicate Alam and Dubey's study to extend these findings to other industries and in other geographic regions. Researchers have studied managers' individual innovativeness in conjunction with social networks.

Social Networks and Managers' Individual Innovativeness

Social networks have the potential to enhance managers' individual innovativeness. The density of social networks increases the rate of data diffusion in a social network (Singh, 2005), which can increase managers' individual innovativeness (Ebadi & Utterback, 1984) and increase an innovation's diffusion throughout the entire organization (Abrahamson & Rosenkopf, 1997). Social networks expose managers to a wide array of information that they can synthesize to generate new ideas or disseminate

across multiple contexts (Rodan & Galunic, 2004). Social networks also position managers to obtain better reinforcements for innovation implementation (Paruchuri, 2010). Wong and Boh (2014) investigated the relationship of social network sparseness and the centrality on managers' individual innovativeness on 77 top-ranked managers in a large emergency response services firm in Asia. One weakness in the approach was that data only came from one organization situated in one city in Asia, which limited the generalizability of the findings. Results of the study revealed that advice network sparseness and network centrality had independent, positive associations with managers' individual innovativeness (Wong & Boh, 2014). The study results also indicated that managers can make different behavioral choices to realize the potential resources in social networks for innovation. A focus of future research should be how collective discussion and approval of new initiatives for the firm affect managers' individual innovativeness so that variables can be cross-validated. Not all managers possess the same communicative capacity to engage in social networks.

Many factors influence managers' ability to engage in social networks. Individual openness to experience (Baer, 2012) and individual mind-sets significantly influence managers' propensity to participate in social networks (Oparaocha & Oparaocha, 2016). Behavioral predispositions and attitudes toward social networks may also guide managers' individual innovativeness (Oparaocha & Oparaocha, 2016). According to Baer (2012), the benefits of social networks are contingent upon individual impetuses and abilities to engage in them. These studies indicated that while social networks offer the potential to enhance managers' individual innovativeness, such potential is dependent on

managers' individual capacities to communicate with others. Communicative challenges such as CA may therefore hinder managers' individual innovativeness.

Communication Apprehension

CA is a communicative challenge. CA refers to "an individual's level of fear or anxiety with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 78). The term *stage fright* was a precursor to the term *CA*. According to McCroskey and Beatty (2000), stage fright is the combination of two temperament dimensions: low extraversion and high neuroticism. The term stage fright refers to reticence or shyness experienced from speaking in social interactions. CA is a subconstruct of reticence. Reticence is "the most global of the constructs in that it refers to a trait of an individual which results in that individual characteristically remaining silent rather than participating in communication" (McCroskey, 1977, p. 79). CA can have an association with the concept of reticence, which denotes a broader category of communication traits. Although CA is a subconstruct of reticence, it is not a synonym for shyness.

Shyness is not the same as CA. Shyness refers to the "actual frequency of a person talking, and thus represents a behavioral pattern and not a person's preference toward communication or a person's anxiety about communication" (McCroskey & McCroskey, 2001, p. 21). The behavior pattern of communicating or not communicating drives the determination about whether an individual is being shy. The study of shyness, however, does not provide insight into what causes this behavioral pattern. Shyness may be a manifestation of CA; however, only CA addresses a person's preference toward

communication or a person's anxiety about communication. Researchers have compared stage fright, reticence, and shyness to social anxiety.

CA is a correlate of social anxiety. Characteristics of social anxiety include an ongoing, extreme fear and evasion of social situations involving scrutiny and possible negative judgment (American Psychiatric Association, 2013). Social anxiety results from dread about ambiguous situations (Heimberg et al., 2014) and even of nonthreatening social events (Weeks & Howell, 2012). Social anxiety and CA relate because socially anxious individuals are more likely to have higher CA when communicating with others (Blume, Baldwin, & Ryan, 2013). CA addresses the anxiety that keeps an individual from actively engaging in communication opportunities. Having CA is not dichotomous.

Researchers do not measure CA in absolutes. Rather, researchers measure CA on a continuum from low to high (Gayle, Preiss, Burrell, & Allen, 2006; McCroskey, 1977). Individuals with high CA are not necessarily poor communicators. When having high CA does not keep an individual from communicating in social settings, that individual may be excellent at communicating when doing so (Blume et al., 2013). CA is not a universal phenomenon. McCroskey (1977) advanced two types of CA to account for whether such behavior is a response to either a trait or a contextual social interaction: trait-like CA (TCA) and context CA (CCA).

Trait-like CA. Trait-like CA is a general pattern of low, medium, or high anxiety across different social situations. Trait-like CA refers to a personality-type apprehension toward communication across a wide range of contexts (McCroskey, 1984). Whereas TCA involves having a personality-type tendency, the term *trait-like* is intentionally used

to differentiate it from more fixed personality traits like eye color or height (McCroskey, 1977). Characteristics of TCA are highly resistant to change (McCroskey, 1977). It may be difficult to reduce levels of CA in individuals experiencing high TCA. Trait-like CA refers to an individual's propensity to frequently feel anxious in several types of social interactions.

Context CA. Context CA occurs in only specific social situations or contexts. Context CA refers to a personality-type apprehension toward communication in a specific type of context (McCroskey, 1984). Individuals with CCA may experience apprehension in one communication setting, but not necessarily in another (Coetzee, Schmulian, & Kotze, 2014). It may be less difficult to reduce levels of CA in individuals experiencing high CCA. Context CA explains how an individual's CA can fluctuate depending on the conditions of the external environment.

Trait-like and context CA. Constructs of TCA and CCA are interconnected. The degree of TCA an individual experiences may somewhat predict the degree of CCA that can be experienced (McCroskey & Richmond, 1982). An assumption exists that moderate to moderately-high correlations exist between the trait-like measures and the context-based measures of CA (McCroskey, Richmond, & Davis, 1986). Both TCA and CCA describe the discomfort one experiences during group discussions, interpersonal conversations, formal meetings, and presentations (McCroskey & Richmond, 1982). Both TCA and CCA consider an individual's fear or anxiety associated with oral communication as a response to perceived danger.

Trait-like CA and CCA are associated with a perception of a threat or danger, either imagined or real. The behavioral effect of TCA and CCA often manifests in an emergency fight-or-flight reaction (Smith, Iverach, O'Brian, Kefalianos, & Reilly, 2014). Increased anxiety can be beneficial when it facilitates survival or enhances performance (Beesdo-Baum & Knappe, 2012). However, increased anxiety can be a detriment when social cues are perceived as threatening and an individual is overwhelmed with CA (Iverach & Rapee, 2014; Lowe et al., 2012). Although a social situation can seem benign to some, it can be frightening for an individual with TCA or CCA. Despite the similarities in how people experience TCA and CCA, there are differences between TCA and CCA.

Trait-like CA and CCA constructs demonstrate different theoretical perspectives. Trait-like CA captures the general level of discomfort an individual experiences when communicating with others across diverse contexts, whereas CCA is a transitory orientation that provides a more composite view of one's discomfort when communicating in diverse states or environments (Russ, 2013a). Although the TCA viewpoint assumes that apprehension experienced in one communication context correlates highly with apprehension in other contexts, the CCA view does not require that assumption (Jones, Cheek, & Briggs, 2013). For example, an individual could exhibit high CA across all four contexts. Furthermore, someone could experience CA in one context (e.g., interpersonal communication) but feel completely at ease in another (e.g. public speaking). Every individual's experience with CA is different. Researchers have proposed several possible causes of CA.

Possible Causes of Communication Apprehension

One of the major causes of CA may be emotional development during early childhood. Emotional knowledge skills typically develop between 3 and 5 years of age (Heinze, Miller, Seifer, Dickstein, & Locke, 2015). Children may adopt emotional knowledge skills by modeling their caregivers (Reuland & Teachman, 2014). A child's ability to identify and understand emotions in others is essential for effectual social interaction and cultivating social relationships (Denham et al., 2002). Failure to process emotion-related information during early childhood may lead to the development of CA. Caregivers' behaviors may also influence CA development later in childhood.

Caregivers' communications influence children. Caregivers provide children with the most constructive form of social feedback (Streamer & Seery, 2015). Prosocial advice from caregivers on how to navigate through difficult social situations relates to children's social confidence (Poulin, Nadeau, & Scaramella, 2012). Caregivers' communications may influence CA development. Challenges experienced within a family may negatively influence CA development in childhood.

Adverse environmental factors influence social development in childhood. Stressful life events (Beesdo-Baum & Knappe, 2012) and childhood adversity (Broeren, Newall, Dodd, Locker, & Hudson, 2014) from experiences such as separation and death of parents, separation of spouses, moving to a new place, an unsafe living environment, a poor parent–child relationship, peer rejection, family violence, and discrimination (Agnew, 1992) affect the level of social anxiety and social adaptation in children (Chan & Lo, 2016). Children who have negative family experiences in early childhood are more

likely to have underdeveloped social skills and to experience long-lasting disruptions in physiological and neuroendocrine system regulation (Repetti et al., 2002). Negative early family experiences increase children's susceptibility to CA. CA may continue to develop into adolescence.

The effects of CA can occur during adolescence. Puberty is a sensitive period with regard to social interaction (Eiland & Romeo, 2013), and adolescents increasingly begin to engage with people outside of their families (Suldo, Gelley, Roth, & Bateman, 2015). Social novelty increases as adolescents communicate in less familiar settings (Duchesne, Ratelle, & Roy, 2012). Positive interpretations of ambiguous situations have an association with increased social confidence (Lau, Pettit, & Creswell, 2013). Social adaptation to unfamiliar environments may influence CA development in adolescence. Individual differences in CA during adolescence may stem from negative social experiences with peers.

Adolescents who have negative social experiences in their peer relationships may be more likely to develop CA. Adolescents who experience peer rejection and peer victimization may develop negative expectations for future social situations (Su, Pettit, & Erath, 2016). Peer-rejected adolescents may have limited opportunities to acclimatize to social interactions and to develop social confidence, which increases their propensity to develop CA (Drake & Ginsburg, 2012). Brain development of neural systems may be particularly vulnerable to stress during adolescence (McCormick & Green, 2013). The development of CA in adolescence may have long-term behavioral consequences. Another possible cause of CA may be genetic predisposition.

Some researchers believe that biological factors might cause CA. Beatty, McCroskey, and Valencic (2001) proposed communibiology as a possible cause for CA. The communibiological perspective proposes that inborn, neurobiological structures are responsible for communication behavior (Beatty et al., 2001).

> Adapted to the theoretical treatment of CA, the basic propositions [of communibiology] are: (1) All psychological processes—including cognitive, affective, and motor—involved in social interaction depend on brain activity, which, thereby, necessitates a neurobiology of communication traits; (2) Brain activity precedes psychological experience; (3) The neurological structures underlying temperamental traits and individual differences, such as those associate with CA, are mostly products of genetic inheritance; (4) Environment has only a negligible effect on trait development; and (5) Differences in interpersonal behavior are principally a consequence of individual differences in neurobiological functioning (Beatty, McCroskey, & Heisel, 1998, p. 198).

According to Beatty et al. (2001), the influence of genetics is about 80% of the determinant of social behavior. CA can aggregate in families (Beesdo-Baum & Knappe, 2012) due to genetic predispositions (Hartley & Casey, 2013). Buss (1980) conducted research on a large sample of adult twins who had the opportunity to have varied social experiences and found that biologically identical twins were more similar in sociability than fraternal twins were. The research findings indicated that genetics and the environment might be precursors to social predispositions such as CA. Other researchers have tried to explain the likelihood that individuals experience CA.

Communication researchers have studied behavioral frameworks to have a better understanding of the triggers of CA. Gray's (1982, 1990, 1991) model of behavioral inhibition system (BIS) and behavioral activation system (BAS) helps to explain individuals' tendencies toward experiencing CA. When novel stimuli activate the BIS, the perceived threat of punishment or the end of a reward results in CA (Kelly & Keaten, 2000). Drawing on Gray's model, Beatty et al. (1998) proposed that individuals with higher levels of CA are more likely to have inherited a lower threshold for BIS activation, which meant that their BIS is more easily and frequently activated and results in higher levels and more frequent experiences of CA. Activation of the BIS may relate to both environmental and genetic causes of CA. CA can affect people in different ways.

Internal Effects of Communication Apprehension

Individuals with CA may experience the effects of the communicative challenge from within their body. CA is a cerebral response to communication that affects a person internally (Richmond, Wrench, & McCroskey, 2013). Physiological symptoms of CA can include dry mouth, cold hands, a lack of concentration, shallow breathing, light-headedness, blushing, rapid heartbeat, tightened throat, weakness in the legs, nausea, tense muscles, and sweaty hands (Horwitz, 2002). There can also be a sense of urinary or bowel urgency (Horwitz, 2002). Physiological signs of CA also include increased blood levels of neurotransmitters such as adrenalin, increased blood pressure, and decreased body temperature (Gregersen & Horwitz, 2002). Physiological effects of CA are evaluated by fluctuations in "heart rate, respirations, galvanic skin response, muscle tension, body temperature, and cortisol (hydrocortisone) levels" (Horwitz, 2002, p. 4).

The subjective perception of a social event can trigger physiological reactions in a person experiencing CA. Other internal effects of CA exist.

There can also be cognitive and behavioral effects of CA. Individuals with high CA typically experience discomfort, fright, being unable to cope, and inadequacy (Richmond et al., 2013). The cognitive effect of CA is an ongoing sense of anxiety about either a present or an upcoming social interaction (Horwitz, 2002). Behavioral effects of CA include hypervigilance, avoidance of speaking, and self-conscious endurance (Horwitz, 2002). Researchers typically measure the cognitive effects of CA using self-reports that capture subjective reactions to social acts or events (Tichon, Wallis, Riek, & Mavin, 2014). Researchers typically measure the behavioral effects of CA using observational instruments that monitor the level of CA and how it is managed (Mian, Carter, Pine, Wakschlag, & Briggs-Gowan, 2015). CA can have cognitive and behavioral effects on an individual based on that person's perceptions of a social event. Individuals can experience cognitive, physiological, and behavioral effects of CA, which can affect personality type, self-efficacy, self-esteem, WTC, and SPCC.

Personality type and CA. Individuals' personalities influence their tendency toward oral communication. Personality refers to an individual's usual pattern of thoughts, emotions, and behaviors (Funder & Colvin, 1997). The five-factor model outlines five major personality types: neuroticism, extraversion, openness, agreeableness, and conscientiousness (McCrae & Costa, 1997). Neuroticism describes an individual's emotional stability (Costa & McCrae, 1992). Individuals who have higher levels of neuroticism experience more negative emotions reflected in poorer attitudes about social

interaction (Costa & McCrae, 1992). McCroskey, Heisel, and Richmond (2001) found that neurotic participants reported less self-acceptance. Individuals who have lower levels of extraversion (known as introversion) desire less social stimulation, whereas individuals who have higher levels of extraversion have a greater tendency to seek out social stimulation (Pagani, Goldsmith, & Hofacker, 2013). Individuals with different personality types have varying attitudes toward seeking social stimulation. Researchers have studied personality types from other perspectives.

Two researchers developed a way to examine personality types. Building from Jung's (1923) book, *Psychological Types*, Myers-Briggs developed the Myers-Briggs Type Indicator (MBTI) self-assessment tool as a personality-centric way to assess cognitive styles (Creasy & Anantatmula, 2013). The MBTI identifies four types of personality preferences along four matrices: perceiving, judging, extraversion–introversion, and dominant process (Opt & Loffredo, 2000). The extravert–introvert dimensions of Jung's personality types significantly relate to the five-factor model of personality (Furnham, Moutafi, & Crump, 2003). The MBTI has become the most widely used personality instrument for nonpsychiatric populations (Myers & Myers, 1995). Researchers have studied personality types extensively. CA has undergone examination with its relationship to personality dimensions.

A relationship exists between personality type and CA. Extraversion and neuroticism substantially relate to an individual's level of CA (Brogan, Jowi, McCroskey, & Wrench, 2008; Neuliep, Chadouir, & McCroskey, 2003). Using Jung's psychological types, Dwyer and Cruz (1998) discovered that individuals with high TCA and CCA

possess an introversion personality type, whereas individuals with low TCA and CCA possess an extraversion personality type. Additionally, Opt and Loffredo (2000) revealed that individuals experiencing higher levels of TCA and CCA have the personality-type preferences of introversion, feeling, and sensing on the MBTI, and individuals with lower levels of TCA and CCA have the personality type preferences of extraversion and intuition. Extraversion may increase an individual's preference toward oral communication, whereas introversion and neuroticism may decrease an individual's preference toward oral communication. Self-efficacy may also influence an individual's tendency to communicate.

Self-efficacy and CA. A relationship may exist between self-efficacy and CA. Self-efficacy refers to the level of confidence individuals have in their abilities to perform specific outcomes (Bandura, 2012). If individuals believe they can communicate successfully, they will be more likely to attempt communicating (Bandura, 2012). Individuals with high communication self-efficacy are more likely to attempt communicating compared to individuals with low communication self-efficacy. Researchers have investigated the link between self-efficacy and CA.

An inverse relationship exists between self-efficacy and CA. Reducing CA heightens self-efficacy beliefs (Bandura, 2012). Hassall et al. (2013) examined the link between self-efficacy and CA using questionnaires completed by 228 Malaysian-Chinese students studying accounting and in the final year of their degree. One weakness of Hassall et al.'s approach was that the sample used in the study came from one collegiate institution. A strength of the approach was that the population emulated previous findings

with respect to gender (Hassall et al., 2013). The results of the study indicated that a strong, statistical relationship existed between CA and self-efficacy and that high levels of CA exhibited low levels of communication self-efficacy. Future researchers should identify pedagogic methods that will help to reduce the effects of CA in the accounting profession. These findings are important because they provide insight into internal beliefs associated with CA and perhaps an opportunity regarding how to offset communicative challenges. Self-esteem is another internal attribute affected by CA.

Self-esteem and CA. Self-esteem affects the level of comfort an individual experiences while speaking in social situations. Self-esteem is the term that describes individuals' evaluation of themselves (Berger, 1952). McCroskey et al. (1977) examined five studies on self-esteem and CA. A strength in the approach was that McCroskey et al. analyzed three diverse populations in the five studies, with participants ranging from elementary and secondary teachers to college students to federal employees, which made the findings of the study more generalizable. The results of the study showed that a substantial correlation exists between CA and self-esteem (McCroskey et al., 1977). Subsequent studies corroborated these results (Cheek & Buss, 1981; Jones & Russell, 1982; Leary, 1983). Future researchers should examine the relationships between self-esteem and writing CA. Individuals with low self-esteem may perceive themselves as inferior communicators, which may lead to experiencing higher levels of CA while speaking in social situations. CA may alter an individual's attitudes and behaviors regarding communicative abilities and tendencies to communicate.

Willingness to communicate, self-perceived communication competence, and CA. Willingness to communicate and SPCC are correlates of CA. McCroskey and Baer (1985) first proposed the concept of WTC as the likelihood that an individual will choose to speak when at liberty to do so. Researchers have studied WTC extensively under the context of foreign learners speaking English as a second language (Cao, 2014; Eddy-U, 2015; Fu, Wang, & Wang, 2012; Hsu, 2015; Mulalic & Obralic, 2016; Subtirelu, 2014; Wu & Lin, 2014; Zhong, 2013). Willingness to communicate is a complex phenomenon (Peng, 2012) influenced by the interactions between factors such as aptitude, anxiety, social context, self-confidence, beliefs, and attitudes (Pawlak & Mystkowska-Wiertelak, 2015). A person's WTC may change under different circumstances. SPCC refers to how individuals perceive their competence at oral communication (McCroskey & McCroskey, 1988). A substantial relationship exists between SPCC and WTC (McCroskey & McCroskey, 1988). Researchers have demonstrated a positive correlation exists between SPCC and WTC (Allen et al., 2014; Zarrinabadi & Haidary, 2014) and a negative correlation exists between SPCC and CA (Lockley, 2013; Zarrinabadi, 2012). Individuals who perceive themselves as having less communicative competence are more likely to have higher levels of CA and are less willing to communicate. In addition to the internal effects of CA, there are implications for individuals with CA in the external environment.

External Effects of Communication Apprehension

An individual may outwardly express the effects of CA. According to McCroskey (1997), individuals with CA have three behavioral responses: communication avoidance, communication withdrawal, and communication disruption. People with higher CA are

more likely to avoid social interactions when communication is necessary and to refrain from speaking when such situations are unavoidable (Gayle et al., 2006; McCroskey, 1977). Trembling, stammering, and pausing are possible communication disruptions associated with CA (Beatty, Dobos, Balfantz, & Kuwabara, 1991). Individuals with CA may have noticeable difficulties when required to communicate. The external effects of CA may affect individuals socially.

Social effects of CA. There may be social consequences for an individual with CA. People may view individuals with higher CA as introverted, less attractive and desirable, and unsocial (McCroskey & Wheeless, 1976). Individuals who experience higher levels of CA are less likely to communicate effectively with others in social settings (Allen & Bourhis, 1996) and make friends (McCroskey & Andersen, 1976). Perceptions of the quality of an individual's communicative abilities significantly relate to perceptions of the individual's quantity of communication (McCroskey & Richmond, 1979). Allen and Bourhis (1996) conducted a meta-analysis of 36 studies and revealed a consistent, negative relationship between the level of CA and both the quality and the quantity of communication behavior. People may view individuals who experience higher levels of CA in a negative manner. CA may also affect individuals scholastically.

Educational effects of CA. Some consequences for an individual with CA may be educational. Students with higher levels of CA may resort to avoidance behaviors such as sitting at the back of classrooms, selecting assignments that do not require social interaction, and not soliciting help from instructors (Hassall et al., 2013). In doing so, students with higher levels of CA are less likely to engage in educational experiences

fully, which could hinder skills development, degrade learning (Blume et al., 2013), and create a barrier to future performance and development (Hassall et al., 2013). These behaviors are likely to limit the relationship between student and instructor, obstruct communication about a student's progress and needs, and may impair academic achievement (Fordham & Gabbin, 1996). An association also exists between high CA and low communication performance (Byrne, Flood, & Shanahan, 2012). Research indicates that CA negatively affects students' presentations (Boath, Stewart, & Carryer, 2012). Students with higher levels of CA may have less academic success than do students with lower levels of CA. The educational effects of CA may be higher in certain disciplines, such as accounting education.

Communication is a requisite of accounting education. According to the International Accounting Education Standards Board (2014), interpersonal and communication skills are fundamental to the accounting occupation. Accounting education researchers, however, have provided evidence that accounting students in the United States exhibit higher levels of CA than do students in other disciplines (Arquero et al., 2007; Fordham & Gabbin 1996; Hassall, Joyce, Ottewill, Arquero, & Donoso 2000; Jackson, 2011; Joyce, Hassall, Montaño, & Anes, 2006; Marshall & Varnon, 2009; Simons, Higgins, & Lowe 1995; Stanga & Ladd, 1990; Warnock & Curtis, 1997). Research findings from subsequent studies in the United Kingdom and Spain (Arquero et al., 2007; Hassall et al., 2000), Ireland (Byrne et al., 2012), New Zealand (Gardner, Milne, Stringer, & Whiting, 2005), and Canada (Aly & Islam, 2003) also reported higher than average levels of CA in accounting students than in students from other disciplines.

Arquero, Fernández-Polvillo, Hassall, and Joyce (2015) studied CA, ambiguity tolerance, and learning styles in accounting students in the United Kingdom. One of the weaknesses in Arquero et al.'s approach was that the sample was from only one university in the United Kingdom. The results of the study revealed that students with higher CA were less likely to be independent, collaborative, comfortable with uncertainty, and open to social learning opportunities (Arquero et al., 2015). These findings indicated that a common misunderstanding exists regarding students' perceptions of the communication skills needed in the accounting profession. The relationships between CA, ambiguity tolerance, and learning styles in accounting students from other universities and countries remain unstudied.

Communication Apprehension: Gender, Age, and Education Level

The demographic variables in this research included gender, age, and education level. As gender, age, and education level are germane to everyone, it is prudent to have further clarification about how these demographic characteristics relate to communicative challenges. Gender, age, and education level were predictor variables in this study. Therefore, it is relevant to provide a review of CA as it relates to these variables.

Gender. CA levels may be somewhat comparable between males and females. McCroskey, Simpson, and Richmond (1982) examined the relationship between CA and gender on 778 college students and 106 teachers. One limitation of the approach was there were 8% more males in their college student sample than females. The results of the study indicated no significant differences in CA scores between men and women. Booth-Butterfield and Thomas (1995) examined the relationship between CA and gender on 117

students enrolled at a technical business-oriented college. Two limitations of the approach were that Booth-Butterfield and Thomas used a convenience sample and the sample was from only one college. The results of their study also revealed no significant differences in CA scores between males and females. Future researchers should replicate these studies outside of academic settings to broaden the generalizability of the findings. These results were consistent with findings from other researchers who discovered that gender differences pertaining to CA levels were either negligible or nonexistent.

Other literature on CA and gender, however, had mixed results. Garrison and Garrison (1979) conducted two studies to examine the relationship between CA and gender. Garrison and Garrison examined 595 fourth, fifth, and sixth graders in the first study and 2,375 elementary, middle, and senior high school students in the second study, all from Lincoln, Nebraska, public schools. A strength of the approach was that Garrison and Garrison used a combination of nonprobability and probability sampling techniques. The results of the study showed that female students had lower CA. However, Berger and McCroskey (1982) examined the relationship between CA and gender on 4,894 male and 4,910 female pharmacy students. A strength of the approach was the use of a large sample size. The results of the study revealed that females had higher CA scores. Future researchers should replicate these studies in different geographic regions to increase the external validity of these findings. Other demographic characteristics such as age may influence the inconsistent relationships observed between CA and gender.

Age. The relationship between CA and age is ambiguous. Donovan and MacIntyre (2004) conducted a study to examine the relationship between CA and age on

junior high (ages 11–16), high school (ages 14–18), and university (ages 17–47) students. One of the weaknesses in the approach was that Donovan and MacIntyre selected their sample from secondary data available from previous research studies, and therefore overrepresented females in their study by 34%. Another weakness was the overlaps between age ranges among the three age cohorts. The results of their study indicated that CA levels among junior and high school students were similar; however, CA levels for women at the college level were higher than those of younger females. Future researchers should replicate this study using a sample where gender representation is more equal.

Although Donovan and MacIntyre's (2004) findings corroborated with other studies that revealed higher levels of CA among older categories of students (i.e., Jaasma, 1997), other researchers studying the relationship between CA and age have obtained different results. Some researchers have found that college students older than 25 years of age have lower levels of CA compared to younger students (Bowers, Bush, Conway, & Darrow, 1986; Poppenga & Prisbell, 1996). Hassall et al. (2000) examined the relationships between CA and age in a study of business students and found no significant differences in CA levels between ages. Due to inconsistent research findings in this area, the correlation between CA and age is unclear. Other demographic characteristics, like education level, may contribute to this ambiguity.

Education level. Researchers have also examined the relationship between CA and level of education obtained. McCroskey, Booth-Butterfield, and Payne (1989) conducted a 4-year longitudinal study to examine the relationship among CA, academic achievement, and college retention on 1,884 incoming freshmen at West Virginia

University. One of the weaknesses in the approach was that McCroskey et al. only examined students from one college, which limited the generalizability of their findings. The results of their study revealed that high CA students had lower grade point averages and were 32.7% more likely to drop out within the first 2 years of college. Ericson and Gardner (1992) conducted two 4-year longitudinal studies to examine the relationship among CA, academic achievement, and college retention at the State University of New York at Oneonta. They studied 1,302 incoming students in 1986 and 1,623 incoming students in 1987. One strength of the approach was that Ericson and Gardner repeated their longitudinal study, which strengthened the validity of the study. The results of the study revealed that high CA students accounted for more than 19% of the total number of dropouts observed within the first year of college. Future researchers should replicate these studies in different colleges and universities situated in different regions inside and outside the United States. As individuals with high CA deliberately seek to avoid social interaction, they may be less likely to obtain higher levels of education. There may be ways, however, to mitigate the internal and external effects of CA.

Mitigating the Effects of Communication Apprehension

Several researchers believe mitigating the effects of CA is possible, whether or not CA environmental factors or genetics are the primary cause of CA. Kelly and Keaten (2000) purported that even if the individuals inherit the threshold for BIS activation, the stimulus that has the potential for punishment or a decrease in reward has been learned in the form of conditioned responses to the environment. Therefore, according to Kelly and Keaten, an individual possesses the potential to reinterpret the same stimuli in a less

threatening way. There may be hope for individuals who experience TCA and CCA. People can use different behavioral techniques to reduce CA.

Researchers have identified three methods traditionally used to mitigate the effects of CA: systematic desensitization, cognitive modification, and skills training. Wolpe (1958) developed systematic desensitization, which includes deep muscle relaxation, the formation of hierarchies, and the graduated coupling of anxiety-eliciting stimuli (Friedrich, Gross, Cunconan, & Lane, 1997). Systematic desensitization involves using imagery to tackle anxiety-provoking stimuli that may lower the novelty of those stimuli, thus reducing the overstimulation of the BIS and the effects of CA (Kelly & Keaten, 2000). Although Friedrich et al. (1997) found systematic desensitization mitigated the effects of CA, especially in public speaking contexts, it does not appear to treat the perceived threat of punishment (Kelly & Keaten, 2000). Although systematic desensitization can be helpful at mitigating the effects of CA in some social environments, it may not be the method most effective at reducing CA across multiple contexts. Cognitive methods may be more effective at mitigating the effects of CA in different social situations.

Cognitive methods may help to cope with the effects of CA more effectively. Cognitive modification helps individuals to identify their negative self-talk narratives and to learn how to substitute them with positive statements (Glaser, 1981). Cognitive-orientated treatments work by getting people to replace their negative-limiting beliefs about communication and anxiety-eliciting stimuli with reassuring thoughts (Kelly & Keaten, 2000). Nonthreatening stimuli can take away the fear of punishment, which can

prevent BIS activation and eliminate the effects of CA (Kelly & Keaten, 2000). Emotional freedom techniques, also known as tapping, is an energy psychology intervention that involves using physical and cognitive techniques (Feinstein, 2008) to treat a variety of conditions such as posttraumatic stress disorder (Karatzias et al., 2011), specific phobias of small animals (Wells, Polglase, Andrews, Carrington, & Baker, 2003), and test-taking anxiety in high school students (Sezgin & Özcan, 2009). Emotional freedom techniques have also been effective at reducing the effects of CA (Boath et al., 2012; Boath, Stewart, & Carryer, 2013; Fitch, Schmuldt, & Rudick, 2011; Jones, Thornton, & Andrews, 2011). Cognitive techniques such as emotional freedom techniques may be successful at mitigating the effects of CA because they decrease the threat of punishment. Skills training may also be an effective method to reduce the effects of CA.

Skills training may address the lack of confidence experienced by individuals with CA. Skills training is useful for teaching individuals how to speak more competently in social situations (Allen, Hunter, & Donohue, 1989). Competent speakers are more likely to gain social approval and confidence, thus reducing the effects of CA (Kelly, 1997). Kelly and Keaten (2000) noted that if skills training includes practicing speeches before audiences where individuals are able to experience communicating without being punished, the BIS may not be activated over time, as the threat of punishment becomes reduced. According to a meta-analysis of the three methods traditionally used to reduce CA, Allen et al. (1989) found that all forms of treatment have been effective in mitigating the effects of CA and that the most effective method is a combination of all three

techniques. Whether CA primarily develops as a result of learned experiences or genetics, researchers have discovered methods to mitigate the effects of CA. Culture also affects CA.

How Culture Influences Communication Apprehension

CA varies across cultural groups. Cross-cultural studies have revealed differences in CA between American-born and non-American-born students. Coetzee et al. (2014) found that in schools where a westernized culture is prevalent, students had significantly lower levels of CA compared to students from traditional African schools. In research conducted primarily in the United States., American students reported lower levels of CA than international students from Australia, China, Japan, Korea, Puerto Rico, Micronesia, and Taiwan (Burroughs, Marie, & McCroskey, 2003; Hsu, 2004; Klopf, 1997; Klopf & Cambra, 1979; Yook & Ahn, 1999; Zhang, Butler, & Pryor, 1996). Individuals born into more westernized environments are more likely to be enculturated to develop less CA. Many westernized cultures receive education in grade school about how to communicate effectively.

Teaching oral communication skills may related to CA. Coetzee et al. (2014) found that students who received instruction in business communication exhibited less CA. Oral communication training is not as prevalent in nonwesternized nations' educational programs (Croucher, Sommier, Rahmani, & Appenrodt, 2015). Oral communication training may reduce the effects of CA across cultural groups. Researchers who have studied CA have considered the cultural significance of communication traits and behaviors.

Communication researchers have studied communicative traits and behaviors of individuals living in different geographic regions. Croucher, Rahmani, Säkkinen, and Hample (2016) explored the CA of 314 individuals in Singapore. Of the participants, 209 were ethnic Chinese born in Singapore and 105 were Malay immigrants. One weakness of the approach was that Croucher et al. used a convenience sample from established social and professional networks. The results of the study indicated that Malay immigrants had the highest levels of CA in comparison to ethnic Chinese born in Singapore, who had the lowest CA levels in the region. Future researchers should further study the potential influence of an individual's position in society on communication traits in other parts of the world. Individuals from individualistic cultures might also experience CA differently from individuals from collectivistic cultures.

Individualism/collectivism. Individualism/collectivism describes the relationship between individuals and their relationship to groups. People in individualist societies prefer to act as individuals, whereas people in collectivistic cultures are more likely to perform activities in groups (Hofstede, 2001). Groups' goals are a priority in collectivistic cultures, whereas individual goals have a greater focus than group goals in individualistic cultures (Smith et al., 2012). Western societies such as the United States are traditionally individualistic, whereas Eastern societies such as Japan are traditionally collectivistic (Merkin, 2015). Individualists and collectivists have different cultural values regarding social interactions. CA might affect individualistic and collectivist cultures differently.

Researchers have conducted cross-cultural research and explored the relationships between CA and different individualistic/collectivistic cultures. Croucher et al. (2015) investigated national differences in CA from three individualistic nations: England, Finland, and Germany. Of the 787 participants, 335 were English, 181 were Finnish, and 271 were German. One weakness of the approach was that they used a convenience sample from various urban areas through the snowball sampling method. The results of the study indicated that English participants scored lower than Finnish and German participants on total CA, public CA, dyadic CA, and meeting CA; Finnish participants scored higher than all nations on total CA, dyadic CA, and meeting CA; and German participants consistently scored in the middle on all aspects of CA, except for public CA (Croucher et al., 2015). Germans and Finns have a higher focus on conveying information rather than social bonding, and they tend to be more content-oriented, explicit, and direct than English individuals (Kurki & Tomperi, as cited in Croucher et al., 2015). These findings indicated that Germans and Finns may experience higher CA in social situations where small talk and social bonding is essential. Future researchers need to continue expanding the understanding of how oral skills training, communication settings, conversational style, and politeness potentially influence communication traits. Researchers have investigated CA and individualism/ collectivism along with other communication correlates.

Researchers have studied CA, WTC, and SPCC in the context of individualism/ collectivism and religious identification. Croucher (2013) surveyed 533 individuals in France to ascertain if any differences existed between French-Catholics and French-

Muslims on CA, WTC, and SPCC and to explore the extent to which individualism/collectivism relates to CA, WTC, and SPCC. One weakness of the approach was that Croucher used a convenience sample comprised of participants entirely from metropolitan areas, which did not likely represent the entire French population. The findings of the study revealed that Muslims had higher CA and lower SPCC and WTC. Muslims' minority status in France may have contributed to a predisposition to avoid communication with non-Muslims and decrease overall communication (Croucher, 2013). Croucher's findings also revealed that individuals who scored higher on collectivism had higher levels of CA and lower levels of SPCC and WTC. As collectivists are more sensitive about others' evaluations (Croucher et al., 2015), it is possible that collectivists are more likely to shy away from accentuating their individuality (Croucher, 2013), which could result in higher CA. Croucher's (2013) study highlighted that factors such as religious identification and individualism/collectivism, which are typically learned traits and behaviors, have a significant relationship to CA, WTC, and SPCC. Future researchers should study communication trait differences between other individualistic/collectivistic and religious groups. CA may vary between high- and low- context cultures.

High- and low-context cultures. Context orientation and communication have an inextricable link. According to high-/low-context theory (Hall, 1976), societal influences shape an individual's communicative tendencies. High-context cultures rely on more indirect communication and implicit meaning, whereas low-context cultures rely on more direct communication and explicit information (Hall, 1976). Eastern societies tend to be

high-context cultures, whereas Western societies tend to be low-context cultures (Ward, Ravlin, Klaas, Ployhart, & Buchan, 2016). Context orientation affects the way Western cultures communicate with Eastern cultures. Societal influences may affect an individual's comfort level when speaking in different social settings.

Context orientation may influence an individual's CA. Oral communication within high- and low-context cultures can affect openness (Allen et al., 2014). High-context communicators use the context of the social setting to guide what information they will share and how they will share it (Ward et al., 2016). As individual expression is less valued in high-context cultures, high-context communicators tend to be more apprehensive (Croucher et al., 2015). High-context communicators may generally experience higher levels of CA than low-context communicators. Context orientation may also influence how individuals perceive messages from different cultures.

Context orientation may influence an individual's communication behaviors when pursing a job. Yen, Singal, and Murrmann (2016) investigated potential job seekers' context orientation in relation to their preferences toward employer recruitment messages. Researchers collected data from 350 college students from the United States and Taiwan. One weakness of the approach was that Yen et al. used a convenience sample from undergraduate students majoring in hospitality and tourism from one university located in the United States and two universities in Taiwan. The results indicated a positive relationship between context orientation and preferences for recruitment messages put forth by employers (Yen et al., 2016). Yen et al. found that individuals with a low-context orientation were mostly from the United States, whereas

individuals with a high-context orientation were mostly from Taiwan. Yen et al. also found that individuals with a low-context orientation were more likely to react favorably to explicitly coded messages, whereas individuals with a high-context orientation were more likely to react favorably to information internalized in the person. The findings indicated that Americans may experience more CA when pursuing jobs in high-context cultures, whereas the Taiwanese may experience more CA when pursuing jobs in low-context cultures. Future researchers should broaden the sample for more generalizable results beyond the United States and Taiwan. Both high- and low-context cultures are subject to the internal effects of CA.

Communication Apprehension in the Workplace

Significant changes in the workplace have caused new demands on employees. The 21st-century workplace has an increased international workforce (Cumberland, Herd, Alagaraja, & Kerrick, 2016), an increased need for effective team adaptation (Maynard, Kennedy, Sommer, & Passos, 2015), and greater demands for flexibility and adoption of change (Di Fabio et al., 2016; Trautrims et al., 2016). More than ever before, interpersonal competence, teamwork, and communication skills are the most valuable skills in the workplace (Blume et al., 2013). CA could affect workplace skills such as the ability to work well in teams, propose ideas, and act with political savviness (Blume et al., 2013). CA may prevent employees from meeting the workplace demands of the 21st century and may impede employee performance.

CA can handicap individuals' effectiveness in the workplace. Researchers have shown that people with higher levels of CA are less knowledgeable, less productive, less

valuable, and less successful than their peers with low CA (Bartoo & Sias, 2004; Harville, 1992; Richmond & Roach, 1992; Thomas, Tymon, & Thomas, 1994). In the workplace, employees with high CA are less likely to receive job offers, obtain higher-ranked positions, and earn greater income (Ayres, Keereetaweep, Chen, & Edwards, 1998; Reinsch & Lewis, 1984; Richmond, McCroskey, & Davis, 1982; Winiecki & Ayres, 1999). Hargie, Tourish, and Wilson (2002) indicated that employees who experience high levels of CA are more likely to report greater absenteeism, increased industrial unrest, high turnover, and reduced productivity. CA impedes the performance of employees in the workplace. In particular, CA affects managers in the workplace.

Managers' Communication Apprehension in the Workplace

Managers must communicate frequently in the workplace. Managers often need to take on multiple roles, such as leader, facilitator, and communicator (Project Management Institute, 2013). Managers are one of the most important drivers of business performance, employee creativity, and innovation (Tung & Yu, 2016). Managers need to catalyze organizational innovation and foster employee creativity (Matej, Marko, & Miha, 2013; Zacher & Rosing, 2015). Due to the importance of managerial communications in the workplace, it is essential to study managers' CA because communicative challenges may hinder business performance (Creasy & Anantatmula, 2013). CA affects managers' attitudes and behaviors in areas such as work alienation, job satisfaction, learning styles, X/Y orientations, PDM, feedback sharing, information sharing, adaptability, tolerance to ambiguity, creativity, and new idea generation.

Work alienation and CA. Work alienation is a problem in the workplace. Work alienation is a generalized state of psychological separation from work that stems from a perception that work fails to satisfy an individual's needs and expectations (Yadav & Nagle, 2012). Shantz, Alfes, and Truss (2014) found work alienation to relate positively to emotional exhaustion. Alienated individuals are more likely to engage in counterproductive work behaviors (Berry, Carpenter, & Barratt, 2012). There is a strong, negative relationship among work alienation, job satisfaction, and organizational commitment (Hirschfeld & Field, 2000; Madlock & Booth-Butterfield, 2008). Work alienation is detrimental to performance in the workplace. Researchers have widely studied work alienation outside of the United States.

Several recent studies have highlighted the effects of work alienation in Europe and Asia. Tummers and Den Dulk (2013) found that WA significantly influenced the organizational commitment and work effort of midwives in the Netherlands. Shantz et al. (2015) investigated four antecedents of work alienation on 283 employees employed at a construction and consultancy organization in the United Kingdom. Researchers identified significant relationships between work alienation and decision-making autonomy, task variety, task identity, and social support (Shantz et al., 2015). Yadav and Nagle (2012) studied 270 working women in various professions in India, including teaching, nursing, and office clerks. Employees with high work alienation exhibited high occupational stress (Yadav & Nagle, 2012). Highly alienated working women in India had expressed greater occupational stress partly because of their discontent in social relations with supervisors and fellow workers (Yadav & Nagle, 2012). The researchers of these studies highlighted

the detrimental effects that WA has on social interactions. The effects of WA may increase in individuals with CA.

Madlock conducted studies that have added to existing knowledge about the relationship between CA and work alienation. Madlock (2012) found that individuals with CA and WA felt less inclined to ascertain the need for information and to possess the desire to succeed professionally. Madlock (2013) discovered that employees who experienced CA or work alienation had experienced less job satisfaction and organizational commitment, both in the United States and in Mexico. Madlock and Martin (2011) determined that CA and avoidance messages positively related to work alienation. Madlock and Booth-Butterfield (2012) concluded that CA contributes to work alienation and that, together, they serve as a barrier from having their interpersonal needs of inclusion, affection, and control satisfied. Managers with CA and work alienation cannot be effective leaders in the workplace. Job satisfaction is another element affected by CA in the workplace.

Job satisfaction and CA. Job satisfaction is essential to the workplace. Job satisfaction refers to a contented emotive state, resulting from the evaluation of one's job or job experiences (Locke, 1976). Satisfaction with a job can be an important indicator of how employees feel about their jobs and a predictor of employee turnover (Grissom, Nicholson-Crotty, & Keiser, 2012) and level of commitment (Hartmann, Rutherford, Feinberg, & Anderson, 2014). Job satisfaction influences several work behaviors. Managers can influence the job satisfaction of employees.

Managerial communication influences the job satisfaction of employees and other work behaviors. Raina and Roebuck (2016) surveyed 105 sales managers, business development managers, telesales managers, and relationship managers working in major Indian insurance firms based in north India to investigate the relationships between managerial communication and employee satisfaction, organizational commitment, and employees' propensity to leave. One of the weaknesses in Raina and Roebuck's approach was the delimitation to the insurance sector. The results of the survey revealed significant relationships between managerial communication, employee satisfaction, organizational commitment, and employees' propensity to leave (Raina & Roebuck, 2016). Future researchers should replicate this study in other sectors outside of the insurance industry. To promote job satisfaction and other work behaviors, managers need to communicate to employees effectively. CA may make it more difficult for managers to communicate, which affects job satisfaction. The relationships between CA and job satisfaction are well known.

Researchers have studied the effects of CA on job satisfaction across several industries. Falcione, McCroskey, and Daly (1977) examined the relationship between CA and job satisfaction in 189 elementary and secondary school teachers in the eastern part of the United States and 211 civil service employees in the Washington, DC, area. The results indicated that individuals with higher CA in both groups felt significantly less satisfied than employees with lower CA, particularly with regard to satisfaction with their supervisor. More recently, Beck et al. (2012) investigated how CA played a role in job satisfaction and organizational commitment among 241 revenue managers in the lodging

industry from a variety of companies in the United States. One weakness in the researchers' approach was that using a SurveyMonkey.com instrument made it difficult for the researchers to substantiate the actual titles of the participants. Findings of the study revealed that CA negatively affected the job satisfaction and organizational commitment of revenue managers who were anxious about speaking in various work situations and, as a result, did not receive information from their supervisors about their performance (Beck et al., 2012). Future researchers should focus exclusively on a specific number of lodging organizations to gain more specific, operational data about the effects of CA on job satisfaction. Job satisfaction is the primary factor influencing organizational commitment (Nath Gangai & Agrawal, 2015). CA can also affect organizational commitment in the workplace.

Organizational commitment and CA. *Organizational commitment* is a term used to describe employees' devotion to an organization. Organizational commitment refers to the comparative strength of an individual's emotional-psychological attachment with and involvement in an organization (Porter, Steers, Mowday, & Boulian, 1974). Characterizations of organizational commitment are a strong belief in the organization's goals and values, a willingness to exert considerable effort for the organization, and a desire to retain membership in the organization (Porter et al., 1974). Employees who have strong organizational commitment are less likely to quit their jobs and are more likely to exhibit organizational citizenship (Bishop et al., 2000; Mathieu & Zajac, 1990; Morrison, 1994). Organizational commitment indicates how connected and involved employees are to their organization. There is more than one form of organizational commitment.

Researchers have identified different kinds of organizational commitment. Most notably, Allen and Meyer (1990) developed a model that identifies three types of organizational commitment: continuance commitment, normative commitment, and affective commitment. Continuance commitment refers to an employee's understanding of the costs associated with leaving the organization (Saha, 2016). Employees with a high level of continuance commitment continue their jobs in an organization because they perceive it to be in their best interest to do so (Dasgupta, Suar, & Singh, 2014). Normative commitment refers to an employee's perceived obligation to an organization upon hiring (Jena, 2015). Employees with a high level of normative commitment complete their work with high levels of enthusiasm on behalf of the company (Valaei & Rezaei, 2016). Affective commitment refers to employees' deep emotional attachment and involvement in the organization (Saha, 2016). Employees with a high level of affective commitment have a fervent relationship with the organization and exert significant effort on the work-related tasks (Dasgupta et al., 2014). Different types of organizational commitment describe employees' motivations for contributing to an organization and the level of effort employees are willing to put into their work. Social factors can influence organizational commitment.

Socialization from inside of an organization can influence organizational commitment. Organizational socialization relates to higher levels of organizational commitment (Madlock & Chory, 2014). Hamdi and Rajablu (2012) found a significant relationship between affective commitment and communication exchanges. Positive organizational relationships can increase organizational commitment (Madlock & Horan,

2009) and organizational effectiveness and may contribute to an organization's financial performance (Bruning & Ledingham, 1999). In particular, employees develop a strong organizational commitment when they feel satisfied with managerial communications (Dasgupta et al., 2014). Positive social interactions and managerial communications increase organizational commitment. CA may affect organizational commitment.

Researchers have studied the relationship between organizational commitment and CA. Madlock and Martin (2011) found that organizational commitment negatively relates to CA. Richmond and Roach (1992) found that individuals with high CA find it more challenging to be committed to an organization. Managers, in particular, must have a sufficient level of organizational commitment because they initiate social interactions in the workplace and arouse the organizational commitment of others. Managers with high levels of CA, however, may experience lower levels of organizational commitment, which could affect their performance and the organizational commitment of their subordinates. Learning style is another workplace factor affected by CA.

Learning styles and CA. Individuals' learning styles are important to examine in the workplace. Individual preferences on how to perceive and process information shape learning styles (Blevins, 2014) and are a determinant of individual behavior and performance (Armstrong, Cools, & Sadler-Smith, 2012). Researchers have extensively used the Kolb learning styles model (Kolb, 1984) to examine learning styles. The Kolb learning styles model (Kolb, 1984) categorizes individuals into four predominant learning styles: accommodators, assimilators, convergers, and divergers (Rassin, Kurzweil, & Maoz, 2015). Accommodators are people-oriented individuals who overcome challenges

by synthesizing concrete experiences with active, hands-on experimentation (Chen, Jones & Moreland, 2014). Assimilators are less people oriented and focus on using reflective observation and abstract conceptualization to analyze and present data in a clear, logical format (Rassin et al., 2015). Convergers are less people oriented and use their technical proclivity to synthesize abstract conceptualization and active experimentation to solve problems and test theories (Chen et al., 2014). Divergers are sensitive and imaginative people-orientated individuals who synthesize concrete experience and reflective observation to analyze people-related problems from multiple points of view (Rassin et al., 2015). People with different learning styles have different strengths and weaknesses processing information in the workplace. Researchers have examined learning styles in the workplace, along with other individual characteristics.

Researchers have studied learning styles along with personality. Li and Armstrong (2015) studied the relationships between personality and Kolb's (1984) learning styles. Li and Armstrong surveyed 269 international managers and international master of business administration students with work experience and exposure to different cultures. One weakness in the approach was the limitation to a single source of cross-sectional data. Results of the study indicated that the only personality trait that relates to Kolb's learning styles is extraversion, which is the dominant learning style for accommodators. Results also indicated that personality does not strongly correlate to Kolb's learning styles and that extraversion was the only dominant factor. One area for future research includes replicating this study using different research instruments that

measure personality and learning styles. Researchers have examined the relationships between learning styles and CA.

CA may affect learning styles in the workplace. Russ (2012) investigated the relationships between CA and learning-style preferences in an organizational setting. Russ surveyed 156 mid-level managers at a large national collegiate textbook retailer in the United States. One weakness in the approach was that the participants were from a single organization. Results of the study revealed that individuals with high CA might prefer the diverging and assimilating learning styles, whereas individuals with low CA might prefer the accommodating learning style (Russ, 2012). Researchers should examine the relationships between CA and learning styles across different organizational settings and industries, as well as on various hierarchal levels. CA may also influence management orientations in the workplace.

Theory X/Y and CA. Researchers can use Theory X/Y to explain managerial assumptions and beliefs about subordinate behaviors in the workplace. In *The Human Side of Enterprise,* McGregor (1960) proposed that managerial assumptions and beliefs occupy either a Theory X or a Theory Y orientation. Managers with a Theory X orientation pessimistically believe that subordinates are likely to despise work, escape responsibility, are risk averse, and unmotivated (Gürbüz, Şahin, & Köksal, 2014). Conversely, managers with a Theory Y orientation optimistically believe that subordinates enjoy work, embrace responsibility, are creative, and self-motivated (Gürbüz et al., 2014). Theory X and Theory Y entail polarized views about managerial

assumptions and beliefs about subordinate behaviors. Theory X/Y orientations may influence managerial behaviors in the workplace.

Managers with different Theory X/Y orientations may adopt different leadership styles. Managers with a Theory X orientation may be more likely to have autocratic leadership styles, whereas managers with a Theory Y orientation may be more likely to have participative leadership styles (McGregor, 1960). Participative leadership styles are increasingly more likely to be effectual than autocratic leadership styles in 21st-century organizations focused on learning and knowledge exchanges (Kopelman, Prottas, & Falk, 2012). Theory X/Y orientations have a cogent effect on the innovation process. Theory X/Y orientations can influence employee communication and work behavior.

Theory X/Y orientations may influence individual-level and workgroup-level measures of performance. Lawter, Kopelman, and Prottas (2015) researched managerial X/Y orientations and individual-level and workgroup-level measures of performance. Lawter et al. surveyed 21 managers and 80 subordinates from four for-profit companies located in the northeastern United States. A strength of the approach was that it was one of only a few studies to have tested McGregor's (1960) Theory X/Y empirically. A weakness of the approach was that most of the data came only from the supervisor, which could have subjected the study to common method bias. Results of the study indicated that both managerial X/Y orientations and behaviors directly influenced individual- and group-level performance (Lawter et al., 2015). One area for future research is to develop a better understanding of the effects of Theory Y and X orientations on specific outcomes

in the workplace. Theory X/Y orientations may correlate to communicative challenges in the workplace.

CA may relate to Theory X/Y orientations. Russ (2013b) investigated the relationships between Theory X/Y assumptions and managers' CA and surveyed 281 managers from a wide array of organizations, including communications and advertising, computers and information technology, education, finance and banking, health care, retail, professional services, and nonprofits. A strength in the approach was collecting data from participants employed in several different industries, which made his results more generalizable. The results of the study predictably indicated that managers with low CA gravitated toward a Theory Y orientation, whereas managers with moderate CA gravitated toward a Theory X orientation (Russ, 2013b). The results also indicated that managers with higher CA in groups gravitated toward a Theory Y orientation. One possible explanation for this finding is that managers might have offered socially desirable responses versus reporting on their actual Theory X/Y orientation. Future researchers should further explore this rationalization. CA may affect other managerial behaviors.

Participative decision making, feedback seeking, and CA. Participative decision making is a managerial behavior in the workplace. Participative decision making is the process where managers give followers the opportunity to provide input on decision making and to exercise control over shared responsibilities (Lam, Huang, & Chan, 2015). Participative managers solicit the opinions of subordinates, organize decision making (Tung & Yu, 2016), and seek their subordinates' input on important

decisions (Benoliel & Somech, 2014; Miao, Newman, Schwarz, & Xu, 2014). Gilson and Shalley (2004) found that an association exists between high levels of PDM and greater ambiguity tolerance, learning, and creativity. Participative decision making fosters positive, employee behaviors in the workplace.

Participative decision making encourages employees' feedback-seeking behavior. Feedback seeking, which is a part of the PDM process, refers to the exertion to communicate with others regarding job behavior and job performance (Qian et al., 2015). Several researchers have found that feedback seeking and PDM have positive effects in the workplace, such as increased employee self-awareness, improved goal setting, and goal attainment (Crommelinck & Anseel, 2013; Wu, Parker, & De Jong, 2014). Li and Qian (2016) investigated the relationship between PDM and feedback-seeking behavior on 248 subordinate supervisor dyads employed at two hotels in China.

One of the weaknesses in the researchers' approach was that they conducted the study in China and only in the service industry, which limited the generalizability of their findings. The results of the study showed that a positive relationship existed between PDM and employees seeking feedback from supervisors. Future researchers should test these findings in other cultures and industries. CA may affect PDM in the workplace.

One researcher has studied the relationship between CA and PDM in the workplace. Russ (2013a) examined 219 superiors from an array of organizations to investigate if TCA was a significant predictor of managers' predisposition for and practice of PDM. One of the weaknesses of the approach was the use of a convenience sample that may have limited the generalizability of the results. The results revealed that

TCA is a significant determinant of managers' predisposition for and practice of PDM (Russ, 2013a). The findings indicated that managers with higher CA are less likely to communicate with others when making decisions. One area for future research is to investigate the relationships between subordinates' CA and their tendencies to engage in PDM. CA may also affect managers' abilities to share information in the workplace.

Information sharing and CA. Information sharing is an important part of knowledge management. Organization-wide collaborations and knowledge flow are crucial ingredients in the innovation process, and knowledge flow often requires interpersonal interactions (Oparaocha & Oparaocha, 2016). Evans, Kairam, and Pirolli (2010) found that people who interact in different social networks have superior access to information, which can be an essential business advantage for the unit's key work. Extensive information flow is important for sharing complex and tacit knowledge, and it can be suitable to resolve conflicts and tensions.

Managers' information-sharing behavior is a considerable part of the innovation process. Managers are often at the heart of knowledge transfers across various departments within a firm. This strategic position allows managers to be aware of solutions that are applicable to various problems across several departments (Battilana & Casciaro, 2012). As the innovation process often requires managers to communicate knowledge, low information sharing is likely to constrict employees' work efforts toward developing and implementing an innovation (Lam et al., 2015). Because having high CA causes individuals to feel discomfort when communicating (McCroskey, 1977), managers with high CA may be less likely to share valuable information with others. Low

information sharing jeopardizes the success of an organization. Managers with CA may also have lower ambiguity tolerance and adaptability.

Ambiguity tolerance, adaptability, and CA. Change occurs quickly in contemporary organizations. The 21st-century workplace entails instability, globalization, and unavoidable change (Guichard, 2013). Innovation is uncertain and risky because it often brings about new ways of doing business (Volberda, Van Den Bosch, & Mihalache, 2014). Individuals who are sensitive to ambiguity struggle with adopting change (Hon, Bloom, & Crant, 2014). Coping with uncertainty and ambiguity is a central challenge in the innovation process (Baer, 2012; Brun & Sætre, 2009). Novel ideas can arouse anxiety, as there is greater ambiguity around creative ideas (Mueller, Melwani, & Goncalo, 2012). Successful innovation requires individuals to tolerate ambiguity. All people have an individual ambiguity tolerance.

Individuals have different reactions to ambiguity. Budner (1962) defined ambiguity tolerance as an individual's tendency to view ambiguous situations as either threatening or advantageous. Individuals with low ambiguity tolerance are generally unwilling or hesitant to involve themselves in the change process (Luo et al., 2016). Comadena (1984) found that individuals with higher levels of CA demonstrated lower ambiguity tolerance. Managers with higher levels of CA may have difficulty adapting to unexpected changes in the innovation process. Managers must also be adaptable.

Adaptability is important in the innovation process. Adaptability is the ability to effectively adapt to a changeable environment and to excel under uncertain conditions (Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004). Adaptability often necessitates

increased communication to respond to new mandates and to establish new practices (Blume et al., 2013). It is essential for individuals to engage in positive social interactions and experience reduced anxiety to adapt to social environments (Ma, Shamay-Tsoory, Han, & Zink, 2016) Managers with higher CA may not adapt as well to situations requiring increased communication, especially if the communication involves people with whom they are unfamiliar (Berger & Calabrese, 1975; Parks, 1980; Zakahi, Jordan, & Christophel, 1993). Managers with CA may have lower levels of tolerance ambiguity and adaptability, which may hinder business practices such as innovations. Managers with higher levels of CA may also exhibit lower levels of creativity and new idea generation.

Creativity, idea generation, and CA. Creativity is a central part of the innovation process. Amabile (1988) described creativity as the creation of a valuable product, service, idea, procedure, or process by individuals working in a social system. The focus of creativity is on the generation of new ideas or associations between existing concepts (Dino, 2015). Anderson et al. (2014) advocated that creativity and innovation are two continuous stages of the process of introducing new and improved ways of doing things. Creativity is important for how businesses create change in the workplace.

Creativity is a core competence. Creativity plays an important role in business strategy for many organizations (Rothmann & Koch, 2014; Schweitzer, Gassmann, & Rau, 2014) and is one of the prerequisites of firm innovation (Hon, 2012). An association exists between creativity and maintaining a firm's competitive advantage (Tung & Yu, 2016) and financial performance (Herrmann & Felfe, 2014). Therefore, to secure survival

and long-term success (Hon & Lui, 2016), managers must promote creative behavior among their employees (Nieves, Quintana, & Osorio, 2014) and create an environment that nurtures creativity (Mueller et al., 2012). Managers need to foster creativity in the workplace to be successful in the innovation process. Creativity is necessary for idea generation.

Idea generation stems from creativity. Ideas are the raw materials of innovation (Gilson & Litchfield, 2017). Idea generation involves synthesizing information about markets, technologies, approaches, and procedures from which ideas are generated on how to solve an innovation problem (Brun, Ezzat, & Weil, 2015). The innovation process starts with generating creative ideas (Edwards-Schachter, García-Granero, Sánchez-Barrioluengo, Quesada-Pineda, & Amara, 2015). Managers must promote creativity and idea generation to be successful in the innovation process. Managers must also be able to foster creativity and idea generation in groups.

Creativity and new idea generation is a social process. Individuals are more creative when they work together in teams (Anderson et al., 2014; Hon, Chan, & Lu, 2013). Creativity and idea generation are social activities where communication and interaction are critical to the success of an innovation (Leonard & Sensiper, 1998). Social networks provide suggestions for ideas, prototypes, and new products that promote successful problem solving and innovation (Conaldi, Lomi, & Tonellato, 2012; Tonellato, 2014). Ideas can come from internal sources within an organization and from a wide array of external sources such as customers, competitors, supporting industries, universities, and government research centers (Kessler, Bierly, & Gopalakrishnan, 2000).

Cooper and Engaging in open innovation with customers, partners, and vendors from the external scientific and technical community can also generate ideas (Cooper & Edgett, 2008). Managers need to be able to engage in communications with both internal and external sources to be successful in the innovation process. As creativity and idea generation are social processes, however, managers with high CA may have difficulty accomplishing these tasks in the workplace.

A connection may exist between creativity, new idea generation, and CA. Comadena (1984) investigated the relationship between CA and performance in zero-history brainstorming groups and found that individuals with high TCA are less likely to become high producers of ideas and to perceive the act of brainstorming positively. Comadena's research corroborated with previous studies in which researchers also revealed the relationship between higher CA and lower ideational output (Jablin, Seibold, & Sorenson, 1977; Jablin & Sussman, 1978; McKinney, 1982). Managers with high CA are less likely to exhibit creativity and generate ideas because they have greater fear and anxiety about socially expressing creativity and new ideas and about adopting change in the workplace. Varying degrees of CA might affect managers' individual innovativeness.

Gap in Knowledge

Research on the relationship between CA and individual innovativeness in managers was lacking. Although researchers have extensively studied the degree in which CA handicaps employees' effectiveness in the workplace, few researchers have used empirical evidence to show the effects of CA on managers' effectiveness in the workplace. The focus of existing empirical research has been the effects of CA on

managers' effectiveness in areas such as job satisfaction and organizational commitment (Beck et al., 2012), learning styles (Russ, 2012), X/Y orientations (Russ, 2013b), and participative decision making (Russ, 2013a). Although researchers have studied the importance of managers' individual innovativeness (Alam & Dubey, 2014; Szczepańska-Woszczyna & Dacko-Pikiewicz, 2014; Wong & Boh, 2014), no researchers, before this present study, have studied the relationship between CA and individual innovativeness in managers. Identifying the relationship between CA and individual innovativeness in managers can lead to new perspectives about firms' abilities to achieve greater financial performance and strategic competitiveness through innovation adoption. This relationship also addresses the specific problem of how communicative challenges may affect managers' tendencies to adopt a change in the workplace. I conducted this study to address the gap in the literature by paying specific attention to managers' individual perceptions of CA and individual innovativeness.

In the 21st century, innovation is a key driver of financial performance and competitive advantage. Organizational leaders must engage in innovation to preserve competitiveness and sustainability in a highly competitive business landscape (Khalili, 2016). As innovation depends on managerial communication (Creasy & Anantatmula, 2013) and individual adoption decisions (Lanzolla & Suarez, 2012), potential obstacles to managers' communication and individual innovativeness require investigating. Therefore, the purpose of this nonexperimental correlational study was to examine the relationship between CA and individual innovativeness in managers. CA may negatively affect managers' individual innovativeness, which could inhibit innovation (Wong &

Boh, 2014) and hinder the financial performance and competitiveness of a firm (Alam & Dubey, 2014; Anderson et al., 2014). Understanding these relationships can lead to an increased awareness about the importance of mitigating the effects of CA in the workplace and of how to support managers' tendencies toward innovation adoption more effectively, while strengthening the financial and strategic outcomes of a firm.

Summary and Conclusions

This chapter provided perspective about the importance of innovation to a firm's competitiveness and financial performance. A diverse set of social networks promotes decision making, new idea generation, and knowledge transfer to improve innovation outcomes. Managers play a vital role in the innovation process because they acquire needed resources for new initiatives, raise awareness, gather sponsorship, and engage in boundary-spanning activities that facilitate new idea generation and knowledge transfers across social networks. Managers' individual innovativeness describes their attitudinal inclinations toward innovation adoption and relates to how early in the process of adoption a manager is likely to accept a change. The individual innovativeness of managers considerably influences innovation outcomes. Social networks enhance the individual innovativeness of managers. Communicative challenges such as CA, however, may hinder managers' abilities to engage in social networks, which could negatively affect managers' individual innovativeness and therefore their innovation outcomes.

Researchers have pointed to the many ways that CA can handicap individuals' effectiveness inside the workplace in areas such as job satisfaction, organizational commitment, participative decision making, feedback sharing, information sharing,

ambiguity tolerance, creativity, and new idea generation. The relationship between CA and individuals' innovativeness was unknown. Using a quantitative approach, I examined the relationship between CA and individual innovativeness in managers. I looked for the interconnectedness between each of the research variables as a means to point out how communicative challenges potentially affect influential organizational members' attitudes and behaviors toward innovation. DOI theory served as the theoretical framework because it refers to an individual's attitudinal inclinations toward innovation adoption and thus managers' individual innovativeness. This research can lead to a critical link between theory and the practical application of potential factors affecting individual adoption behaviors when leaders have a better understanding of how communicative challenges such as CA affect managers' individual innovativeness and therefore innovation outcomes. CA can negatively affect the individual innovativeness of managers, which could negatively influence innovation outcomes and therefore damage the strategic and financial performance of a firm.

Chapter 3 includes a review of the research design and rationale for this study, as well as specifications on population sampling, sampling procedures, procedures for recruitment, and sample size. The chapter includes details about data collection and a description of the instruments selected to examine the relationships between CA and individual innovativeness in managers. Finally, the chapter includes statistical techniques for data analysis, a discussion on threats to internal and external validity, and ethical considerations.

Chapter 3: Research Method

The purpose of this study was to examine the relationship between CA and individual innovativeness in managers. The success of an innovation depends on managerial communication in social networks (Creasy & Anantatmula, 2013) and individual innovativeness (Lanzolla & Suarez, 2012). Because embracing innovation requires additional engagement in social networks (Battilana & Casciaro, 2012), CA may affect managers' tendencies to adopt change. In this research, I studied owner-executives, senior managers, and middle managers using a quantitative method, correlational design, two Likert-formatted survey instruments, Pearson's *r*, and multiple regression statistical analyses to test for correlations between CA and individual innovativeness in managers employed within organizations across the United States.

In this chapter, I reintroduce the research questions and provide a more detailed description of and rationale for the selected research method and design. I also include a discussion of the population, sampling strategy, procedures for recruitment, data collection instruments, data analysis plan, reliability and validity of the study, and ethical procedures. The chapter concludes with a summary and a transition into Chapter 4, which includes the findings of the study.

Research Problem

Innovation is one of the greatest determinants of a firm's financial performance and competitiveness. Social networks are important for increasing managers' social connectedness and individual innovativeness in the innovation process (Wong & Boh, 2014). The general problem addressed in this study was that, while researchers have

linked the importance of managerial innovativeness to the innovation process, most managers continue to experience communicative challenges that affect their ability to innovate in the workplace. The specific problem was that CA may hinder managers' individual innovativeness, which could hurt the financial performance and competitiveness of a firm. The relationships between CA and individual innovativeness in managers are at the nexus of factors influencing innovation adoption. This quantitative study involved using a correlational design to analyze the research problem.

Research Method and Design

The study involved employing the quantitative research method and a descriptive, correlational research design to evaluate the potential relationship between CA and individual innovativeness in managers. I examined this relationship after controlling for demographic characteristics. I also examined the relationships between the predictor variables CA, gender, age, and educational level and the criterion variable individual innovativeness.

The research questions and hypotheses were as follows:

RQ1: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness?

$H1_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness.

$H1_a$: A statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness.

RQ2: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level)?

$H2_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level).

$H2_a$: A statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level).

Unlike qualitative research, which involves producing a wealth of detailed information about a much smaller number of people and cases (Patton, 2002), this study involved measuring the responses of 105 people, thus facilitating statistical aggregation of the data and increasing the generalizability of my findings. Descriptive research can combine with correlational methods (Simon & Goes, 2013). Descriptive and correlational studies are suitable for examining variables in their natural settings without imposing interventions or treatments.

Rationale Behind the Research Method

Although a qualitative research method might add value to understanding the potential relationship between CA and individual innovativeness in managers in more depth and detail, it did not correspond with the intent of this research. Researchers do not

restrict qualitative research to predetermined categories of analysis (Schwandt, 2015). In quantitative research, however, they constrain to the use of standardized measures with the intent of generalizing perspectives and experiences to a greater number of people (Vogt & Johnson, 2011). Quantitative research also includes numerically structured data (Simon & Goes, 2013). Qualitative research would not have produced conclusive answers to the research question in this study. As the intent of this study was to examine the relationships between variables (CA, gender, age, educational level, and individual innovativeness) to place participants into innovation adoption categories based on CA scores and to generalize my findings to other populations, quantitative research was the most suitable method.

Rationale Behind the Research Design

The descriptive correlational research design was suitable for determining the potential relationships between the variables in this study. The purpose of descriptive research is to provide an accurate depiction of a facet within a particular field of study by generating hypotheses and identifying areas of needed improvements (Simon & Goes, 2013). The purpose of correlational research is to determine relationships between variables and, if a relationship emerges, to conduct regression analyses to make predictions to other populations (Simon & Goes, 2013). The purpose of this study supported a descriptive correlational research design because the intent was to examine the potential relationship between variables of CA, gender, age, educational level, and individual innovativeness. The research questions aligned with the research design and answering the hypotheses identified connections between CA and individual

innovativeness in managers, which is a potential management issue needing improvement. The research design supported the problem under study by providing an accurate depiction of a facet within the field of management.

Other quantitative research designs, such as experimental, causal-comparative, or quasi-experimental designs, were not suitable for this study. Experimental, causal-comparative, and quasi-experimental designs serve to establish cause-and-effect relationships among variables (Vogt & Johnson, 2011), whereas the intent of this study was to determine not causation but rather correlation. The use of descriptive correlational design is widespread in business research and often serves to advance knowledge in the interdisciplinary field of management (Cooper & Schindler, 2002). Time is a constraint consistent with this design choice. In descriptive correlational research, researchers do not manipulate predictor variables. Thus, the study involved an attempt to capture the criterion variable individual innovativeness at one specific time, which was during the completion of the survey.

Sampling Strategy

Population

The population for this study consisted of owner-executives, senior managers, and middle managers employed by companies within the continental United States. The targeted population was individuals who were at least 30 years of age who worked at least 40 hours per week. These criteria provided some confidence that the managers would have accumulated enough experience to form attitudes toward communicating in the workplace and perceptions about individual innovativeness. Based on the established

criteria, the exact size of the target population remains unknown. The sampling units were managerial participants derived from the sampling frame of individuals who met the established criteria. Job title, age, and number of hours worked per week were the three inclusion criteria used to screen candidates before they took the Internet-based survey.

Sample Size

Alpha or significance level, statistical power, and effect size were the three factors used to calculate the sample size (*n*). According to Simon and Goes (2013), the gold standard in quantitative research is to have an alpha level of .05, which means that the researcher is 95% confident that the true estimate of a variable is within a certain range. I chose an alpha level of .05 for this study. Cohen (1992) recommended that researchers use a statistical power of .80. A significantly smaller value than .80 would greatly increase the risk of a Type II error, whereas a significantly larger value would result in too large a sample size and likely exceed the researcher's resources (Cohen, 1992). I chose a statistical power of .80 for this study.

Effect size is the measurement that depicts the degree of relationships between variables (Wilkinson, 1999). According to the "Effect Size Indexes and Their Values for Small, Medium, and Large Effects" table presented in Cohen (1992), a small effect size is .02, a medium effect size is .15, and a large effect size is .35 for a multiple and multiple partial correlation. I summed an effect size of .15 as shown by similar studies (Booth-Butterfield, Chory, & Beynon, 1997; McCroskey et al., 1989).

To determine the needed sample size for a multiple regression model, the G*Power 3.1 software program (Faul et al, 2009) was used. With four predictors (CA,

gender, age, and education level), a medium effect size ($f^2 = .15$), and $\alpha = .05$, the needed sample size to achieve sufficient power (.80) is 85 participants. I computed the sample size of 85 using the G*Power statistical analysis Version 3.1.9.2 tool in a priori power analysis for a linear multiple regression. The tool is available at http://www.gpower.hhu.de/en.html.

Sampling and Sampling Procedures

I used a nonprobabilistic convenience sampling method for this study. Quantitative researchers have concerns about precision, tolerance for risk, and cost (Simon & Goes, 2013). Probabilistic or random sampling methods are generally preferable to nonprobabilistic ones because scholars consider them to be more precise and rigorous, and they increase the external validity of the study (Trochim, 2006). Although a probabilistic sampling method would have increased the accuracy of the study, it was impractical due to the difficulty of obtaining a random sample of managers and the increased demands it would have imposed in terms of time, costs, and other resources. Because probabilistic sampling in social sciences research is not always feasible, nonprobabilistic convenience sampling received consideration.

Although researchers can calculate accurate estimates of a population's parameters only with probabilistic samples, social science researchers use nonprobabilistic samples when a listing of the sample is not available (Frankfort-Nachmias & Nachmias, 2008). As there was no known listing of all managers employed in the United States, this study included a nonprobabilistic sampling method. I obtained a convenience sample as an extension of the nonprobabilistic sampling method by selecting

sampling units (managers) conveniently available through SurveyMonkey's audience pool. Nonprobabilistic convenience sampling is speedier and is more cost effective compared to probability sampling. I used a nonprobabilistic convenience sampling technique to obtain representation of owner-executives, senior managers, and middle managers employed by companies based in the United States.

Procedures for Data Collection

Participants received a self-administered, Internet-based, SurveyMonkey survey via e-mail that served as the primary data collection method (see Appendix B). This data collection method was more appropriate than using mailed surveys because of easier disbursement, quicker turnarounds, and lower costs associated with the retrieval of data (Frankfort-Nachmias & Nachmias, 2008). This data collection method was also more appropriate than using telephone surveys because participants might have been more reluctant to discuss sensitive topics related to the research question over the phone (Frankfort-Nachmias & Nachmias, 2008). Internet-based surveys offer participants greater anonymity and can integrate skip logic, question and answer piping, and text prompts to offer additional information.

Procedures for Recruitment

After receiving approval from Walden University's Institutional Review Board (IRB), I used SurveyMonkey's audience pool to recruit the number of managers needed to satisfy the sample size requirements for this study. I programmed the SurveyMonkey audience pool criteria so that only full-time owner-executives, senior managers, and middle managers who were at least 30 years of age, employed full time, and working at

companies within the continental United States could take the Internet-based survey. SurveyMonkey's audience pool received the initial communication via SurveyMonkey. The initial contact included a survey invitation (see Appendix C) that explained the purpose of the invitation and the benefits of participating in the survey. The invitation included a hyperlink that directed participants to the consent form that preceded the survey.

Procedures for Participation

The consent form was the first visible section of the survey. The consent form included the purpose and potential benefits of the research study, a sample of the survey questions, an assurance of confidentiality, and information about the voluntary nature of the study. The consent form also included my contact information and the contact information for Walden's IRB in the event that participants had questions about the survey or their rights as participants in this research. Selecting "yes" using the electronic informed consent button opened the online survey to the participant. I did not conduct debriefing or follow-up procedures after participants completed the survey.

Instrumentation and Operationalization of the Variables

I designed this study to examine the relationship between CA and individual innovativeness in managers. The survey instrument in this study was a combination of two preexisting research instruments: McCroskey's (1982) PRCA-24 and the Hurt et al. (1977) Individual Innovativeness scale. These were appropriate measures to examine the variables in this study because both measures had high reliability and validity when used to examine these variables in previous studies. The survey instrument also included four

demographic questions on gender, age, years of employment at the organization, and industry. The survey consisted of 24 questions from the PRCA-24, 20 questions from the Individual Innovativeness scale, and four demographic questions.

PRCA-24

The 24-item PRCA-24, developed by McCroskey (1982), is the instrument most widely used to measure CA and has strong content and predictive validity. The basis of values for each question is a 5-point Likert-type scale, where 1 = *strongly disagree* and 5 = *strongly agree*. The highest score possible is 120, and the lowest is 24. The PRCA-24 permits participants to obtain CA subscores in the contexts of group discussions, meetings, interpersonal interactions, and public speaking. Each context includes six items that are worded in positive and negative directions to avoid response bias. Calculating the group discussions score involves the following formula: 18 - (scores for Items 2, 4, and 6) + (scores for Items 1, 3, and 5). Calculating the meetings score involves the following formula: 18 - (scores for Items 8, 9, and 12) + (scores for Items 7, 10, and 11). Calculating the interpersonal interactions score involves the following formula: 18 - (scores for Items 14, 16, and 17) + (scores for Items 13, 15, & 18). Calculating the public speaking score involves the following formula: 18 - (scores for Items 19, 21, and 23) + (scores for Items 20, 22, and 24). Calculating the total score for the PRCA-24 involves adding all the subscores together. According to the total score formula displayed in Table 1, participants who obtain a total score lower than 51 have low levels of CA. Participants who obtain a total score between 51 and 80 have average levels of CA. Participants who obtain a total score greater than 80 have high levels of CA. Data collected from over

25,000 participants from 52 colleges and universities revealed that the scores form a normal distribution, with a mean of 65.6 and a standard deviation of 15.3 (McCroskey et al., 1985).

Table 1

Norms for the PRCA-24

	M	*SD*	High CA	Low CA
Total score	65.6	15.3	> 80	< 51
Group discussions	15.4	4.8	> 20	< 11
Meetings	16.4	4.2	> 20	< 13
Interpersonal interactions	14.2	3.9	> 18	< 11
Public speaking	19.3	5.1	> 24	< 14

Note. Adapted from *An Introduction to Rhetorical Communication* (4th ed., p. 88, by J. C. McCroskey, 1982, Englewood Cliffs, NJ: Prentice-Hall.

Considerable evidence exhibits both reliability and construct validity for the PRCA-24. Researchers typically use Cronbach's alpha to measure the reliability of Likert-type scales (Simon & Goes, 2013). According to Nunnally (1978), Cronbach's alpha should be over .7 when testing the reliability of a measure. Beatty (1994) profiled the PRCA-24 and synthesized previous communications research to determine the reliability and validity of the instrument. The alpha reliability estimates for all 24 items ranged between .93 and .95. Beatty corroborated the PRCA-24's construct and criterion-related validity. According to McCroskey (1984), the internal reliability for the PRCA-24 is an estimated .94, which coincides with Chen's (1994) study, which also yielded an alpha reliability of .94. The entire PRCA-24 scale exhibits high predictive validity.

Autman, Kelly, Gaytan, and Hunter (2016) investigated the relationships between CA, communication performance, and perceptions of professional physical appearance

perspectives on four business education teachers and 60 business education students in Georgia. The reliability score for the PRCA-24 in Autman et al.'s study was .85. McCroskey, Fayer, and Richmond (1985) investigated the relationships between CA and communication situations requiring assertiveness on 311 undergraduates enrolled in introductory communications courses. Their study yielded a Cronbach's alpha of .97 for the entire scale. McCroskey et al. found a .70 correlation with the Rathus Assertiveness Schedule, which demonstrated the content validity of the instrument. PRCA-24 also had high interitem and total score correlations with other instruments that measure psychological traits, such as the Myers-Briggs Type Indicator (Opt & Loffredo, 2000). Individuals can use the PRCA-24 for research or instructional purposes without additional authorization of the copyright holder (McCroskey, 2007).

II Scale

Hurt et al. (1977) developed the 20-item Individual Innovativeness scale under the name Innovativeness scale. The basis of values for each question is a 5-point Likert-type scale, where 1 = *strongly disagree* and 5 = *strongly agree*. The highest score possible is 94, and the lowest is 14. According to the scale, calculating the Individual Innovativeness score involves the following formula: 42 + (1, 2, 3, 5, 8, 9, 11, 12, 14, 16, 18, 19; total score of positively worded items) – (4, 6, 7, 10, 13, 15, 17, 20; total score of negatively worded items). According to this formula, as displayed in Table 2, participants who obtain a score above 80 are innovators, those who obtain a score between 69 to 80 are early adopters, those who obtain a score between 57 to 68 are early majority, those who

obtain a score between 46 and 56 are late majority, and those who obtain a score less than 46 are laggards.

Table 2

Individual Innovativeness Classifications by Score

Innovativeness category	Score
Innovators	> 80
Early adopters	69-80
Early majority	64-68
Early majority	57-63
Late majority	46-56
Laggards	< 46

Note. Adapted from "Scales for the Measurement of Innovativeness," by H. T. Hurt, K. Joseph, and C. D. Cook, 1977, *Human Communication Research, 4,* p. 62.

Using Nunnally's (1967) technique, Hurt et al.'s (1977) analysis for assessing the reliability of the Individual Innovativeness scale yielded a score of .94. Adigüzel (2012) used the Individual Innovativeness scale to examine the relationships between the moral maturity levels of prospective teachers and their individual innovativeness characteristics. Based on previous studies, Adigüzel calculated the validity and reliability for the Individual Innovativeness scale and found the reliability coefficient to be .87. In Adigüzel's study, the reliability coefficient of the Individual Innovativeness scale was .82. Lee and Mano (2014) used the Individual Innovativeness scale to test a model of consumer innovativeness; they identified two dominant factors (eigenvalues 4.5 and 3.1), and subsequent examinations revealed two reliable scales. One contained six positively worded items (α = .79; loadings > .50), and the second consisted of seven negatively worded items (α = .79; loadings > .49). The Individual Innovativeness scale is available

for research or instructional purposes without a need to obtain individualized permission (McCroskey, 2007).

Demographic-Related Questions

The final set of questions consisted of demographic-related questions pertaining to gender, age, education level, and industry. Industry information did not undergo analysis. Rather, industry information helped to offer general insight into which types of industries attained representation in this study.

Data Analysis Plan

The data analysis plan for this study involved collecting electronic responses from SurveyMonkey's audience pool and downloading them into IBM's Statistical Package for Social Sciences (SPSS) Version 21.0 for PC/Windows. I conducted data screening and cleaning procedures to ensure the integrity of the data before conducting statistical analyses. Before disbursing the survey, I programmed SurveyMonkey's parameters to not allow participants to submit the survey unless they have answered all questions.

Before analyzing the data, I downloaded the data into SPSS to validate that SurveyMonkey's parameters worked as intended and that there was no incomplete or missing data. In the event SurveyMonkey's parameters had not worked properly and records had incomplete or missing data, I would have removed them and not included them in the analysis. SurveyMonkey's parameters had worked as intended and there was no incomplete or missing data. After I screened data in SPSS, I confirmed that any questions involving categorical responses (i.e., male, female) appeared as numeric data codes. For example, I confirmed that SurveyMonkey had coded "male" as 0 and "female"

as 1. It is important to code categorical responses into numeric data because SPSS is better at handling numeric variables than string variables (Green & Salkind, 2014). Lastly, I confirmed that SurveyMonkey had correctly arranged participants' responses in rows and the different questions in columns. Confirming that the data was cleaned, screened, and organized facilitated the data analysis process in SPSS.

Descriptive Statistics

The survey instrument included four demographic questions on gender, age, education level, and industry. I did not use industry information for analysis but rather to gain general insight into which types of industries participants represented in this study. I used the participants' demographic information on gender, age, and education level only to reveal general insights about the potential relationships between CA and the individual innovativeness of managers. I used SPSS to calculate descriptive statistics such as the means, standard deviations, and number of participants derived from the data. Descriptive statistics also included a zero-order correlation matrix to show how managers' individual innovativeness correlated with their CA level, gender, age, and education level.

Inferential Statistics

I conducted this study to examine what relationship, if any, exists between CA and individual innovativeness in managers. I employed the null hypothesis in RQ1 to allege that no significant relationship exists between the predictor variable and the criterion variable, while I employed the alternative hypothesis to allege that there is such a relationship. The study involved conducting correlational statistical tests to measure the relationship between CA and individual innovativeness. I also examined this relationship

after controlling for demographic characteristics. I employed the null hypothesis in RQ2 to allege that no significant relationship exists between the predictor variable and the criterion variable after controlling for demographic characteristics, while I employed the alternative hypothesis to allege that there is such a relationship. I examined relationships between the predictor variables CA, gender, age, and educational level and the criterion variable individual innovativeness.

Using SPSS, I conducted a two-tailed test of significance to search for the possibility that relationships exist between variables in both directions. With an alpha level at .05, the confidence level [$(1 - \alpha) \times 100$] will be 95%. I also used SPSS to compute a Pearson's product–moment correlation coefficient (r) to measure the degree in which the variables are linearly associated with one another in the sample.

Because the hypotheses included more than two predictor variables, a multiple regression analysis was appropriate. The study involved testing the hypotheses by running the following multiple regression model:

$$\hat{Y} = B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4$$

$$H_0: B_1 = B_2 = B_3 = B_4 = 0$$

$$H_a: \text{At least one } B \neq 0,$$

where B_1 through B_4 were partial slopes for the four predictor variables X_1 through X_4. I used SPSS to compute a multiple correlation (R), a squared multiple correlation (R^2), and an adjusted squared multiple correlation (R^2_{adj}). I used SPSS to calculate these indices to examine how well the linear combination of the CA in the regression analysis predicts managers' individual innovativeness. Multiple regression analysis was the most

appropriate for this study because the study involved using the research question and hypotheses to examine which differences in group means were statistically significant among variables.

Assumptions

The multiple regression analysis is subject to two assumptions for the random-effects model. The first assumption is that "the variables are multivariately normally distributed in the population" (Green & Salkind, 2014, p. 260). If this assumption holds true, only a linear relationship can exist between variables. The second assumption is that "the cases represent a random sample from the population, and the scores on variables are independent of other scores on the same variables" (Green & Salkind, 2014, p. 260). If this assumption holds true, nonlinear relationships may be present if variables violate the first assumption. One way to test the assumption is to inspect scatterplots of predictor and criterion variables for nonlinearity. In the event violations occur, a nonparametric test or nonlinear model may be a better fit.

Threats to Validity

This study involved examining four threats to validity: external, internal, statistical conclusion, and construct. External validity refers to the degree to which the conclusions of the study are generalizable to other individuals in other settings beyond the study (Trochim, 2006). Internal validity refers to whether changes in the independent/predictor variable caused changes to the dependent/criterion variable (Simon & Goes, 2013). Construct validity refers to the extent to which a research instrument is empirically tied to the theoretical framework underpinning of a study (Frankfort-

Nachmias & Nachmias, 2008). Statistical conclusion validity refers to incorrect conclusions about one or more relationships between variables in a study (Trochim, 2006). Further details regarding the threats to external, internal, statistical conclusion, and construct validity in this study follow in the sections below.

External Validity

Using a nonprobability convenience sample may have threatened the external validity of this study. Nonprobability convenience samples, while generally easier to obtain, can lessen the accuracy and generalizability of a study (Simon & Goes, 2013). To improve the external validity of the study, I disbursed the survey instrument to managers employed at numerous organizations from various sizes, sectors, and industries. As such, the findings of this study were applied to different managerial settings across organizations in the United States and were generalizable to larger populations. Reactive or interaction effects of testing or selection biases can threaten the external validity of experimental research (Campbell & Stanley, 1966). This study was nonexperimental and did not have a pretest–posttest design. Therefore, these factors were not relevant and did not threaten the external validity of this study.

Internal Validity

Internal validity was not a significant threat in this study. Internal validity is only relevant in studies that try to establish a causal relationship (Trochim, 2006). This study did not involve an attempt to substantiate the claim that changes in the predictor variables (CA, gender, age, and education level) can cause changes to the criterion variable (individual innovativeness). Instead, this study served as a comparison to demonstrate the

potential correlations between the predictor and the criterion variables. Intrinsic factors such as history, maturation, statistical regression, experimental mortality, and selection–maturation interaction are only relevant to experimental research designs (Frankfort-Nachmias & Nachmias, 2008). Therefore, these factors did not threaten the internal validity of this study.

Construct and Statistical Conclusion Validity

The PRCA-24 selected as the survey instrument may have threatened the construct validity of this study. Although the total score of the PRCA-24 has strong convergent and discriminant validity, the four individual subscales may not (McCroskey et al., 1985). Penley, Alexander, Jernigan, and Henwood (1991) used the PRCA-24 to investigate the relationships between social cognitive abilities and managerial performance. Researchers found that the internal consistency of the individual subscores was unreliable. Researchers should primarily use the total score of the PRCA-24 until subsequent researchers can corroborate the convergent and discriminant validity of the individual subscores.

Type I error may have threatened the statistical conclusion validity of the study. Type I error, denoted by α, occurs when the researcher incorrectly rejects a true null hypothesis (Frankfort-Nachmias & Nachmias, 2008). Factors that affect the Type I error rate include alpha level and statistical power. To minimize the chance of making a Type I error, researchers can lower the alpha level and statistical power (Trochim, 2006). In this study, I set the alpha level to be .05, which indicated that the findings have a 95%

likelihood of being true. I set the statistical power at .80, which means I had an 80% likelihood of observing a statistically significant effect when it occurred.

Ethical Procedures

All participants were working adults, 30 years of age or older. I did not administer a treatment, invention, or experimental manipulation to human participants, and I did not offer personal incentives for participating in the survey. SurveyMonkey donated $0.50 towards a participating charity of participants' choice as a part of its SurveyMonkey Contribute program. I did not conduct the study in my own workplace, which avoided any conflict of interest. The data collection procedures involved addressing all ethical concerns and seeking approval from Walden University's IRB before contacting participants, conducting the research, or collecting data. After receiving approval, I permitted SurveyMonkey to send out an electronic invitation to solicit participation from SurveyMonkey's audience pool. Participants reviewed and signed an electronic consent form prior to gaining access to the Internet-based survey provided by SurveyMonkey.com. The consent form provided reassurance about how I protected participants' anonymity. The consent form also informed participants that they were free to withdraw from the study or to decline to complete the survey at any time during the process.

To protect the names and identities of the participants, I selected the "disable IP address tracking" feature on SurveyMonkey.com to ensure the survey was anonymous. I collected preliminary demographic data such as gender, age, education level, and industry at the conclusion of the survey, but I did not collect the names or any other personal

identifiers of the participants. SurveyMonkey provided me with a participant identification number for each unique response. The participants remain unknown to me, and their responses remain anonymous.

SurveyMonkey uses an SSL encrypted survey platform. TRUSTe and Norton protected and validated data, and SurveyMonkey has features compliant with the Health Insurance Portability and Accountability Act (SurveyMonkey, 2017). I will keep any electronic data from the online survey for a 5-year period in the event I need to trace responses from the analysis traced back to the original survey. I will save the data on an external hard drive, protect it with a password, and store it in a fireproof safe. After the 5-year period, I will remove the data storage device from the safe and destroy it.

Summary

Chapter 3 included a discussion on the research methodology and design selected for this study. I used a quantitative research method with a descriptive correlational research design to examine the relationship between CA and individual innovativeness in managers. I also examined this relationship after controlling for demographic characteristics. I examined the relationships between the predictor variables CA, gender, age, and educational level and the criterion variable individual innovativeness.

The chapter included a description of the target population and of the research sample, which consisted of owner-executives, senior managers, and middle managers employed at varying organizations across the United States. Previously validated and reliable PRCA-24 and Individual Innovativeness survey instruments were suitable for collecting data from SurveyMonkey's audience pool. Because the study included more

than two predictor variables, I conducted a multiple regression analysis to examine the degree and direction of the relationship between each combination of variables. Other topics addressed were ethical considerations and threats to external, internal, construct, and statistical conclusion validity.

Chapter 4 includes a review of the statistical tests used, the variables, the purpose of the tests, and the ways they relate to the hypotheses. The chapter includes both written and visual displays of the results derived from this study. The chapter also includes a discussion on the representativeness of the sample and the generalizability of the findings.

Chapter 4: Results

The purpose of this quantitative, correlational research study was to examine the potential relationship between CA and individual innovativeness in managers. The theoretical foundation for the research was DOI theory, which addresses a process involving individual attitudes and behaviors toward innovation adoption (Rogers, 2003). Managers who have lower levels of individual innovativeness may have higher levels of CA and might engage less frequently in social networks feeding the innovation adoption process.

Researchers have identified negative relationships between CA and managers' effectiveness in areas such as job satisfaction and organizational commitment (Beck et al., 2012), learning styles (Russ, 2012), X/Y orientations (Russ, 2013b), and participative decision making (Russ, 2013a). In this study, I looked to determine whether there was a relationship between CA and individual innovativeness in managers, before and after controlling for demographic characteristics. A sample of 105 participants was used. If a negative relationship exists between managers' perceived CA and individual innovativeness, then organizational leaders can allocate more resources to programs dedicated to mitigating the effects of CA in the workplace and promote the factors that affect managers' propensities toward innovation adoption more effectively. Such outcomes could, in turn, increase firm performance.

The research questions and hypotheses in this study were as follows:

RQ1: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness?

$H1_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness.

$H1_a$: A statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness.

RQ2: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level)?

$H2_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level).

$H2_a$: A statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level).

The first table in this chapter displays the frequency counts for the demographic variables. The second table displays the top industries represented in the study. The third table displays the category classifications for the CA and individual innovativeness scores. The fourth table displays the psychometric characteristics for these six summated scale scores. The fifth table displays the Pearson correlations for the CA total and CA subscale scores with individual innovativeness. The sixth table displays the Pearson correlations for the three control variables with the six summated scale scores. The

seventh table displays the prediction of individual innovativeness based on selected variables using multiple regression analysis.

The first figure in this chapter displays the three rounds of boxplots to identify univariate outliers and assess normality for the CA subscales. The second figure displays the three rounds of box plots to identify univariate and outliers and assess normality for the CA total score. The third figure displays the three rounds of box plots to identify univariate outliers and assess normality for the individual innovativeness score. The fourth figure displays the bivariate scatterplot for the individual innovativeness score and the total CA score. The fifth figure displays the residual analysis to assess normality, linearity and homoscedasticity. The results of the statistical analysis precede a summary of the findings as they relate to each of the research questions and proposed hypotheses.

Data Collection

After receiving approval from Walden University's IRB on September 21, 2017 (Approval No. 09-21-17- 0441238), I collected data during an 18-hour period from full-time owner-executives, senior managers, and middle managers working in the United States. I used SurveyMonkey's audience pool to recruit the participants. To qualify for the sample, individuals needed to be at least 30 years of age and employed full time with their organizations.

SurveyMonkey's audience pool received the initial communication via SurveyMonkey. The initial contact included a survey invitation that explained the purpose of the invitation and the benefits of participating in the survey. The consent form included the purpose and potential benefits of the research study, a sample of the survey

questions, an assurance of confidentiality, and information about the voluntary nature of the study. The consent form also included my contact information and the contact information for Walden's IRB in the event that participants had questions about the survey or their rights as participants in this research.

Selecting "yes" using the electronic informed consent button opened the online survey to the participant. I did not conduct debriefing or follow-up procedures after participants completed the survey. After the participants consented, they completed an Internet-based survey provided on SurveyMonkey's website. The average amount of time participants took to complete the survey was 5 minutes and 29 seconds.

Data Screening

The sampling units were managerial participants derived from the sampling frame of individuals who met the established criteria. I programmed SurveyMonkey audience pool criteria so that only full-time owner-executives, senior managers, and middle managers who are at least 30 years of age, employed at full-time status, and working at companies within the continental United States could take the Internet-based survey. These criteria provided some confidence that the managers would have accumulated enough experience to form attitudes toward communicating in the workplace and perceptions about individual innovativeness.

Data Cleaning

Initially, 137 participants were sent the survey and started to complete it. Eighteen participants canceled the survey before completion, reducing the sample to $n = 119$. Among the total invitations sent, 105 results were used in the final study, resulting in a

78% successful response rate. To support the external validity of the study, a minimum sample size of 85 was needed (as calculated in Chapter 3). In this study, obtaining at least 85 participants supported a power level of .80. With 105 participants, the sample size requirement was successfully satisfied.

Baseline Characteristics

In this study, I targeted owner-executives, senior managers, and middle managers. Fifty-two of the participants were female, and 53 were male. Ages of participants ranged from 30 to 80 years, with a median age of 53.68. Seventy-four of the participants (70%) had obtained a 4-year degree or higher. According to the Bureau of Labor Statistics (2017), 7,090,790 managers were employed in the United States in 2016. Nearly 40% of all managers employed were women (Torpey, 2017), and at least 42% of managers were age 55 or older (Toossi & Torpey, 2017). The Bureau of Labor Statistics (2015) has reported that over 80% of most managerial positions require a minimum of a 4-year degree. While the exact size of the target population of owner-executives, senior managers, and middle managers remains unknown, the participants in this study are representative of the total population of managers employed in the United States in terms of gender, age, and education level.

Results of the Study

Table 3 displays the frequency counts for the demographic variables. There were similar numbers of males (50.5%) and females (49.5%). Ages of the participants ranged from 30 to 80 years (M = 53.68, SD = 10.78). Seventy percent of the sample had at least a 4-year college degree (see Table 3). Table 4 displays the top five industries represented in

the study, which were health care and pharmaceuticals (17.3%); education (13.5%); telecommunications, technology, Internet, and electronics (13.5%); government (10.6%); and business support and logistics (7.7%).

Table 3

Frequency Counts for Demographic Variables

Variable	Category	*n*	%
Gender			
	Male	53	50.5
	Female	52	49.5
Age category [a]			
	30 to 39 years	13	12.4
	40 to 49 years	24	22.9
	50 to 59 years	29	27.6
	60 to 69 years	34	32.4
	70 to 80 years	5	4.8
Highest education			
	High school diploma/GED	2	1.9
	Some college	24	22.9
	2-year college degree	5	4.8
	4-year college degree	28	26.7
	Graduate degree	46	43.8

Note. $n = 105$.
[a] Age: $M = 53.68$, $SD = 10.78$.

Table 4

Top Industries Represented

Industry	#	%
Health care & pharmaceuticals	18	17.3
Education	14	13.5
Telecommunications, technology, Internet & electronics	14	13.5
Government	11	10.6
Business support & logistics	8	7.7
Other	40	38.1

Table 5 displays the category classifications for the CA and the individual innovativeness scores. Based on the total CA score, all participants either had low (50.5%) or moderate (49.5%) CA. For individual innovativeness, half the participants (50.5%) were rated as being early adopters, and another 19.0% were rated as innovators (see Table 5).

Table 5

Category Classifications for the CA and Individual Innovativeness Scores

Variable	Category	*n*	%
Total CA			
	Low	53	50.5
	Moderate	52	49.5
Group discussions CA			
	Low	29	27.6
	Moderate	76	72.4
Meetings CA			
	Low	68	64.8
	Moderate	37	35.2
Interpersonal interactions CA			
	Low	34	32.4
	Moderate	68	64.8
	High	3	2.9
Public speaking CA			
	Low	48	45.7
	Moderate	55	52.4
	High	2	1.9
Individual innovativeness			
	Late Majority	3	2.9
	Early Majority	29	27.6
	Early Adopters	53	50.5
	Innovators	20	19.0

Note. *n* = 105. CA = Communication apprehension.

Assumption Testing

Boxplots were used to visually identify univariate outliers, which represented participants who had values more than 3 times the height of the boxes (see Figures 2 through 4). After three rounds of boxplots, the sample was reduced from $n = 119$ to $n = 105$. Inspection of the final boxplots suggested that the assumption of univariate normality was met. Using the Mahalanobis distance statistic, no multivariate outliers were identified. A bivariate scatterplot and a Pearson correlation were used to assess the linearity between the total CA score and the criterion variable (see Figure 5). Inspection of the scatterplot found linearity was clearly evident between the individual innovativeness score and the total CA score ($r = -.49$, $r^2 = .236$, $p = .001$). The Durbin-Watson autocorrelation statistic ($DW = 2.22$) suggested that assumption was met. No multicollinearity was evident based on the variance inflation factor (VIF) scores. Figure 6 displays the multiple regression residual analyses to assess normality, linearity, and homoscedasticity among the residuals. These assumptions were also met. Taken together, the assumptions for the multiple regression model were adequately met.

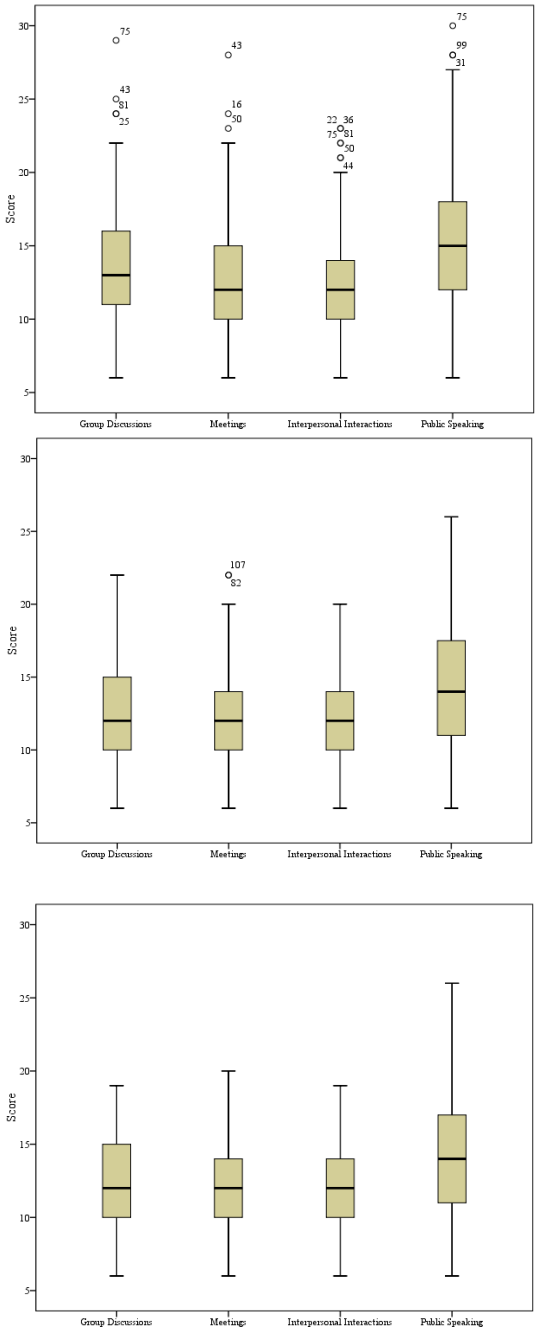

Figure 2. Three rounds of boxplots to identify univariate outliers and assess normality for subscales. Round 1 (n = 119), Round 2 (n = 107), and Round 3 (n = 105).

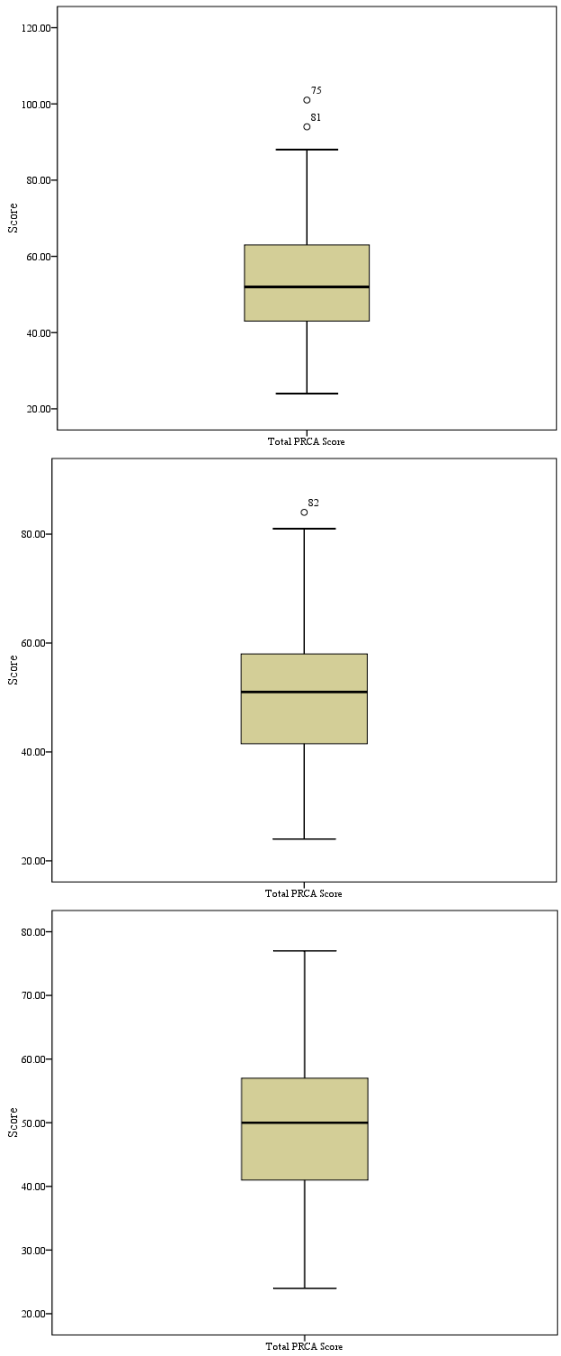

Figure 3. Three rounds of boxplots to identify univariate outliers and assess normality for CA total score. Round 1 (*n* = 119), Round 2 (*n* = 107), and Round 3 (*n* = 105).

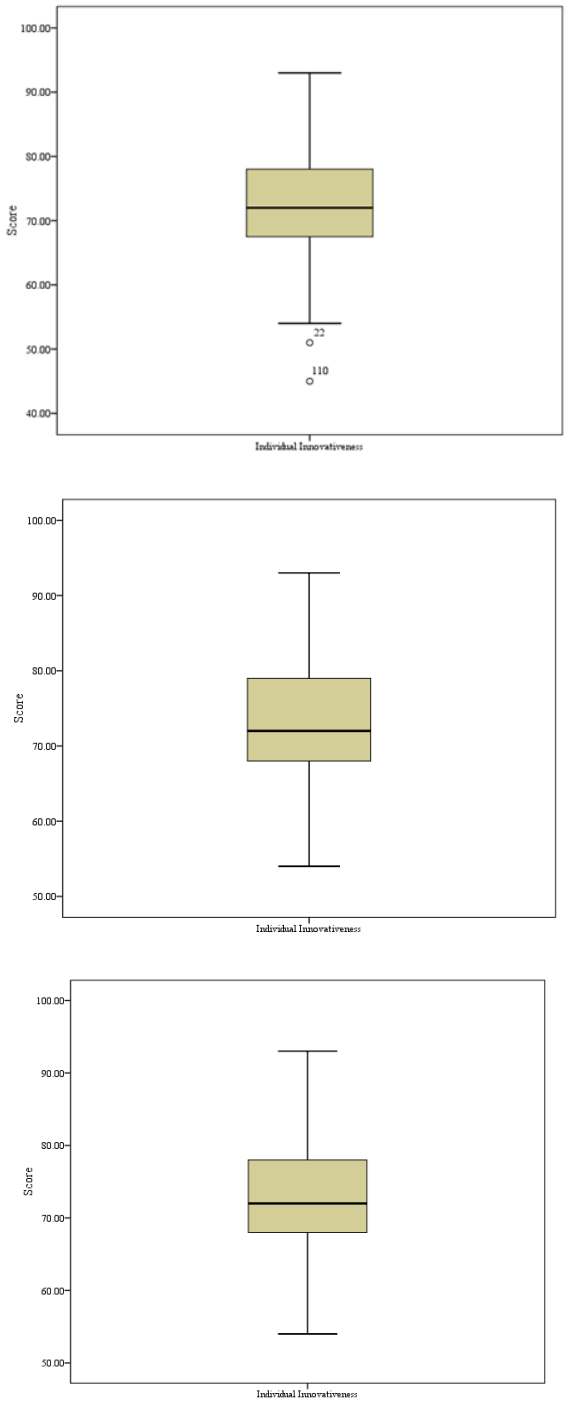

Figure 4. Three rounds of boxplots to identify univariate outliers and assess normality for individual innovativeness score. Round 1 (n = 119), Round 2 (n = 107), and Round 3 (n = 105).

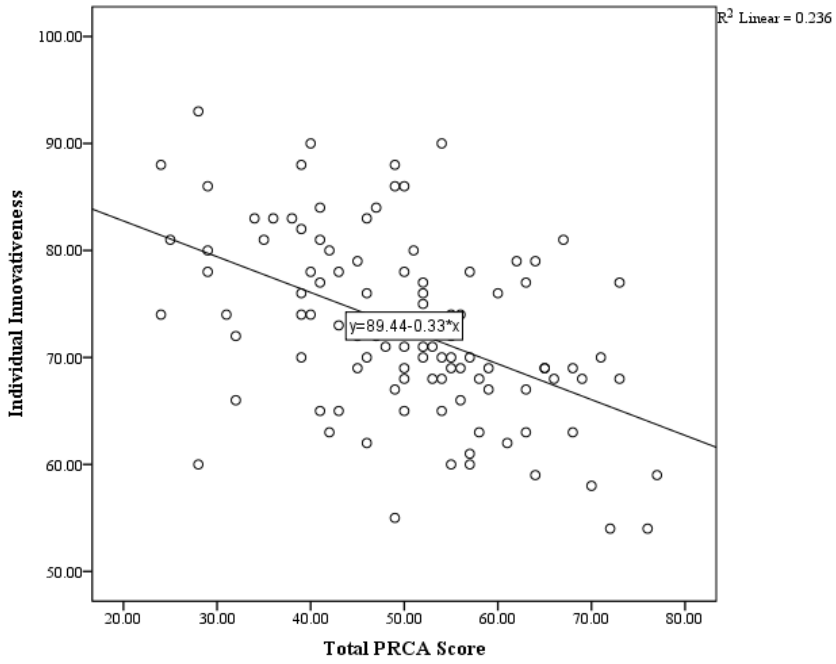

Figure 5. Bivariate scatterplot for individual innovativeness and total CA score.

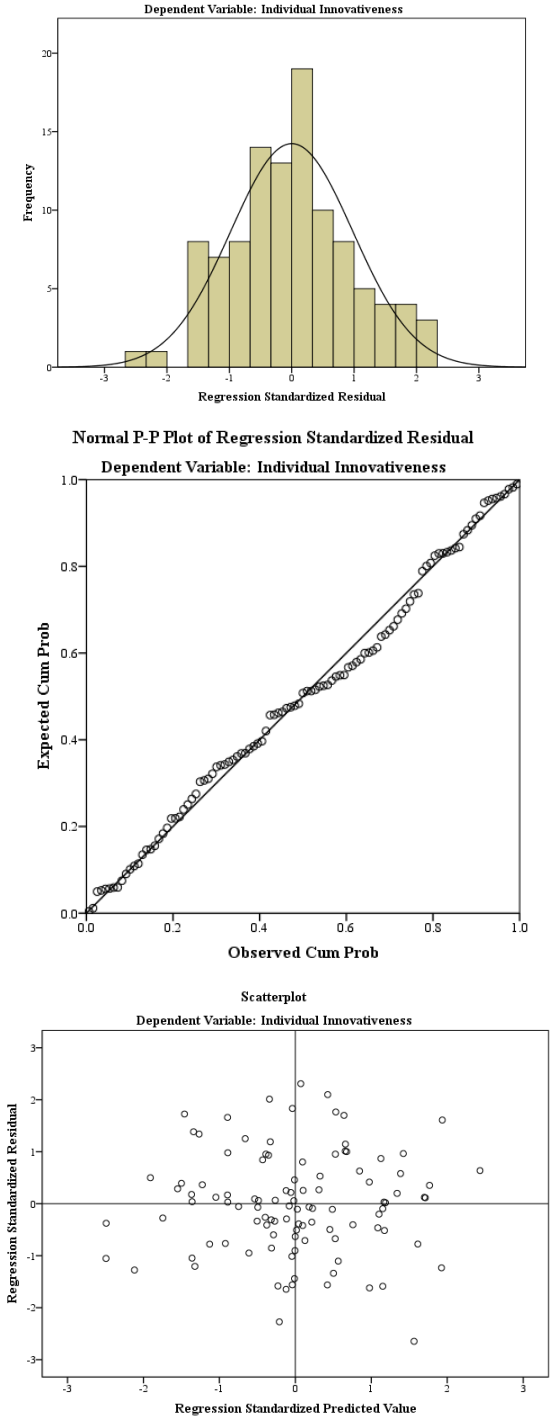

Figure 6. Residual analysis to access normality, linearity, and homoscedasticity (*n* = 105).

Reliability Analysis

Table 6 displays the psychometric characteristics for the six summated scale scores: total CA, group discussions CA, meetings CA, interpersonal interactions CA, public speaking CA, and individual innovativeness. The Cronbach's α reliability coefficients ranged in size from α = .82 to α = .94. According to Nunnally (1978), Cronbach's alpha should be over .7 when testing the reliability of a measure. This suggested that all six scales had adequate levels of internal reliability (see Table 6).

Table 6

Psychometric Characteristics for Summated Scale Scores

Scale score	Number of items	*M*	*SD*	Low	High	α
Total CA	24	50.21	12.28	24.00	77.00	.94
Group discussions CA	6	12.54	3.46	6.00	19.00	.82
Meetings CA	6	11.83	3.39	6.00	20.00	.87
Interpersonal interactions CA	6	11.68	3.18	6.00	19.00	.87
Public speaking CA	6	14.16	4.90	6.00	26.00	.92
Individual innovativeness	20	72.67	8.45	54.00	93.00	.87

Note. n = 105.

Research Questions and Hypothesis Findings

Research Question 1. Research Question 1 asked, RQ1: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness? The related null hypothesis predicted $H1_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual innovativeness. To

answer this question, Table 7 displays the Pearson correlation between the individual innovativeness score and the total CA score. A significant negative correlation was found (r = -.49, r^2 = .236, p = .001). Thus, null hypothesis one was rejected. Also in Table 7 are the Pearson correlations between the four CA subscale scores with individual innovativeness. All four subscale scores had significant negative correlations with individual innovativeness (see Table 7).

Table 7

Pearson Correlations CA Scores With Individual Innovativeness

CA scores	Individual innovativeness
Total CA	-.49 ****
Group discussions CA	-.29 ***
Meetings CA	-.48 ****
Interpersonal interactions CA	-.41 ****
Public speaking CA	-.42 ****

Note. n = 105. CA = Communication apprehension.
* p < .05. ** p < .01. *** p < .005. **** p < .001.

Research Question 2. Research Question 2 asked, RQ2: What is the relationship, if any, between managers' individual perceptions of CA and individual innovativeness after controlling for managers' demographic characteristics (gender, age, education level)? The related null hypothesis predicted that $H2_0$: No statistically significant relationship exists between managers' individual perceptions of CA and individual

innovativeness after controlling for managers' demographic characteristics (gender, age, education level).

Control variables. Table 8 displays the Pearson correlations for the control variables (gender, age, and education level) with the six scale scores. For the resulting 18 correlations, two were significant at the $p < .05$ level. Specifically, the participant's level of education level was negatively related to both the total CA score ($r = -.22$, $p <. 05$) and the public speaking CA score ($r = -.29$, $p <. 005$) (see Table 8).

Table 8

Pearson Correlations for Control Variables With Summated Scale Scores

Scale score	Gender [a]	Age	Education	
Total CA	.11	-.12	-.22	*
Group discussions CA	.10	-.04	-.17	
Meetings CA	.11	-.16	-.12	
Interpersonal interactions CA	.04	.01	-.08	
Public speaking CA	.10	-.16	-.29	***
Individual innovativeness	.12	-.03	.14	

Note. $n = 105$. CA = Communication apprehension.
[a] Gender: 1 = male, 2 = female.
* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

To test the hypothesis, Table 9 provides the results of the multiple regression analysis model that predicted individual innovativeness based on gender, age, education level and total CA. The four variable model was statistically significant ($p = .001$) and accounted for 26.8 % of the variance in the criterion variable. Specifically, higher scores for individual innovativeness were negatively related to higher scores for total CA (β = -

.50, p = .001). These findings provided support to reject the null hypothesis for Research Question 2 (see Table 9).

Table 9

Prediction of Individual Innovativeness Based on Selected Variables Using Multiple Regression

Variable	*B*	*SE*	β	*p*
Intercept	87.24	6.32		.001
Gender [a]	2.65	1.52	.16	.09
Age	-0.04	0.07	-.05	.58
Highest education	0.19	0.61	.03	.75
Total CA	-0.35	0.06	-.50	.001

Note. n = 105. Final model: F (4, 100) = 9.17, p = .001. R^2 = .268. Durbin-Watson autocorrelation statistic: 2.22.
[a] Gender: 1 = male, 2 = female.

Summary

In summary, this study used data from 105 owner-executives, senior managers, and middle managers in the United States to examine the relationship between CA and individual innovativeness. Hypothesis 1 (total CA with individual innovativeness) was supported (Table 4). CA had a significant negative relationship with their individual innovativeness. Hypothesis 2 (total CA with individual innovativeness controlling for demographics) was also supported (Table 6). CA had a significant negative relationship with individual innovativeness after controlling for demographics (gender, age, and education level). Specifically, education level was found to be negatively correlated with both total CA and public speaking CA. Chapter 5 includes my interpretation of these findings as it relates to the literature, the limitations of the study, and recommendations

for future research. It also includes implications for furthering positive social change.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative, correlational research study was to examine the potential relationship between CA and individual innovativeness in managers. This research contributes to better understanding of factors potentially affecting individual adoption behaviors and how communicative challenges such as CA can negatively impact managers' individual innovativeness. By filling the knowledge gap in this area, this study may help to direct future research, may inform individual and organizational efforts to mitigate the effects of CA in the workplace, and may result in better innovation outcomes and therefore greater financial performance and competitiveness.

I operationalized the criterion and predictor variables and provided substantiation of the reliability of the PRCA-24 and II survey instruments in Chapter 3. After receiving IRB approval, I collected data from U.S.-based, full-time owner-executives, senior managers, and middle managers at least 30 years of age. Pearson correlation and regression analyses were used to test the hypotheses from RQ1 and RQ2; a complete display of the survey results appeared in Chapter 4. The results revealed that CA was negatively correlated with individual innovativeness in managers before and after controlling for demographic characteristics. These findings indicate a need for leaders to initiate programs to mitigate the effects of CA in the workplace and better promote the factors that support managers' propensities toward innovation adoption.

In this final chapter, I provide my interpretation of the key findings and give a roadmap for scholar-practitioners seeking to apply this new knowledge in the field of management. This chapter also includes theoretical implications, limitations of the study,

and recommendations for future research. Finally, I describe this study's practical and theoretical implications for positive social change on individual, organizational, and societal levels.

Interpretation of Findings

The empirical evidence obtained in this study supported accepting both of the alternative hypotheses. The results for RQ1 indicated that managers' perceptions of their CA had a significant negative relationship with their individual innovativeness (r = -.49). This means that as managers' perceived CA increased, their individual innovativeness decreased. This research builds upon on past studies showing a negative relationship between CA and PDM (Russ, 2013a), tolerance of ambiguity, creativity, and new idea generation (Comadena, 1984), all of which are critical to the innovation adoption process. This finding reveals an exciting discovery and demonstrates that communicative challenges such as CA have the potential to negatively impact managers' tendency to adopt a change. As such, when managers perceive themselves as being less socially confident, they approach the prospect of change more reservedly. Because the success of an innovation depends on managerial communication in social networks (Creasy & Anantatmula, 2013) and individual innovativeness (Lanzolla & Suarez, 2012), CA has the potential to significantly hinder innovation outcomes. In that innovation is a driver of profitability and competitiveness, CA has the potential to weaken organizational performance.

Additionally, the results of this study indicated that based on the total CA score, all participants had either low or moderate CA. Specifically, the mean for the total CA

score in this study was 50.21. According to McCroskey at al. (1985), the PRCA-24 norm for the total CA score is 65.6. One possible explanation as to why the total CA score of participants in this study was lower than the total CA norm for the scale involved the age profile of the sample. The PRCA-24 norm for the total CA score was developed from data collected from over 25,000 participants from 52 colleges (McCroskey et al., 1985), with this group most likely composed of younger, college-aged individuals. In contrast, the average age of participants in this study was 53.68 years. It is possible that older participants had more experience speaking in social situations in the workplace and therefore reported lower levels of CA.

The results for RQ2 indicated that CA had a significant negative relationship with individual innovativeness after controlling for demographics (gender, age, and education level). The results also indicated that neither CA nor individual innovativeness was related to either gender or age. This finding corroborated previous research indicating that the impacts of gender (Booth-Butterfield & Thomas, 1995; McCroskey et al., 1982) and age (Donovan & MacIntyre, 2004; Hassall et al., 2000) on CA levels were either negligible or nonexistent. As such, neither attitudes toward CA nor adopting a change were either gender or age-specific.

Education level was the only demographic variable examined in this study that was significantly related to CA. Education level was found to be negatively correlated with both total CA and public speaking CA. This means that the more education participants had obtained, the less CA they experienced overall as well as while giving a speech. Because at least 70% of participants had a 4-year college degree or higher, this

finding corroborates previous research supporting that individuals with lower levels of CA are more likely to obtain higher levels of education (Ericson & Gardner, 1992; McCroskey et al., 1989). One possible explanation for this finding is that college provides individuals with opportunities to participate in activities such as debate teams, business clubs/organizations, and public speaking courses, which may result in more experience speaking in front of an audience. Another possible explanation is that a college education may provide people with professional opportunities in which speaking in various social contexts, especially while giving a speech, is more common. Whether communication experience is gained in college and/or as result of leadership positions obtained after college, it is possible that this experience reduces CA levels in managers.

On the contrary, education level was not significantly correlated with the level of individual innovativeness in managers. This means that individuals' proclivity toward adopting a change was not related to the level of education they obtained. This finding was puzzling because it is reasonable to assume that increasingly higher levels of education result in obtaining higher profile jobs that help managers become more accustomed to adopting change. One possible explanation for this finding is that individuals with different levels of education can have the same job title. For example, a senior manager with a 4-year degree in the health care and pharmaceuticals industry could reasonably have the same exposure to adopting a change as another senior manager who holds a graduate degree in the same industry. Another possible explanation for this finding is that the need for innovation varies depending on the industry. For example, a middle manager with a 2-year degree in a constantly changing industry could reasonably

have the same exposure to adopting a change as a more educated senior manager working in a less fast-paced industry. As such, the impact of individual innovativeness as it pertains to education level may be industry specific.

A multiple regression analysis model was used to predict individual innovativeness based on gender, age, education level, and total CA. The results indicated that predictor variables accounted for 26.8 % of the variance in the criterion variable. This means that other reasons besides gender, age, and education level make up 73.2% of the difference between the true value and the predicted value. As previously mentioned, industry may be one reason explaining this residual, as some industries have greater needs than others to innovate. Moreover, it might be riskier for change to be adopted in some industries compared to others depending on the danger associated with implementation. For example, it may be riskier to adopt a change in the medical field where human lives are at stake than to adopt a change in a lower risk field like the telecommunications industry. As such, managers in higher risk industries may report lower levels of individual innovativeness regardless of their CA levels. Some industries may even experience external barriers to change from government agencies and/or unions. Such barriers could influence managers' individual innovativeness as well as their CA levels if they do not feel comfortable communicating in the workplace about change.

Culture could also have also accounted for the observed relationship between CA, individual innovativeness, and demographic characteristics. It is well known that individuals born in America and other westernized societies report having lower levels of

CA than people in nonwesternized nations (Burroughs et al., 2003; Croucher et al., 2015; Hsu, 2004; Klopf, 1997; Klopf & Cambra, 1979; Yook & Ahn, 1999; Zhang, Butler, & Pryor, 1996). Individuals from individualistic societies like the United States also report having lower levels of CA (Croucher et al., 2015) and are more likely to accentuate their individuality (Croucher, 2013). Having an individualistic mindset may also influence managers' individual innovativeness. While I programmed SurveyMonkey to only recruit managers employed in the United States, information about participants' culture and where they were born was not collected. As a result, culture might have been a significant factor contributing to the observed relationship between criterion and predictor variables.

Personality type could also have contributed to this relationship. It is known that individuals experiencing lower levels of CA have personality-type preferences toward extraversion (Brogan et al., 2008; Neuliep et al., 2003; Opt & Loffredo, 2000). Personality type may not only influence managers' preference toward oral communication, but also impact their individual innovativeness, in that it impacts individuals' usual patterns of thoughts, emotions, and behaviors. Individual innovativeness may be higher in managers with an extraverted personality type because adopting an innovation involves frequent communication in social networks.

Theoretical Contribution

Leaders continue to pay attention to the innovation adoption process because innovation is a driver of financial performance and competitiveness. The 21st-century workplace has increasing demands for communication, flexibility, and adoption of change. Some organizational leaders meet these demands by hiring chief innovation

officers. The success of an innovation, however, also relies heavily on managers' individual adoption decisions and their attitudes toward communication in social networks.

Although researchers within information technology and communication fields have used DOI theory to examine innovation adoption in organizations (Ekdale et al., 2015; English, 2016; Neo & Calvert, 2012), research on the individual level has been scant (Alam & Dubey, 2014; Wong & Boh, 2014). This study involved examining the possible relationship between CA and individual innovativeness in managers to determine if CA negatively impacted their attitudes about adopting change. The results fill a gap in knowledge by providing empirical evidence concerning the extent to which CA influences individual adoption decisions.

The findings of this study make several theoretical contributions in relation to CA and individual innovativeness. To my knowledge, this is the first study to provide empirical data on perceived CA and individual innovativeness in managers. Previous research has shown that CA can hinder work performance in areas such as PDM (Russ, 2013a), tolerance of ambiguity, creativity, and new idea generation (Comadena, 1984), all of which are important in the innovation adoption process. My research builds on these studies by adding individual innovativeness to the list of innovation factors negatively impacted by CA.

Researchers have extensively used DOI theory as a framework for understanding how individuals express their individual innovativeness by placing them into adoption categories based on rate of adoption (Rogers, 1995). A number of researchers have used

DOI theory to substantiate the importance of individual communications in the innovation process (Estes & Ward, 2002; Finke et al., 1992; Jackson et al., 2013) and managerial influence on the diffusion of innovations (Kohles et al., 2013; Wunderlich et al., 2014). I may be the first to use DOI theory to study how communicative challenges impact managers' adoption decisions, which may help to explain why some managers adopt innovations more easily than others. Specifically, I found that CA is a statistically significant factor that negatively influences the individual innovativeness of managers. This study also provides insight into the relationships between innovation adoption categories and the degree of CA experienced in different social situations. Future researchers may build on the findings of this study by incorporating CA into the DOI model to further understand how negative attitudes about communication impact the likelihood of adopting a change.

Limitations of the Study

One limitation of the study was that it was cross-sectional, which means that managers' perceptions of CA and individual innovativeness were only captured at one point in time (i.e., while participants were taking the survey). A longitudinal study would have provided better insight into this relationship over a period of time, perhaps throughout the different stages of the innovation adoption process. Another limitation was that I used a convenience sample of managers via SurveyMonkey's audience pool. As such, the participants in this study may not have been representative of typical managers working in the United States. As a result, the generalizability of results may be limited. Another limitation was that I only targeted managers employed in the United

States. Intrinsically, the findings of the study represent American attitudes and beliefs about CA and individual innovativeness, without illustrating how the magnitude and direction of this relationship could have been different outside the United States. In that I limited the scope of this study to managers employed in the United States, the results may not be generalizable to other populations of managers around the world.

Other limitations include participants being employed at different levels of management, within different organizations, and within different industries. As a result, participants may not have been comparable in terms of their individual roles in the innovation process, and differences in managerial practices could have influenced the results. As such, these factors could have threatened the generalizability of the study. Finally, data collection in this study involved using a self-report survey with predominantly older, well-educated participants. Due to social desirability bias, participants may have been more likely to present themselves more favorably with regard to their actual CA and individual innovativeness. To combat this bias, I informed participants on the survey that there were no right or wrong answers and directed them to record their first impression in response to each question.

Recommendations

Innovation is a driver of financial performance and competitiveness. In this study, I discovered that CA negatively impacted managers' individual innovativeness before and after controlling for demographic characteristics (gender, age, and education level). Scholars and practitioners can now recognize CA as a threat to innovation outcomes, and subsequently profitability and competitiveness. Therefore, researchers must build upon

this finding to minimize the financial and strategic consequences of this communicative challenge.

First, researchers should replicate the results of this correlational research to corroborate the relationship between CA and individual innovativeness. Second, a longitudinal study could be conducted to examine this relationship dynamically, to ascertain whether managers' perceptions vary across different stages of the innovation adoption process. Third, to improve the generalizability of the study, researchers might consider not using a convenience sample in future studies to achieve better representation of owner-executives, senior managers, and middle managers in the United States. In a different vein, researchers could examine the relationship between CA and individual innovativeness in managers from more than one country. Doing so could provide insight into how CA may be impacting innovation outcomes within the global economy.

Fourth, participants were employed at different levels of management within different industries. In future studies, researchers could survey participants employed at the same level of management and/or within the same industry. In particular, comparing low-, medium-, and high-risk industries might provide researchers with perspective on whether the type of industry impacts CA and individual innovativeness levels in managers. Subsequently, researchers could survey managers as well as their staff to get a more holistic view of managers' actual perceptions of CA and individual innovativeness. Fifth, researchers could further combat social desirability bias by controlling for variables such as self-esteem and social status. Doing so could provide researchers with intriguing information that could be used for comparison.

Sixth, researchers could study CA and individual innovativeness alongside other leadership attributes such as personality type, learning style, leadership style, willingness to change, and persistence in challenging situations. Researchers could study this relationship while controlling for other demographic characteristics such as income level, marital status, culture, race, ethnicity, and religion. These studies could provide some clarity as to what makes up the 73.2% difference between the true and predicted values observed in this study.

Seventh and perhaps most importantly, researchers have already identified systematic desensitization, cognitive modification, and skills training as three methods that successfully mitigate the effects of CA. As such, future research efforts should focus on conducting experimental studies using one or a combination of these methods to mitigate the effects of CA in managers. For example, emotional freedom techniques is a cognitive modification tool that has already been shown reduce in CA levels in college students (Boath et al., 2012; Boath, Stewart, & Carryer, 2013; Fitch, Schmuldt, & Rudick, 2011; Jones, Thornton, & Andrews, 2011). Researchers should be examining pre-test and post-test comparisons between managers' CA and individual innovativeness levels before-and-after emotional freedom techniques treatment in the workplace. If a CA mitigation tool, like emotional freedom techniques, was found to decrease CA levels and increase individual innovativeness levels in managers, researchers may be able to stumble upon a remedy to a real-world problem that is negatively impacting innovation outcomes; and subsequently, firms' financial and competitive performance. Lastly, researchers should consider exploring this relationship qualitatively to gain a better understanding of

the phenomenon. By doing so, new insights may emerge about how comfortable managers feel about both communicating and adopting a change in the workplace.

Implications

The findings of this research provide both practical and societal implications to organizational leaders who have begun to realize that the communicative challenges experienced by managers can significantly threaten firms' financial and competitive performance. Employment of management occupations is projected to grow 6% from 2014 to 2024, which will result in about 505,400 new jobs in the United States (Bureau of Labor Statistics, 2015). Organizational leaders need more managers who feel socially confident enough to engage in boundary-spanning activities with vendors, external partners, and across business units (Tice, 2007), to achieve successful innovation adoption. Using the findings from this research, I will outline recommendations for practice, theoretical implications, as well as positive social change implications at individual, organizational, and societal levels.

Practical Implications

Innovation in business is essential. The 21st century landscape is characterized by growing uncertainty, relentless innovation, and accelerating competition (Yeramyan, 2014). Innovation will increasingly drive the expansion of existing organizations and the formation of new ones, which will require managers to adopt change more effectively. Managers will also need to communicate non-apprehensively in social networks so they can challenge organizational norms and promote new idea generation more and more (Tice, 2007). Organizational leaders need to look at the practical implications of

communicative challenges experienced by managers.

The results of the study revealed a significant negative relationship between CA and individual innovativeness before and after controlling for demographic characteristics (gender, age, and education level). This finding may provide organizational leaders with the imperative to seek out practitioners of CA mitigation tools to reduce the effects of CA in the workplace and better promote the factors that support managers' propensities toward innovation adoption. From a practical solution perspective, seeking out emotional freedom techniques practitioners to come into the workplace and work with managers to reduce CA levels could increase both their individual innovativeness and their engagement in social networks. Such outcomes could result in improved innovation adoption and therefore greater profitability and competitiveness.

Theoretical Implications

One application of DOI theory is to better explain the importance of communication channels to the innovation adoption process. Diffusion of an innovation is a highly social process that involves building communication relationships across different channels (Rogers, 2003). Diffusion includes an innovation, at least two individuals or other units of adoption, and a communication channel. A few researchers have investigated the effects of social networks on the innovation adoption process (Jackson et al., 2013; Thatcher et al., 2007). In this study, CA was found to negatively impact the individual innovativeness of managers and consequently, the innovation adoption process. This finding suggests that researchers should incorporate

communicative challenges into the DOI model to better understand their impacts on both social networks and the degree to which individuals are relatively early in adopting innovations with respect to others in a social system.

Positive Social Change Implications

This research offers positive social change implications for individuals, organizations, and societies. At the individual level, understanding the need to reduce CA levels in managers has the potential to improve both the quantity and quality of relationships, inside and outside of an organization. Improving relationships, in general, may lead to greater levels of trust, respect, and empathy. These intrinsic side-effects may lead to more meaningful exchanges between peoples and greater levels of compassion, understanding, and peace. Reducing CA in managers may also increase their individual innovativeness which could increase their self-esteem, self-efficacy, self-actualization, and interpersonal confidence. These personal developments may increase individual capabilities needed to create positive social change.

At the organizational level, understanding the negative relationship between CA and individual innovativeness may enhance managers' performance as they communicate in varying social contexts, such as group discussions, interpersonal engagements, meetings, and public speaking situations. Improving managers' performance in these social arenas could translate to increased job satisfaction, organizational commitment, and productivity; and decreased work alienation, absenteeism, turnover. Participative decision making, feedback sharing, information sharing, adaptability, tolerance to ambiguity, creativity, and new idea generation may all be positively impacted by

reductions in CA levels, as well. As a result, innovation outcomes could be improved which could lead to enhanced financial and competitive performance at the organizational level. Increased performance may lead to greater opportunities for leaders to employ more individuals, provide healthcare to employees, and further stimulate the economy, which are merely few examples for how they could create positive social change.

At the societal level, managers who feel apprehensive about oral communication may not only fail to make full contributions to an innovation and their profession, but also to their community. The findings in this study highlight the need for society's leaders to recognize that communicative challenges can cause real-world issues in the fields of leadership and organizational change. Reducing the effects of CA may improve social and innovative performance for both individuals and organizations and give leaders stronger capabilities to engage in societal initiatives that create positive social change around the world.

Conclusions

Innovation is a driver of organizational competitiveness and a determinant of financial performance. Managers play a vital role in the innovation process by facilitating communication and initiating knowledge transfers across social networks. The success of an innovation depends on managerial communication in social networks (Creasy & Anantatmula, 2013) and individual innovativeness (Lanzolla & Suarez, 2012). Potential obstacles to managers' communication and individual innovativeness therefore needed investigating. CA has been found to negatively impact managers' performance in areas

such as job satisfaction and organizational commitment (Beck et al., 2012), learning styles (Russ, 2012), X/Y orientations (Russ, 2013b), and PDM (Russ, 2013a). CA has also been found to negatively impact tolerance to ambiguity, creativity, and new idea generation in the workplace (Comadena, 1984). The problem was that CA might be hindering the individual innovativeness in managers. In this study, I examined the potential relationship between CA and individual innovativeness in managers to determine if CA could negatively impact the innovation adoption process and therefore hinder the financial performance and competitiveness of a firm.

The results of the study aligned with both alternative hypotheses, indicating that a significant negative relationship had existed between CA and individual innovativeness in managers before and after controlling for demographic characteristics (gender, age, and education level). These findings corroborated with previous research and increased knowledge about CA's harmful effects on managerial and organizational performance. The results also indicated that participants' level of education was negatively related to both the total CA score and the public speaking CA score. This finding was puzzling because it is reasonable to assume that increasingly higher levels of education result in obtaining higher-profile jobs that help managers become better accustomed to adopting change.

Future researchers should use the findings of this research to advance DOI theory by incorporating communicative challenges like CA into the DOI model to better understand factors that affect the rate of innovation adoption in a social system. Researchers should also build upon these findings experimentally by testing the

effectiveness of CA mitigation tools in their abilities to decrease CA and increase individual innovativeness levels in managers. CA is real-world problem in the field of management. The results of this study strengthen the imperative for leaders to seek out solutions regarding how to reduce the effects of CA in the workplace and improve innovation outcomes and organizational performance.

Innovation is essential to firms' success in the 21st century (World Intellectual Property Association, 2012). This study provided empirical evidence showing that CA was directly linked to the individual innovativeness in managers, which has the potential to reduce the profitability and competitiveness of a firm. The findings of this study are relevant to the discipline of leadership and organizational change because the lifeblood of organizational success may be hindered by communicative challenges like CA. Successful innovation adoption requires managers to have lower levels of CA. As such, there is a need for scholars and practitioners to continue researching this phenomenon and to be open to utilizing unconventional tools, like emotional freedom techniques, to help managers reduce their CA and become better purveyors of innovation and positive social change in social networks.

References

Abrahamson, E., & Rosenkopf, L. (1997). Social network effects on the extent of innovation diffusion: A computer simulation. *Organization Science, 8*, 289-309. doi:10.1287/orsc.8.3.289

Accenture. (2016). 2015 U.S. innovation survey. Retrieved from https://www.accenture.com/

Adigüzel, A. (2012). The relation between candidate teachers' moral maturity levels and their individual innovativeness characteristics: A case study of Harran University education faculty. *Educational Research and Reviews, 7*(25), 543-547. doi:10.1111/j.1745-9125.1992.tb01093.x

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology, 30*, 47-88. doi:10.1111/(ISSN)1745-9125

Alam, M., & Dubey, S. (2014). Owner-manager's innovativeness and its relation to innovation in small firms. *ASCI Journal of Management, 44*, 37-46. Retrieved from http://asci.org.in/journal/

Allen, J. L., O'Mara, J., & Long, K. M. (2014). The influence of communication traits and culture on perceptions of distance in intracultural and intercultural relationships in the United States. *China Media Research, 10,* 72-89. Retrieved from http://www.chinamediaresearch.net/

Allen, M., & Bourhis, J. (1996). The relationship of communication apprehension to communication behavior: A meta-analysis. *Communication Quarterly, 44*, 214-226. doi:10.1080/01463379609370011

Allen, M., Hunter, J. E., & Donohue, W. A. (1989). Meta-analysis of self-report data on the effectiveness of public speaking anxiety treatment techniques. *Communication Education, 38,* 54-76. doi:10.1080/03634528909378740

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational and Organizational Psychology, 63,* 1-18. doi:10.1111/j.2044-8325.1990.tb00506.x

Almquist, E., Leiman, M., Rigby, D., & Roth, A. (2013). Taking the measure of your innovation performance. Retrieved from http://www.bain.com/publications /articles/taking-the-measure-of-your-innovation-performance.aspx

Aly, I. M., & Islam, M. (2003). Audit of accounting program on oral communications apprehension: A comparative study among accounting students. *Managerial Auditing Journal, 18,* 751-760. doi:10.1108/02686900310500514

Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior, 10,* 123-167. Retrieved from https://www.journals.elsevier.com/research-in-organizational-behavior/

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Retrieved from http://www.dsm5.org/

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management, 40,* 1297-1333. doi:10.1177/0149206314527128

Annabi, C. A., & Muller, M. (2016). Learning from the adoption of MOOCs in two international branch campuses in the UAE. *Journal of Studies in International Education, 20,* 260-281. doi:10.1177/1028315315622023

Armstrong, S. J., Cools, E., & Sadler-Smith, E. (2012). Role of cognitive styles in business and management: Reviewing 40 years of research. *International Journal of Management Reviews, 14,* 238-262. doi:10.1111/j.1468-2370.2011.00315.x

Arquero, J. L., Fernández-Polvillo, C., Hassall, T., & Joyce, J. (2015). Relationships between communication apprehension, ambiguity tolerance and learning styles in accounting students. *Revista de Contabilidad. 20,* 13-24. doi:10.1016/j.rcsar.2015.10.002

Arquero, J. L., Hassall, T., Joyce, J., & Donoso, J. A. (2007). Accounting students and communication apprehension: A study of Spanish and UK students. *European Accounting Review, 16,* 299-322. doi:10.1080/09638180701391337

Artz, K. W., Norman, P. M., Hatfield, D. E., & Cardinal, L. B. (2010). A longitudinal study of the impact of R&D, patents, and product innovation on firm performance. *Journal of Product Innovation Management, 27,* 725-740. doi:10.1111/j.1540-5885.2010.00747.x

Autman, H., Kelly, S., Gaytan, J., & Hunter, S. (2016). Measuring high school students' communication readiness: Does communication apprehension, writing ability, and speaking ability correlate with students' perceptions of professional appearance? *Journal of Research in Business Education, 57*(2), 42-56. Retrieved from

https://www.questia.com/library/p438572/the-journal-of-research-in-business-education

Ayres, J., Keereetaweep, T., Chen, P. E., & Edwards, P. A. (1998). Communication apprehension and employment interviews. *Communication Education, 47*, 1-17. Retrieved from http://www.tandfonline.com/loi/rced20

Baer, M. (2012). Putting creativity to work: The implementation of creative ideas in organizations. *Academy of Management Journal, 55*, 1102-1119. doi:10.5465/amj.2009.0470

Bamiatzi, V. C., & Kirchmaier, T. (2014). Strategies for superior performance under adverse conditions: A focus on small and medium-sized high-growth firms. *International Small Business Journal, 32*, 259-284. doi:10.1177/0266242612459534

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*, 9-44. doi:10.1177/0149206311410606

Bartoo, H., & Sias, P. M. (2004). When enough is too much: Communication apprehension and employee information experiences. *Communication Quarterly, 52*, 15-26. doi:10.1080/01463370409370175

Baskin, J. S. (2013). The Internet didn't kill Blockbuster, the company did it to itself. *Forbes.* Retrieved from https://www.forbes.com/sites/jonathansalembaskin/2013/11/08/the-internet-didnt-kill-blockbuster-the-company-did-it-to-itself/#45f595b46488

Battilana, J., & Casciaro, T. (2012). Change agents, networks, and institutions: A contingency theory of organizational change. *Academy of Management Journal, 55,* 381-398. doi:10.5465/amj.2009.0891

Beatty, M. J. (1994). Personal report of communication apprehension. In R. B. Rubin, P. Palmgreen, & H. E. Sypher (Eds.), *Communication research measures: A sourcebook* (pp. 292-295). New York, NY: Guilford.

Beatty, M. J., Dobos, J. A., Balfantz, G. L., & Kuwabara, A. Y. (1991). Communication apprehension, state anxiety and behavioral disruption: A causal analysis. *Communication Quarterly, 39,* 48-57. doi:10.1080/01463379109369782

Beatty, M. J., McCroskey, J. C., & Heisel, A. D. (1998). Communication apprehension as temperamental expression: A communibiological paradigm. *Communications Monographs, 65,* 197-219. doi:10.1080/03637759809376448

Beatty, M. J., McCroskey, J. C., & Valencic, K. M. (2001). *The biology of communication: A communibiological perspective*. Cresskill, NJ: Hampton Press.

Beck, J. A., Cha, J., Kim, S., & Knutson, B. J. (2012). The relationship between communication apprehension and satisfaction with information among lodging revenue managers. *Journal of Quality Assurance in Hospitality & Tourism, 13*(4), 271-285. doi:10.1080/1528008X.2012.692289

Beesdo-Baum, K., & Knappe, S. (2012). Developmental epidemiology of anxiety disorders. *Child and Adolescent Psychiatric Clinics of North America, 21,* 457-478. doi:10.1016/j.chc.2012.05.001

Benoliel, P., & Somech, A. (2014). The health and performance effects of participative leadership: Exploring the moderating role of the Big Five personality dimensions. *European Journal of Work and Organizational Psychology, 23*, 277-294. doi:10.1080/1359432X.2012.717689

Berger, B. A., & McCroskey, J. C. (1982). Reducing communication apprehension in pharmacy students. *American Journal of Pharmaceutical Education, 46*, 132-136. Retrieved from http://www.ajpe.org/

Berger, C. R., & Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research, 1*(2), 99-112. doi:10.1111/j.1468-2958.1975.tb00258.x

Berger, E. M. (1952). The relation between expressed acceptance of self and expressed acceptance of others. *Journal of Abnormal and Social Psychology, 47*, 778-782. doi:10.1037/h0061311

Bergvall-Kåreborn, B., & Howcroft, D. (2013). The future's bright, the future's mobile: A study of Apple and Google mobile application developers. *Work, Employment & Society, 27*, 964-981. doi:10.1177/0950017012474709

Berry, C. M., Carpenter, N. C., & Barratt, C. L. (2012). Do other-reports of counterproductive work behavior provide an incremental contribution over self-reports? A meta-analytic comparison. *Journal of Applied Psychology, 97*, 613-636. Retrieved from http://www.apa.org/pubs/journals/apl/

Bishop, J. W., Scott, K. D., & Burroughs, S. M. (2000). Support, commitment, and employee outcomes in a team environment. *Journal of Management, 26*, 1113-1132. doi:10.1177/014920630002600603

Blevins, S. (2014). Understanding learning styles. *Medsurg Nursing, 23,* 59-60. Retrieved from http://www.medsurgnursing.net/cgi-bin/WebObjects/MSNJournal.woa

Blume, B. D., Baldwin, T. T., & Ryan, K. C. (2013). Communication apprehension: A barrier to students' leadership, adaptability, and multicultural appreciation. *Academy of Management Learning & Education, 12,* 158-172. doi:10.5465/amle.2011.0127

Boath, E., Stewart, A., & Carryer, A. (2012). A narrative systematic review of the effectiveness of Emotional Freedom Techniques (EFT). Retrieved from http://www.staffs.ac.uk/research/cpsi/areas/

Boath, E., Stewart, A., & Carryer, A. (2013). Tapping for success: A pilot study to explore if emotional freedom techniques (EFT) can reduce anxiety and enhance academic performance in university students. *Innovative Practice in Higher Education, 1*(3), 1-13. Retrieved from http://journals.staffs.ac.uk/index.php/ipihe

Booth-Butterfield, S., Chory, R., & Beynon, W. (1997). Communication apprehension and health communication and behaviors. *Communication Quarterly, 45*(3), 235-250. doi:10.1080/01463379709370063

Booth-Butterfield, M., & Thomas, C. C. (1995). Communication apprehension among secretarial students. *Communication Reports, 8,* 38-44. doi:10.1080/08934219509367605

Boston Consulting Group. (2015). The most innovative companies 2015. Retrieved from https://media-publications.bcg.com/MIC/BCG-Most-Innovative-Companies-2015-Nov-2015.pdf

Bowers, J. W., Bush, S., Conway, J., & Darrow, W. (1986). Classroom communication apprehension: Survey. *Communication Education, 35,* 372-378. doi:10.1080/03634528609388361

Broeren, S., Newall, C., Dodd, H. F., Locker, R., & Hudson, J. L. (2014). Longitudinal investigation of the role of temperament and stressful life events in childhood anxiety. *Development and Psychopathology, 26,* 437-449. doi:10.1017/S0954579413000989

Brogan, S. M., Jowi, D., McCroskey, J. C., & Wrench, J. S. (2008). Social communication apprehension: The intersection of communication apprehension and social phobia. *Human Communication, 11*, 409-430. Retrieved from http://www.uab.edu/communicationstudies/humancommunication

Brun, E., & Sætre, A. S. (2009). Managing ambiguity in new product development projects. *Creativity and Innovation Management, 18,* 24-34. doi:10.1111/j.1467-8691.2009.00509.x

Brun, J., Ezzat, H., & Weil, B. (2015, June). *Managing the impacts of non-verbal devices on idea generation: A new challenge for creative leaders*. Paper presented at the European Academy of Management Conference, Warsaw, Poland.

Bruning, S. D., & Ledingham, J. A. (1999). Relationships between organizations and publics: Development of a multi-dimensional organization-public relationship

scale. *Public Relations Review, 25*, 157-170. doi:10.1016/S0363-8111(99)80160-X

Budner, S. (1962). Intolerance of ambiguity as a personality variable. *Journal of Personality, 30*, 29-50. doi:10.1111/1467-6494.ep8933446

Bureau of Labor Statistics. (2015). *Management Occupations.* Retrieved from https://www.bls.gov/ooh/management/

Bureau of Labor Statistics. (2017). *Occupational Employment and Wages, May 2016.* Retrieved from https://www.bls.gov/oes/current/oes110000.htm#(3)

Burroughs, N. F., Marie, V., & McCroskey, J. C. (2003). Relationships of self-perceived communication competence and communication apprehension with willingness to communicate: A comparison with first and second languages in Micronesia. *Communication Research Reports, 20*, 230-239. doi:10.1080/08824090309388821

Buss, A. H. (1980). *Self-consciousness and social anxiety*. San Francisco, CA: Freeman.

Byrne, M., Flood, B., & Shanahan, D. (2012). A qualitative exploration of oral communication apprehension. *Accounting Education, 21*, 565-581. doi:10.1080/09639284.2012.725636

Campbell, D. T., & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research.* Chicago, IL: Rand McNally.

Cankar, S. S., & Petkovsek, V. (2013). Private and public sector innovation and the importance of cross-sector collaboration. *Journal of Applied Business Research, 29*, 1597-1605. doi:10.19030/jabr.v29i6.8197

Cao, Y. K. (2014). A sociocognitive perspective on second language classroom willingness to communicate. *TESOL Quarterly, 48*, 789-814. doi:10.1002/tesq.155

Carnabuci, G., & Diószegi, B. (2015). Social networks, cognitive style, and innovative performance: A contingency perspective. *Academy of Management Journal, 58*, 881-905. doi:10.5465/amj.2013.1042

Chan, G. H., & Lo, T. W. (2016). The effect of negative experiences on delinquent behavior of youth in a social withdrawal situation. *Journal of Adolescence, 50*, 69-80. doi:10.1016/j.adolescence.2016.05.002

Charoensukmongkol, P. (2015). Cultural intelligence of entrepreneurs and international network ties: The case of small and medium manufacturing firms in Thailand. *Management Research Review, 38*, 421-436. doi:10.1108/mrr-09-2013-0214

Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology, 41*, 330-339. doi:10.1037/0022-3514.41.2.330

Chen, C. C., Jones, K. T., & Moreland, K. (2014). Differences in learning styles. *CPA Journal, 84*(8), 46-51. Retrieved from http://www.cpajournal.com/

Chen, G. M. (1994). Social desirability as a predictor of argumentativeness and communication apprehension. *Journal of Psychology, 128*, 433-438. doi:10.1080/00223980.1994.9712749

Chesbrough, H. (2003). The logic of open innovation: managing intellectual property. *California Management Review, 45*(3), 33-58. doi:10.2307/41166175

Choi, J. N., & Chang, J. Y. (2009). Innovation implementation in the public sector: An integration of institutional and collective dynamics. *Journal of Applied Psychology, 94,* 245-253. doi:10.1037/a0012994

Choi, M. (2011). Employees' attitudes toward organizational change: A literature review. *Human Resource Management, 50,* 479-500. doi:10.1002/hrm.20434

Claiborne, C. B. (2008). An individual level theory of innovation diffusion. *International Journal of Strategic Management, 8,* 115-118. Retrieved from http://ijsm-journal.org/domains/IJSM-JOURNAL/Default.aspx

Coetzee, S. A., Schmulian, A., & Kotze, L. (2014). Communication apprehension of South African accounting students: The effect of culture and language. *Issues in Accounting Education, 29,* 505-525. doi:10.2308/iace-50850

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159. doi:10.1037/0033-2909.112.1.155

Comadena, M. E. (1984). Brainstorming groups: Ambiguity tolerance, communication apprehension, task attraction, and individual productivity. *Small Group Behavior, 15*, 251-264. doi:10.1177/104649648401500207

Conaldi, G., Lomi, A., & Tonellato, M. (2012). Dynamic models of affiliation and the network structure of problem solving in an open source software project. *Organizational Research Methods, 15,* 385-412. doi:10.1177/1094428111430541

Cooper, D. R., & Schindler, P. S. (2002). *Business research method* (8th ed.). Boston, MA: Irwin.

Cooper, R. G., & Edgett, S. J. (2008). Maximizing productivity in product innovation. *Research-Technology Management, 51*(2), 47-58. Retrieved from http://www.iriweb.org/rtm

Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment, 4*, 5-13. doi:10.1037/1040-3590.4.1.5

Creasy, T., & Anantatmula, V. S. (2013). From every direction: How personality traits and dimensions of project managers can conceptually affect project success. *Project Management Journal, 44*(6), 36-51. doi:10.1002/pmj.21372

Crommelinck, M., & Anseel, F. (2013). Understanding and encouraging feedback-seeking behaviour: A literature review. *Medical Education, 47*, 232-241. doi:10.1111/medu.12075

Croucher, S. M. (2013). Integrated threat theory and acceptance of immigrant assimilation: An analysis of Muslim immigration in Western Europe. *Communication Monographs, 80*, 46-62. doi:10.1080/03637751.2012.739704

Croucher, S., Rahmani, D., Säkkinen, K., & Hample, D. (2016). Communication apprehension, self-perceived communication competence, and willingness to communication in Singapore. *Journal of Intercultural Communication*, *2016*(40), 1. Retrieved from https://www.immi.se/intercultural/

Croucher, S. M., Sommier, M., Rahmani, D., & Appenrodt, J. (2015). A cross-cultural analysis of communication apprehension. *Journal of Intercultural Communication*, *2015*(38), 2. Retrieved from https://www.immi.se/intercultural/

Cumberland, D. M., Herd, A., Alagaraja, M., & Kerrick, S. A. (2016). Assessment and development of global leadership competencies in the workplace: A review of literature. *Advances in Developing Human Resources, 18*, 301-317. doi:10.1177/1523422316645883

Dasgupta, S. A., Suar, D., & Singh, S. (2014). Managerial communication practices and employees' attitudes and behaviours: A qualitative study. *Corporate Communications: An International Journal, 19*, 287-302. doi:10.1108/CCIJ-04-2013-0023

Denham, S. A., Caverly, S., Schmidt, M., Blair, K., DeMulder, E., Caal, S., Hamada, H., & Mason, T. (2002). Preschool understanding of emotions: Contributions to classroom anger and aggression. *Journal of Child Psychology and Psychiatry, 43*, 901-916. doi:10.1111/1469-7610.00139

Denissen, J. J., Neumann, L., & van Zalk, M. (2010). How the internet is changing the implementation of traditional research methods, people's daily lives, and the way in which developmental scientists conduct research. *International Journal of Behavioral Development, 34*, 564-575. doi:10.1177/0165025410383746

Denning, S. (2015, May 13). How Agile and Zara are transforming the US fashion industry. *Forbes.* Retrieved from https://www.forbes.com/

Di Fabio, A., Giannini, M., Loscalzo, Y., Palazzeschi, L., Bucci, O., Guazzini, A., & Gori, A. (2016). The challenge of fostering healthy organizations: An empirical study on the role of workplace relational civility in acceptance of change and well-being. *Frontiers in Psychology, 7*, 1748. doi:10.3389/fpsyg.2016.01748

Dino, R. N. (2015). Crossing boundaries: Toward integrating creativity, innovation, and entrepreneurship research through practice. *Psychology of Aesthetics, Creativity, and the Arts, 9*(2), 139. doi:10.1037/aca0000015

Donovan, L. A., & MacIntyre, P. D. (2004). Age and sex differences in willingness to communicate, communication apprehension, and self-perceived competence. *Communication Research Reports, 21*, 420-427. doi:10.1080/08824090409360006

Downes, L., & Nunes, P. (2013, November 7). Blockbuster becomes a casualty of big bang disruption. *Harvard Business Review.* Retrieved from https://hbr.org/

Drake, K. L., & Ginsburg, G. S. (2012). Family factors in the development, treatment, and prevention of childhood anxiety disorders. *Clinical Child and Family Psychology Review, 15*, 144-162. doi:10.1007/s10567-011-0109-0

Druskat, V. U., & Wheeler, J. V. (2003). Managing from the boundary: The effective leadership of self-managing work teams. *Academy of Management Journal, 46*, 435-457. doi:10.2307/30040637

Duchesne, S., Ratelle, C. F., & Roy, A. (2012). Worries about middle school transition and subsequent adjustment: The moderating role of classroom goal structure. *Journal of Early Adolescence, 32*, 681-710. doi:10.1177/0272431611419506

Dutton, J. E., & Ashford, S. J. (1993). Selling issues to top management. *Academy of Management Review, 18*, 397-428. doi:10.2307/258903

Dwyer, K. K., & Cruz, A. M. (1998). Communication apprehension, personality, and grades in the basic course: Are there correlations? *Communication Research Reports, 15*, 436-444. doi:10.1080/08824099809362143

Dyer, J., & Gregersen, H. (2016, August 24). Tesla's innovations are transforming the auto industry. *Forbes.* Retrieved from https://www.forbes.com/

Ebadi, Y. M., & Utterback, J. M. (1984). The effects of communication on technological innovation. *Management Science, 30,* 572-585. doi:10.1287/mnsc.30.5.572

Eddy-U, M. (2015). Motivation for participation or non-participation in group tasks: A dynamic systems model of task-situated willingness to communicate. *System, 50,* 43-55. doi:10.1016/j.system.2015.03.005

Edwards-Schachter, M., García-Granero, A., Sánchez-Barrioluengo, M., Quesada-Pineda, H., & Amara, N. (2015). Disentangling competences: Interrelationships on creativity, innovation and entrepreneurship. *Thinking Skills and Creativity, 16,* 27-39. doi:10.1016/j.tsc.2014.11.006

Eiland, L., & Romeo, R. D. (2013). Stress and the developing adolescent brain. *Neuroscience, 249,* 162-171. doi:10.1016/j.neuroscience.2012.10.048

Ekdale, B., Singer, J. B., Tully, M., & Harmsen, S. (2015). Making change diffusion of technological, relational, and cultural innovation in the newsroom. *Journalism & Mass Communication Quarterly, 92,* 938-958. doi:10.1177/1077699015596337

Ellison, N. B., Vitak, J., Gray, R., & Lampe, C. (2014). Cultivating social resources on social network sites: Facebook relationship maintenance behaviors and their role

in social capital processes. *Journal of Computer-Mediated Communication, 19,* 855-870. doi:10.1111/jcc4.12078

English, P. (2016). Twitter's diffusion in sports journalism: Role models, laggards and followers of the social media innovation. *New Media & Society, 18*, 484-501. doi:10.1177/1461444814544886

Ericson, P. M., & Gardner, J. W. (1992). Two longitudinal studies of communication apprehension and its effects on college students' success. *Communication Quarterly, 40*, 127-137. doi:10.1080/01463379209369828

Estes, Z., & Ward, T. B. (2002). The emergence of novel attributes in concept modification. *Creativity Research Journal, 14*, 149-156. doi:10.1207/S15326934CRJ1402_2

Evans, B. M., Kairam, S., & Pirolli, P. (2010). Do your friends make you smarter? An analysis of social strategies in online information seeking. *Information Processing & Management, 46*, 679-692. doi:10.1016/j.ipm.2009.12.001

Evanschitzky, H., Eisend, M., Calantone, R. J., & Jiang, Y. (2012). Success factors of product innovation: An updated meta-analysis. *Journal of Product Innovation Management, 29*, 21-37. doi:10.1111/j.1540-5885.2012.00964.x

Falcione, R. L., McCroskey, J. C., & Daly, J. A. (1977). Job satisfaction as a function of employees' communication apprehension, self-esteem, and perceptions of their immediate supervisors. In B. D. Ruben (Ed.), *Communication yearbook* (Vol. 1, pp. 363-375). New Brunswick, NJ: Transaction.

Fast Company. (2017, February, 13). *Most innovative companies.* Retrieved from https://www.fastcompany.com/3067466/why-spotify-is-one-of-the-most-innovative-companies-of-2017

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149-1160. doi:10.3758/BRM.41.4.1149

Feinstein, D. (2008). Energy Psychology: A Review of the Preliminary Evidence. *Psychotherapy: Theory, Research, Practice, Training. 45*, 199-213. doi: 10.1037/0033-3204.45.2.199

Finke, R. A., Ward, T. B., & Smith, S. M. (1992). *Creative cognition: Theory, research, and applications.* Cambridge, MA: MIT Press.

Fitch, J., III, Schmuldt, L., & Rudick, K. L. (2011). Reducing state communication anxiety for public speakers: An energy psychology pilot study. *Journal of Creativity in Mental Health, 6*, 178-192. doi:10.1080/15401383.2011.605104

Fordham, D. R., & Gabbin, A. L. (1996). Skills versus apprehension: Empirical evidence on oral communication. *Business Communication Quarterly, 59*(3), 88-97. doi:10.1177/108056999605900314

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth.

Friedrich, G., Goss, B., Cunconan, T., & Lane, D. (1997). Systematic desensitization. In J. A. Daly, J. C. McCroskey, J. Ayres, T. Hopf, & D. M. Ayres (Eds.), *Avoiding*

communication: Shyness, reticence & communication apprehension (pp. 305-330). Cresskill, NJ: Hampton Press.

Fu, L., Wang, X., & Wang, Y. (2012). The research on willingness to communicate in Chinese students' EFL study. *Journal of Language Teaching and Research, 3,* 112-117. doi:10.4304/jltr.3.1.112-117

Funder, D. C., & Colvin, C. R. (1997). Congruence of self and others' judgments of personality. In S. R. Briggs, R. Hogan, & W. H. Jones (Eds.). *Handbook of personality psychology* (pp. 617-647). New York, NY: Academic Press.

Furnham, A., Moutafi, J., & Crump, J. (2003). The relationship between the revised NEO-personality inventory and the Myers-Briggs type indicator. *Social Behavior and Personality: An International Journal, 31*, 577-584. doi:10.2224/sbp.2003.31.6.577

G Suite. (2017). *Creating a culture of innovation.* Retrieved from https://gsuite.google.com/learn-more/creating_a_culture_of_innovation.html

Gardner, C. T., Milne, M. J., Stringer, C. P., & Whiting, R. H. (2005). Oral and written communication apprehension in accounting students: Curriculum impacts and impacts on academic performance. *Accounting Education, 14*, 313-336. doi:10.1080/06939280500077269

Garrison, J. P., & Garrison, K. P. (1979). Measurement of oral communication apprehension among children: A factor in the development of basic speech skills. *Communication Education, 28,* 119-128. doi:10.1080/03634527909378340

Gayadeen, S. M., & Phillips, S. W. (2014). The innovation of community policing and the COPS Office: Does diffusion of innovation theory hold in a manipulated environment? *International Journal of Police Science & Management, 16*, 228-242. doi:10.1350/ijps.2014.16.3.342

Gayle, B. M., Preiss, R. W., Burrell, N., & Allen, M. (Eds.). (2006). *Classroom communication and instructional processes: Advances through meta-analysis.* Mahwah, NJ: Routledge.

Gilson, L. L., & Litchfield, R. C. (2017). Idea collections: A link between creativity and innovation. *Innovation, 19*, 80-85. doi:10.1080/14479338.2016.1270765

Gilson, L. L., & Shalley, C. E. (2004). A little creativity goes a long way: An examination of teams' engagement in creative processes. *Journal of Management, 30*, 453-470. doi:10.1016/j.jm.2003.07.001

Glaser, S. R. (1981). Oral communication apprehension and avoidance: The current status of treatment research. *Communication Education, 30*, 321-341. doi:10.1080/03634528109378489

Godart, F. C., Maddux, W. W., Shipilov, A. V., & Galinsky, A. D. (2015). Fashion with a foreign flair: Professional experiences abroad facilitate the creative innovations of organizations. *Academy of Management Journal, 58*, 195-220. doi:10.5465/amj.2012.0575

Gray, J. A. (1982). On mapping anxiety. *Behavioral and Brain Sciences, 5*, 506-534. doi:10.1017/S0140525X00013297

Gray, J. A. (1990). Brain systems that mediate both emotion and cognition. *Cognition & Emotion, 4*, 269-288. doi:10.1080/02699939008410799

Gray, J. A. (1991). Neural systems, emotion and personality. In J. Madden IV (Ed.), *Neurobiology of learning, emotion and affect* (pp. 273-307). New York, NY: Raven Press.

Green, S. B., & Salkind, N. J. (2014). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (7th ed.). Upper Saddle River, NJ: Pearson.

Gregersen, T., & Horwitz, E. K. (2002). Language learning and perfectionism: Anxious and non-anxious language learners' reactions to their own oral performance. *Modern Language Journal, 86*, 562-570. doi:10.1111/1540-4781.00161

Grootenboer, P., Edwards-Groves, C., & Rönnerman, K. (2014). Leading practice development: voices from the middle. *Professional Development in Education, 41*(3). doi: 10.1080/19415257.2014.924985

Grissom, J. A., Nicholson-Crotty, J., & Keiser, L. (2012). Does my boss's gender matter? Explaining job satisfaction and employee turnover in the public sector. *Journal of Public Administration Research and Theory, 22*, 649-673. doi:10.1093/jopart/mus004

Guichard J. (2013, November 26-27). *Career guidance, education, and dialogues for a fair and sustainable human development.* Paper presented at the Inaugural Conference of the UNESCO Chair of Lifelong Guidance and Counseling, Wroclaw, Poland.

Gürbüz, S., Şahin, F., & Köksal, O. (2014). Revisiting of Theory X and Y: A multilevel analysis of the effects of leaders' managerial assumptions on followers' attitudes. *Management Decision, 52,* 1888-1906. doi:10.1108/md-06-2013-0357

Hall, E. T. (1976). *Beyond culture.* Garden City, NY: Doubleday and Company.

Hamdi, S., & Rajablu, M. (2012). Effect of supervisor-subordinate communication and leadership style on organizational commitment of nurses in health care setting. *International Journal of Business and Management, 7*(23), 7-18. doi:10.5539/ijbm.v7n23p7

Hansen, S. (2012, November 9). How Zara grew into the world's largest fashion retailer. *New York Times.* Retrieved from http://www.nytimes.com/

Hargie, O., Tourish, D., & Wilson, N. (2002). Communication audits and the effects of increased information: A follow-up study. *Journal of Business Communication, 39*, 414-436. Retrieved from http://www.scimagojr.com/journalsearch.php?q=3300147413&tip=sid

Hartley, C. A., & Casey, B. J. (2013). Risk for anxiety and implications for treatment: developmental, environmental, and genetic factors governing fear regulation. *Annals of the New York Academy of Sciences, 1304,* 1-13. doi:10.1111/nyas.12287

Hartmann, N. N., Rutherford, B. N., Feinberg, R., & Anderson, J. G. (2014). Antecedents of mentoring: Do multi-faceted job satisfaction and affective organizational commitment matter? *Journal of Business Research, 67,* 2039-2044. doi:10.1016/j.jbusres.2013.10.006

Harville, D. L. (1992). Person/job fit model of communication apprehension in organizations. *Management Communication Quarterly, 6*, 150-165. doi:10.1177/0893318992006002002

Hassall, T., Arquero, J. L., Joyce, J., & Gonzalez, J. M. (2013). Communication apprehension and communication self-efficacy in accounting students. *Asian Review of Accounting, 21*, 160-175. doi:10.1108/ARA-03-2013-0017

Hassall, T., Joyce, J., Ottewill, R., Arquero, J., & Donoso, J. (2000). Communication apprehension in UK and Spanish business and accounting students. *Education & Training, 42*(2), 93-100. doi:10.1108/EUM0000000005351

Hausman, W. H., & Thorbeck, J.S. (2010). Fast fashion: Quantifying the benefits. In T. C. E. Cheng & T.-M. Choi (Eds.), *Innovative Quick Response Programs in Logistics and Supply Chain Management, International Handbooks on Information Systems*, (pp. 315–329). Berlin, Heidelberg: Springer.

Heimberg, R. G., Hofmann, S. G., Liebowitz, M. R., Schneier, F. R., Smits, J. A., Stein, M. B., . . . Craske, M. G. (2014). Social anxiety disorder in DSM-5. *Depression and Anxiety, 31*, 472-479. doi:10.1002/da.22231

Heinze, J. E., Miller, A. L., Seifer, R., Dickstein, S., & Locke, R. L. (2015). Emotion knowledge, loneliness, negative social experiences, and internalizing symptoms among low-income preschoolers. *Social Development, 24*, 240-265. doi:10.1111/sode.12083

Hemphälä, J., & Magnusson, M. (2012). Networks for innovation–but what networks and what innovation? *Creativity and Innovation Management, 21*, 3-16. doi:10.1111/j.1467-8691.2012.00625.x

Henson, R. (2016). *Successful global leadership.* New York, NY: Springer Nature.

Herrmann, D., & Felfe, J. (2014). Effects of leadership style, creativity technique and personal initiative on employee creativity. *British Journal of Management, 25*, 209-227. doi:10.1111/j.1467-8551.2012.00849.x

Hirschfeld, R. R., & Field, H. S. (2000). Work centrality and work alienation: Distinct aspects of a general commitment to work. *Journal of Organizational Behavior, 21*, 789-800. doi:10.1002/1099-1379(200011)21:7<789::AID-JOB59>3.0.CO;2-W

Hofstede, G. H. (2001) *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations.* Thousand Oaks, CA: Sage.

Hon, A. H. (2012). Shaping environments conductive to creativity: The role of intrinsic motivation. *Cornell Hospitality Quarterly, 53*, 53-64. doi:10.1177/0149206311415418

Hon, A. H., Bloom, M., & Crant, J. M. (2014). Overcoming resistance to change and enhancing creative performance. *Journal of Management, 40,* 919-941. doi:10.1177/0149206311415418

Hon, A. H., Chan, W. W., & Lu, L. (2013). Overcoming work-related stress and promoting employee creativity in hotel industry: The role of task feedback from

supervisor. *International Journal of Hospitality Management, 33*, 416-424. doi:10.1016/j.ijhm.2012.11.001

Hon, A. H. Y., & Lui, S. S. (2016). Employee creativity and innovation in organizations: Review, integration, and future directions for hospitality research. *International Journal of Contemporary Hospitality Management, 28*, 862-885. doi:10.1108/IJCHM-09-2014-0454

Horwitz, B. (2002). *Communication apprehension: Origins and management.* New York, NY: Singular.

Howell, J. M., & Boies, K. (2004). Champions of technological innovation: The influence of contextual knowledge, role orientation, idea generation, and idea promotion on champion emergence. *Leadership Quarterly, 15*, 123-143. doi:10.1016/j.leaqua.2003.12.008

Hsu, C. F. (2004). Sources of differences in communication apprehension between Chinese in Taiwan and Americans. *Communication Quarterly, 52*, 370-389. doi:10.1080/01463370409370207

Hsu, W. H. (2015). Transitioning to a communication-oriented pedagogy: Taiwanese university freshmen's views on class participation. *System, 49*, 61-72. doi:10.1016/j.system.2014.12.002

Hurt, H. T., Joseph, K., & Cook, C. D. (1977). Scales for the measurement of innovativeness. *Human Communication Research, 4*, 58-65. doi:10.1111/j.1468-2958.1977.tb00597.x

Hustvedt, G., Ahn, M., & Emmel, J. (2013). The adoption of sustainable laundry technologies by US consumers. *International Journal of Consumer Studies, 37,* 291-298. doi:10.1111/ijcs.12007

Huy, Q. N., Corley, K. G., & Kraatz, M. S. (2014). From support to mutiny: Shifting legitimacy judgments and emotional reactions impacting the implementation of radical change. *Academy of Management Journal, 57*, 1650-1680. doi:10.5465/amj.2012.0074

International Accounting Education Standards Board. (2014). *Clarity center*. Retrieved from https://www.iaesb.org/clarity-center-project-overview

Iverach, L., & Rapee, R. M. (2014). Social anxiety disorder and stuttering: Current status and future directions. *Journal of Fluency Disorders, 40,* 69-82. doi:10.1016/j.jfludis.2013.08.003

Jaasma, M. A. (1997). Classroom communication apprehension: Does being male or female make a difference? *Communication Reports, 10*, 219-228. doi:10.1080/08934219709367677

Jablin, F. M., Seibold, D. R., & Sorenson, R. L. (1977). Potential inhibitory effects of group participation on brainstorming performance. *Communication Studies, 28,* 113-121. doi:10.1111/j.1468-2958.1978.tb00719.x

Jablin, F. M., & Sussman, L. (1978). An exploration of communication and productivity in real brainstorming groups. *Human Communication Research, 4*, 329-337. doi:10.1111/j.1468-2958.1978.tb00719.x

Jackson, C. (2011) Communication skills and accounting: Do perceptions match reality? *Strategic Direction, 27*(2), 63-66. doi:10.1108/sd.2011.05627bad.004

Jackson, J. D., Mun, Y. Y., & Park, J. S. (2013). An empirical test of three mediation models for the relationship between personal innovativeness and user acceptance of technology. *Information & Management, 50*(4), 154-161. doi:10.1016/j.im.2013.02.006

Jena, R. K. (2015). An assessment of factors affecting organizational commitment among shift workers in India. *Management: Journal of Contemporary Management Issues, 20,* 59-77. Retrieved from http://www.hrcak.srce.hr/management

Jones, S., Thornton, J., & Andrews, H. (2011). Efficacy of emotional freedom techniques (EFT) in reducing public speaking anxiety: A randomized controlled trial. *Energy Psychology: Theory, Research, & Treatment, 3*, 19-32. doi:10.9769/EPJ.2011.3.1.SJJ.JAT.HBA

Jones, W. H., Cheek, J. M., & Briggs, S. R. (Eds.). (2013). *Shyness: Perspectives on research and treatment.* New York, NY: Plenum Press.

Jones, W. H., & Russell, D. (1982). The social reticence scale: An objective instrument to measure shyness. *Journal of Personality Assessment, 46*, 629-631. doi:10.1207/s15327752jpa4606_12

Joyce, J., Hassall, T., Arquero Montaño, J. L., & Donoso Anes, J. A. (2006). Communication apprehension and maths anxiety as barriers to communication and numeracy skills development in accounting and business education. *Education & Training, 48,* 454-464. doi:10.1108/00400910610692967

Jung, C. G. (1923). *Psychological types: or the psychology of individuation* (H. Godwin Baynes, Trans.). New York, NY: Pantheon Books.

Kanter, R. M. (1982). Dilemmas of managing participation. *Organizational Dynamics, 11*, 5-27. doi:10.1016/0090-2616(82)90039-0

Karatzias, T., Power, K., Brown, K., McGoldrick, T., Begum, M., Young, J., . . . Adams, S. (2011). A controlled comparison of the effectiveness and efficiency of two psychological therapies for posttraumatic stress disorder: eye movement desensitization and reprocessing vs. emotional freedom techniques. *Journal of Nervous and Mental Disease, 199*(6), 372-378. doi:10.1097/NMD.0b013e31821cd262

Kelly, L. (1997). Skills training as a treatment for communication problems. In J. A. Daly, J. C. McCroskey, J. Ayres, T. Hopf, & D. M. Ayres (Eds.), *Avoiding communication: Shyness, reticence, and communication apprehension* (2nd ed., pp. 331-365). Cresskill, NJ: Hampton Press.

Kelly, L., & Keaten, J. A. (2000). Treating communication anxiety: Implications of the communibiological paradigm. *Communication Education, 49*, 45-57. doi:10.1080/03634520009379192

Kessler, E. H., Bierly, P. E., & Gopalakrishnan, S. (2000). Internal vs. external learning in new product development: effects on speed, costs and competitive advantage. *R&D Management, 30*, 213-224. Retrieved from http://www.rndtoday.co.uk/resources/the-rd-management-journal/

Khalili, A. (2016). Linking transformational leadership, creativity, innovation, and innovation-supportive climate. *Management Decision, 54*, 2277-2293. doi:10.1108/MD-03-2016-0196

Klopf, D. W. (1997). Cross-cultural apprehension research: Procedures and comparisons. In J. A. Daly, J. C. McCroskey, J. Ayres, T. Hopf, & D. M. Ayres (Eds.), *Avoiding communication: Shyness, reticence, and communication apprehension* (2nd ed., pp. 269-284). Cresskill, NJ: Hampton Press.

Klopf, D. W., & Cambra, R. E. (1979). Communication apprehension among college students in America, Australia, Japan, and Korea. *Journal of Psychology, 102*, 27-31. doi:10.1080/00223980.1979.9915091

Kohles, J. C., Bligh, M. C., & Carsten, M. K. (2013). The vision integration process: Applying Rogers' diffusion of innovations theory to leader–follower communications. *Leadership, 9*, 466-485. doi:10.1177/1742715012459784

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice-Hall.

Konsti-Laakso, S., Pihkala, T., & Kraus, S. (2012). Facilitating SME innovation capability through business networking. *Creativity and Innovation Management, 21*, 93-105. doi:10.1111/j.1467-8691.2011.00623.x

Kopelman, R. E., Prottas, D. J., & Falk, D. W. (2012). Further development of a measure of Theory X and Y managerial assumptions. *Journal of Managerial Issues, 24*, 450-470. Retrieved from http://www.pittstate.edu/business/journal-of-managerial-issues/index.dot

Lagorio-Chafkin, C. C. (2016, May 3). Stab this backpack? No problem. *Inc.* Retrieved from http://www.inc.com/christine-lagorio/herschel-supply-innovative-new-lines.html

Lam, C. K., Huang, X., & Chan, S. C. (2015). The threshold effect of participative leadership and the role of leader information sharing. *Academy of Management Journal, 58*, 836-855. doi:10.5465/amj.2013.0427

Lantz, A., Hansen, N., & Antoni, C. (2015). Participative work design in lean production: A strategy for dissolving the paradox between standardized work and team proactivity by stimulating team learning?. *Journal of Workplace Learning, 27*, 19-33. doi: 10.1108/JWL-03-2014-0026

Lanzolla, G., & Suarez, F. F. (2012). Closing the technology adoption–use divide the role of contiguous user bandwagon. *Journal of Management, 38*, 836-859. doi:10.1177/0149206310369938

Lau, J. Y. F., Pettit, P., & Creswell, C. (2013). Reducing children's social anxiety symptoms: Exploring a novel parent-administered cognitive bias modification training intervention. *Behaviour Research and Therapy, 51*(7), 333-337. doi:10.1016/j.brat.2013.03.008

Lawter, L., Kopelman, R. E., & Prottas, D. J. (2015). McGregor's Theory X/Y and job performance: A multilevel, multi-source analysis. *Journal of Managerial Issues, 27*, 84. Retrieved from http://www.pittstate.edu/business/journal-of-managerial-issues/index.dot

Leary, M. R. (1983). A brief version of the fear of negative evaluation scale. *Personality and Social Psychology Bulletin, 9*, 371-375. doi:10.1177/0146167283093007

Lee, K., & Mano, H. (2014). Beyond simple innovativeness: A hierarchical continuum and thinking and feeling processing modes. *Social Behavior and Personality: An International Journal, 42*, 597-613. doi:10.2224/sbp.2014.42.4.597

Leonard, D., & Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review, 40*(3), 112-132. doi:10.2307/41165946

Li, M., & Armstrong, S. J. (2015). The relationship between Kolb's experiential learning styles and Big Five personality traits in international managers. *Personality and Individual Differences, 86*, 422-426. doi:10.1016/j.paid.2015.07.001

Li, X., & Qian, J. (2016). Stimulating employees' feedback-seeking behavior: The role of participative decision making. *Social Behavior and Personality: An International Journal, 44*, 1-8. doi:10.2224/sbp.2016.44.1.1

Li, Y., & Sui, M. (2011). Literature analysis of innovation diffusion. *Technology and Investment, 2*(3), 155-163. doi:10.4236/ti.2011.23016

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1349). Chicago, IL: Rand McNally.

Lockley, T. (2013). Exploring self-perceived communication competence in foreign language learning. *Studies in Second Language Learning and Teaching, 3*, 187-212. doi:10.14746/ssllt.2013.3.2.3

Lowe, R., Guastella, A. J., Chen, N. T., Menzies, R. G., Packman, A., O'Brian, S., & Onslow, M. (2012). Avoidance of eye gaze by adults who stutter. *Journal of Fluency Disorders, 37*, 263-274. doi:10.1016/j.jfludis.2012.04.004

Luo, W., Song, L. J., Gebert, D. R., Zhang, K., & Feng, Y. (2016). How does leader communication style promote employees' commitment at times of change? *Journal of Organizational Change Management, 29*, 242-262. doi:10.1108/JOCM-11-2014-0204

Ma, Y., Shamay-Tsoory, S., Han, S., & Zink, C. F. (2016). Oxytocin and social adaptation: Insights from neuroimaging studies of healthy and clinical populations. *Trends in Cognitive Sciences, 20*, 133-145. doi:10.1016/j.tics.2015.10.009

Mackey, A., & Gass, S. M. (2015). *Second language research: Methodology and design*. New York, NY: Routledge.

Madlock, P. E. (2012). The influence of power distance and communication on Mexican workers. *Journal of Business Communication, 49*, 169-184. doi:10.1177/0021943612436973

Madlock, P. E. (2013). The influence of conflict management, leadership, and communication on employee job satisfaction. *Human Communication, 15*, 121-138. Retrieved from http://www.uab.edu/Communicationstudies/humancommunication

Madlock, P., & Booth-Butterfield, M. (2008, May 22). *The effects of coworker relational maintenance strategies on employee outcomes*. Paper presented at the Annual

International Communication Association Conference, Montreal, Quebec, Canada.

Madlock, P. E., & Booth-Butterfield, M. (2012). The influence of relational maintenance strategies among coworkers. *Journal of Business Communication, 49*, 21-47. doi:10.1177/0021943611425237

Madlock, P. E., & Chory, R. M. (2014). Socialization as a predictor of employee outcomes. *Communication Studies, 65*, 56-71. doi:10.1080/10510974.2013.811429

Madlock, P. E., & Horan, S. M. (2009). Predicted outcome value of organizational commitment. *Communication Research Reports, 26*, 40-49. doi:10.1080/08824090802637023

Madlock, P. E., & Martin, M. M. (2011). Communication and work alienation: To speak or not to speak. *Human Communication, 4*(14), 369-382. Retrieved from http://www.uab.edu/Communicationstudies/humancommunication

Malecki, E. J. (1977). Firms and innovation diffusion: Examples from banking. *Environment and Planning A, 9*, 1291-1305. doi:10.1068/a091291

Manhattan Venture Research. (2016). *Spotify research report*. Retrieved from http://mvp.vc/researched-company/spotify/

Marlow, I. (2015, September 25). How Vancouver's Herschel sells millions of bags worldwide. *Globe and Mail.* Retrieved from http://www.theglobeandmail.com/report-on-business/rob-magazine/how-vancouvers-herschel-sells-millions-of-bags-worldwide/article26423150/

Marshall, L. L., & Varnon, A. W. (2009). Writing apprehension among accounting seniors. *Accounting Educators' Journal, 19*, 45-65. Retrieved from http://www.aejournal.com/ojs/index.php/aej

Mascia, D., Magnusson, M., & Björk, J. (2015). The role of social networks in organizing ideation, creativity and innovation: An introduction. *Creativity and Innovation Management, 24*, 102-108. doi:10.1111/caim.12111

Matej, Č., Marko, J., & Miha, Š. (2013). Authentic leadership, creativity, and innovation: A multilevel perspective. *Leadership, 9*, 63-85. doi:10.1177/1742715012455130

Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin, 108*, 171-194. doi:10.1037/0033-2909.108.2.171

Maynard, M. T., Kennedy, D. M., Sommer, S. A., & Passos, A. M. (2015). Team cohesion: A theoretical consideration of its reciprocal relationships within the team adaptation nomological network. In *Team cohesion: Advances in psychological theory, methods and practice* (pp. 83-111). doi:10.1108/s1534-085620150000017005

McCormick, C. M., & Green, M. R. (2013). From the stressed adolescent to the anxious and depressed adult: investigations in rodent models. *Neuroscience, 249*, 242-257. doi:10.1016/j.neuroscience.2012.08.063

McCormick, L. K., Steckler, A. B., & McLeroy, K. R. (1995). Diffusion of innovations in schools: A study of adoption and implementation of school-based tobacco

prevention curricula. *American Journal of Health Promotion, 9,* 210-219. doi:10.4278/0890-1171-9.3.210

McCrae, R. R., & Costa, P. T., Jr. (1997). Personality trait structure as a human universal. *American Psychologist, 52,* 509-516. doi:10.1037/0003-066X.52.5.509

McCroskey, J. C. (1977). Oral communication apprehension: A summary of recent theory and research. *Human Communication Research, 4,* 78-96. doi:10.1111/j.1468-2958.1977.tb00599.x

McCroskey, J. C. (1982). *An introduction to rhetorical communication* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.

McCroskey, J. C. (1984). The communication apprehension perspective. In J. A. Daly (Ed.), *Avoiding communication, shyness, reticence, and communication apprehension* (pp. 13-38). Beverly Hills, CA: Sage.

McCroskey, J. C. (1997). Willingness to communicate, communication apprehension, and self-perceived communication competence: Conceptualization and perspectives. In J. A. Daly, J. C. McCroskey, J. Ayres, T. Hopf, & D. M. Ayres (Eds.), *Avoiding communication: Shyness, reticence, and communication apprehension* (2nd ed., pp. 75-108). Cresskill, NJ: Hampton Press.

McCroskey, J. C. (2007). *Communication research measures.* Retrieved from http://www.jamescmccroskey.com/measures/

McCroskey, J. C. (2009). Communication apprehension: What have we learned in the last four decades. *Human Communication, 12,* 157-171. Retrieved from http://www.uab.edu/communicationstudies/humancommunication

McCroskey, J. C., & Andersen, J. F. (1976). The relationship between communication apprehension and academic achievement among college students. *Human Communication Research, 3,* 73-81. doi:10.1111/j.1468-2958.1976.tb00506.x

McCroskey, J. C., & Baer, J. E. (1985, November 8). *Willingness to communicate: The construct and its measurement.* Paper presented at the annual meeting of the Speech Communication Association, Denver, Colorado.

McCroskey, J. C., & Beatty, M. J. (2000). The communibiological perspective: Implications for communication in instruction. *Communication Education, 49,* 1-6. doi:10.1080/03634520009379187

McCroskey, J. C., Beatty, M. J., Kearney, P., & Plax, T. G. (1985). The content validity of the PRCA-24 as a measure of communication apprehension across communication contexts. *Communication Quarterly, 33*(3), 165-173. doi:10.1080/01463378509369595

McCroskey, J. C., Booth-Butterfield, S., & Payne, S. K. (1989). The impact of communication apprehension on college student retention and success. *Communication Quarterly, 37,* 100-107. doi:10.1080/01463378909385531

McCroskey, J. C., Fayer, J. M., & Richmond, V,P. (1985). Don't speak to me in English: Communication apprehension in Puerto Rico. *Communication Quarterly, 33,* 185-192. doi:10.1080/01463378509369597

McCroskey, J., Heisel, A., & Richmond, V. (2001). Eysenck's big three and communication traits: Three correlational studies. *Communication Monographs, 68,* 360-366. doi:10.1080/03637750128068

McCroskey, J. C., & McCroskey, L. L. (1988). Self-report as an approach to measuring communication competence. *Communication Research Reports, 5*, 108-113. doi:10.1080/08824098809359810

McCroskey, J. C., & Richmond, V. (1976). The effects of communication apprehension on the perception of peers. *Western Speech Communication, 40,* 14-21. doi:10.1080/10570317609373881

McCroskey, J. C., & Richmond, V. P. (1979). The impact of communication apprehension on individuals in organizations. *Communication Quarterly, 27*(3), 55-61. doi:10.1080/01463377909369343

McCroskey, J. C., & Richmond, V. P. (1982). Communication apprehension and shyness: Conceptual and operational distinctions. *Communication Studies, 33,* 458-468. doi:10.1080/10510978209388452

McCroskey, J. C., Richmond, V. P., Daly, J. A., & Falcione, R. L. (1977). Studies of the relationship between communication apprehension and self-esteem. *Human Communication Research, 3,* 269-277. doi:10.1111/j.1468-2958.1977.tb00525.x

McCroskey, J. C., Richmond, V. P., & Davis, L. M. (1986). Apprehension about communicating with supervisors: A test of a theoretical relationship between types of communication apprehension. *Western Journal of Communication, 50,* 171-182. doi:10.1080/10570318609374223

McCroskey, J. C., Simpson, T. J., & Richmond, V. P. (1982). Biological sex and communication apprehension. *Communication Quarterly, 30,* 129-133. doi:10.1080/01463378209369439

McCroskey, J. C., & Wheeless, L. R. (1976). *Introduction to human communication.* Boston, MA: Allyn & Bacon.

McCroskey, L. L., & McCroskey, J. C. (2001). Willingness to communicate and communication apprehension in the classroom. In J. L. Chesebro & J. C. McCroskey (Eds.), *Communication for teachers* (pp. 19-34). Boston, MA: Allyn & Bacon.

McGrath, C., & Zell, D. (2001). The future of innovation diffusion research and its implications for management a conversation with Everett Rogers. *Journal of Management Inquiry, 10*, 386-391. doi:10.1177/1056492601104012

McGregor, D. (1960). Theory X and Theory Y. In D. S. Pugh (Ed.), *Organization theory: Selected readings* (pp. 317-333). London, England: Penguin.

McKinney, B. C. (1982). The effects of reticence on group interaction. *Communication Quarterly, 30*, 124-128. doi:10.1080/01463378209369438

Merkin, R. (2015). The relationship between individualism/collectivism. *Journal of Intercultural Communication,* (39), 4. Retrieved from https://www.immi.se/intercultural/

Mertens, D. M. (2003). Mixed methods and the politics of human research: The transformative-emancipatory perspective. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 135-164). Thousand Oaks, CA: Sage.

Mian, N. D., Carter, A. S., Pine, D. S., Wakschlag, L. S., & Briggs-Gowan, M. J. (2015). Development of a novel observational measure for anxiety in young children: The

anxiety dimensional observation scale. *Journal of Child Psychology and Psychiatry, 56*, 1017-1025. doi:10.1111/jcpp.12407

Miao, Q., Newman, A., Schwarz, G., & Xu, L. (2014). Servant leadership, trust, and the organizational commitment of public sector employees in China. *Public Administration, 92*, 727-743. doi:10.1111/padm.12091

Morrison, E. W. (1994). Role definitions and organizational citizenship behavior: The importance of the employee's perspective. *Academy of Management Journal, 37*, 1543-1567. doi:10.2307/256798

Mueller, J. S., Melwani, S., & Goncalo, J. A. (2012). The bias against creativity: Why people desire but reject creative ideas. *Psychological Science, 23*, 13-17. doi:10.1177/0956797611421018

Mulalic, A., & Obralic, N. (2016). Willingness to communicate among Bosnian and Turkish students at the international university of Sarajevo. *European Researcher, 7*(6), 330-338. doi:10.13187/er.2016.107.330

Müller-Wille, L., & Pelto, P. J. (1971). Technological change and its impact in Arctic regions: Lapps introduce snowmobiles into reindeer herding. *Polarforschung, 41*, 142-148. Retrieved from http://www.polarforschung.de/

Myers, I. B., & Myers, P. B. (1995). *Gifts differing: Understanding personality type.* Palo Alto, CA: Consulting Psychologists Press.

Nath Gangai, K., & Agrawal, R. (2015). Job satisfaction and organizational commitment: Is it important for employee performance? *International Journal of Management and Business Research, 5*, 269-278. Retrieved from http://ijmbr.srbiau.ac.ir/

Neal, Z. (2014). The backbone of bipartite projections: Inferring relationships from co-authorship, co-sponsorship, co-attendance and other co-behaviors. *Social Networks, 39,* 84-97. doi:10.1016/j.socnet.2014.06.001

Neo, E., & Calvert, P. J. (2012). Facebook and the diffusion of innovation in New Zealand public libraries. *Journal of Librarianship and Information Science, 44*(4), 227-237. doi:10.1177/0961000611435038

Neuliep, J. W., Chadouir, M., & McCroskey, J. C. (2003). A cross-cultural test of the association between temperament and communication apprehension. *Communication Research Reports, 20,* 320-330. doi:10.1080/08824090309388831

Neuliep, J. W., & McCroskey, J. C. (1997). The development of intercultural and interethnic communication apprehension scales. *Communication Research Reports, 14,* 145-156. doi:10.1080/08824099709388656

Nieves, J., Quintana, A., & Osorio, J. (2014). Knowledge-based resources and innovation in the hotel industry. *International Journal of Hospitality Management, 38,* 65-73. doi:10.1016/j.ijhm.2014.01.001

Nunnally, J. (1967). *Psychometric theory.* New York, NY: McGraw-Hill.

Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill.

O'Connor, G. C. (2012). Innovation: from process to function. *Journal of Product Innovation Management, 29,* 361-363. doi:10.1111/j.1540-5885.2012.00909.x

Oparaocha, G. O., & Oparaocha, G. O. (2016). Towards building internal social network architecture that drives innovation: A social exchange theory perspective. *Journal of Knowledge Management, 20*, 534-556. doi:10.1108/JKM-06-2015-0212

Opt, S., & Loffredo, D. (2000). Rethinking communication apprehension: A Myers-Briggs perspective. *Journal of Psychology, 134*, 556- 570. doi:10.1080/00223980009598236

Oswald, F. L., Schmitt, N., Kim, B. H., Ramsay, L. J., & Gillespie, M. A. (2004). Developing a biodata measure and situational judgment inventory as predictors of college student performance. *Journal of Applied Psychology, 89*, 187-207. doi:10.1037/0021-9010.89.2.187

Pagani, M., Goldsmith, R. E., & Hofacker, C. F. (2013). Extraversion as a stimulus for user-generated content. *Journal of Research in Interactive Marketing, 7*(4), 242-256. doi:10.1108/JRIM-11-2012-0052

Palacios-Marqués, D., Merigó, J. M., & Soto-Acosta, P. (2015). Online social networks as an enabler of innovation in organizations. *Management Decision, 53*, 1906-1920. doi:10.1108/md-06-2014-0406

Palacios-Marqués, D., Soto-Acosta, P., & Merigó, J. M. (2015). Analyzing the effects of technological, organizational and competition factors on Web knowledge exchange in SMEs. *Telematics and Informatics, 32*, 23-32. doi:10.1016/j.tele.2014.08.003

Parks, M. R. (1980). A test of the cross-situational consistency of communication apprehension. *Communications Monographs, 47*, 220-232. doi:10.1080/03637758009376033

Paruchuri, S. (2010). Intraorganizational networks, interorganizational networks, and the impact of central inventors: A longitudinal study of pharmaceutical firms. *Organization Science, 21,* 63-80. doi:10.1287/orsc.1080.0414

Patton, M. Q. (2002). *Qualitative, research & evaluation methods* (3rd ed.).Thousand Oaks, CA: Sage.

Pawlak, M., & Mystkowska-Wiertelak, A. (2015). Investigating the dynamic nature of L2 willingness to communicate. *System, 50*, 1-9. doi:10.1016/j.system.2015.02.001

Peng, J. E. (2012). Towards an ecological understanding of willingness to communicate in EFL classrooms in China. *System, 40*, 203-213. doi:10.1016/j.system.2012.02.002

Penley, L. E., Alexander, E. R., Jernigan, I. E., & Henwood, C. I. (1991). Communication abilities of managers: The relationship to performance. *Journal of Management, 17*, 57-76. doi:10.1177/014920639101700105

Pollard, C., Lewis, J., & Miller, M. (2001). Start right–eat right award scheme: Implementing food and nutrition policy in child care centers. *Health Education & Behavior, 28*, 320-330. doi:10.1177/109019810102800306

Poppenga, J. G., & Prisbell, M. (1996, November). *An investigation into the nature of trait-like and situational communication apprehension of non-traditional*

undergraduate students. Paper presented at the annual meeting of the Speech Communication Association, San Diego, CA.

Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology, 59,* 603-609. doi:10.1037/h0037335

Poulin, F., Nadeau, K., & Scaramella, L. V. (2012). The role of parents in young adolescents' competence with peers: An observational study of advice giving and intrusiveness. *Merrill-Palmer Quarterly, 58,* 437-462. doi:10.1353/mpq.2012.0021

Pratt, A. C., Nathan, M., & Rincon-Aznar, A. (2015). *Creative economy employment in the EU and the UK: a comparative analysis.* London, UK: NESTA.

PricewaterhouseCoopers. (2017) 2016 Global Innovation 1000 Study. Retrieved from https://www.strategyand.pwc.com/innovation1000

Project Management Institute. (2013). *A guide to the project management body of knowledge* (5th ed.). Newtown Square, PA: Author.

Qian, J., Lin, X., Han, Z. R., Tian, B., Chen, G. Z., & Wang, H. (2015). The impact of future time orientation on employees' feedback-seeking behavior from supervisors and co-workers: The mediating role of psychological ownership. *Journal of Management & Organization, 21,* 336-349. doi:10.1017/jmo.2014.78

Rabbitt, P. (1997). *Methodology of frontal and executive function*. Hove, UK: Psychology Press.

Raina, R., & Roebuck, D. B. (2016). Exploring cultural influence on managerial communication in relationship to job satisfaction, organizational commitment, and the employees' propensity to leave in the insurance sector of India. *International Journal of Business Communication, 53*, 97-130. doi:10.1177/2329488414525453

Rassin, M., Kurzweil, Y., & Maoz, Y. (2015). Identification of the learning styles and "On-the-Job" learning methods implemented by nurses for promoting their professional knowledge and skills. *International Journal of Nursing Education Scholarship, 12*, 75-81. doi:10.1515/ijnes-2015-0006

Reay, T., Chreim, S., Golden-Biddle, K., Goodrick, E., Williams, B. E., Casebeer, A., . . . Hinings, C. R. (2013). Transforming new ideas into practice: An activity based perspective on the institutionalization of practices. *Journal of Management Studies, 50*, 963-990. doi:10.1111/joms.12039

Reh, F.J. (2017). Understanding the role and scope of the senior manager. *The Balance.* Retrieved from https://www.thebalance.com/understanding-the-role-and-scope-of-the-senior-manager-2276097

Reinsch, N. L., Jr., & Lewis, P. V. (1984). Communication apprehension as a determinant of channel preferences. *Journal of Business Communication*, *21*(3), 53-61. Retrieved from http://www.scimagojr.com/journalsearch.php?q=3300147413&tip=sid

Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*, 330. doi:10.1037/0033-2909.128.2.330

Reuland, M. M., & Teachman, B. A. (2014). Interpretation bias modification for youth and their parents: A novel treatment for early adolescent social anxiety. *Journal of Anxiety Disorders, 28*, 851-864. doi:10.1016/j.janxdis.2014.09.011

Richmond, V. P., McCroskey, J. C., & Davis, L. M. (1982). Individual differences among employees, management communication style, and employee satisfaction: Replication and extension. *Human Communication Research, 8*, 170-188. doi:10.1111/j.1468-2958.1982.tb00663.x

Richmond, V. P., & Roach, K. D. (1992). Willingness to communicate and employee success in US organizations. *Journal of Applied Communication Research, 20*, 95-115. doi:10.1080/00909889209365321

Richmond, V. P., Wrench, J. S, & McCroskey, J.C. (2013). *Communication apprehension, avoidance, and effectiveness* (6th ed.). Upper Saddle River, NJ: Pearson.

Rodan, S., & Galunic, C. (2004). More than network structure: How knowledge heterogeneity influences managerial performance and innovativeness. *Strategic Management Journal, 25*, 541-562. doi:10.1002/smj.398

Rogers, E. M. (1995). Lessons for guidelines from the diffusion of innovations. *Joint Commission Journal on Quality Improvement, 21*(7), 324-328. doi:10.1016/s1070-3241(16)30155-9

Rogers, E. M. (2003). *Diffusion of innovations*. New York, NY: Free Press.

Rogers, E. M. (2004). A prospective and retrospective look at the diffusion model. *Journal of Health Communication, 9,* 13-19. doi:10.1080/10810730490271449

Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of innovations; A cross-cultural approach.* New York, Free Press.

Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing, 26,* 441-457. doi:10.1016/j.jbusvent.2009.12.002

Rothmann, W., & Koch, J. (2014). Creativity in strategic lock-ins: The newspaper industry and the digital revolution. *Technological Forecasting and Social Change, 83,* 66-83. doi:10.1016/j.techfore.2013.03.005

Russ, T. L. (2012). The relationship between communication apprehension and learning preferences in an organizational setting. *Journal of Business Communication, 49,* 312-331. doi:10.1177/0021943612456035

Russ, T. L. (2013a). The influence of communication apprehension on superiors' propensity for and practice of participative decision making. *Communication Quarterly, 61,* 335-348. doi:10.1080/01463373.2013.776989

Russ, T. L. (2013b). The relationship between Theory X/Y: Assumptions and communication apprehension. *Leadership & Organization Development Journal, 34,* 238-249. doi:10.1108/01437731311326675

Saha, R. (2016). Factors influencing organizational commitment–Research and lessons. *Management Research and Practice, 8*(3), 36-48. Retrieved from http://mrp.ase.ro/

Salazar, A., Gonzalez, J. M. H., Duysters, G., Sabidussi, A., & Allen, M. (2016). The value for innovation of inter-firm networks and forming alliances: A meta-analytic model of indirect effects. *Computers in Human Behavior, 64*, 285-298. doi:10.1016/j.chb.2016.05.073

Satell, G. (2014). A look back at why Blockbuster really failed and why it didn't have to. *Forbes.* Retrieved from https://www.forbes.com

Schwandt, T. A. (2015). *The Sage dictionary of qualitative inquiry.* Thousand Oaks, CA: Sage.

Schweisfurth, T. G., & Herstatt, C. (2015). Embedded (lead) users as catalysts to product diffusion. *Creativity and Innovation Management, 24*, 151-168. doi:10.1111/caim.12106

Schweitzer, F., Gassmann, O., & Rau, C. (2014). Lessons from ideation: Where does user involvement lead us? *Creativity and Innovation Management, 23*, 155-167. doi:10.1111/caim.12058

Sezgin, N., & Özcan, B. (2009). The effect of progressive muscular relaxation and emotional freedom techniques on test anxiety in high school students: A randomized blind controlled study. *Energy Psychology: Theory, Research, and Treatment, 1*, 23-29. doi:10.9769/EPJ.2009.1.1.NS

Shantz, A., Alfes, K., Bailey, C., & Soane, E. (2015). Drivers and outcomes of work alienation: Reviving a concept. *Journal of Management Inquiry, 24*, 382-393. doi:10.1177/1056492615573325

Shantz, A., Alfes, K., & Truss, C. (2014). Alienation from work: Marxist ideologies and twenty-first-century practice. *International Journal of Human Resource Management, 25*, 2529-2550. doi:10.1080/09585192.2012.667431

Sierzchula, W., Bakker, S., Maat, K., & Wee, B. (2015). Alliance formation in the automobile sector during an era of ferment. *Creativity and Innovation Management, 24*, 109-122. doi:10.1111/caim.12077

Simon, M. (2011). *Dissertation and scholarly research: Recipes for success* (2011 ed.). Seattle, WA: Dissertation Success, LLC.

Simon, M., & Goes, J. (2013) *Dissertation and scholarly research: Recipes for success* (2013 ed.). Seattle, WA: Dissertation Success, LLC.

Simons, K., Higgins, M., & Lowe, D. (1995). A profile of communication apprehension in accounting majors: Implications for teaching and curriculum revision. *Journal of Accounting Education, 13*, 159-176. doi:10.1016/0748-5751(95)00001-3

Singh, J. (2005). Collaborative networks as determinants of knowledge diffusion patterns. *Management Science, 51*, 756-770. doi:10.1287/mnsc.1040.0349

Smith, J. R., Louis, W. R., Terry, D. J., Greenaway, K. H., Clarke, M. R., & Cheng, X. (2012). Congruent or conflicted? The impact of injunctive and descriptive norms on environmental intentions. *Journal of Environmental Psychology, 32*, 353-361. doi:10.1016/j.jenvp.2012.06.001

Smith, K. A., Iverach, L., O'Brian, S., Kefalianos, E., & Reilly, S. (2014). Anxiety of children and adolescents who stutter: A review. *Journal of Fluency Disorders, 40*, 22-34. doi:10.1016/j.jfludis.2014.01.003

Stanga, K. G., & Ladd, R. T. (1990). Oral communication apprehension in beginning accounting majors: An exploratory study. *Issues in Accounting Education, 5*, 180-194. Retrieved from http://aaajournals.org/loi/iace?code=aaan-site

Streamer, L., & Seery, M. D. (2015). Who am I? The interactive effect of early family experiences and self-esteem in predicting self-clarity. *Personality and Individual Differences, 77,* 18-21. doi:10.1016/j.paid.2014.12.034

Su, S., Pettit, G. S., & Erath, S. A. (2016). Peer relations, parental social coaching, and young adolescent social anxiety. *Journal of Applied Developmental Psychology, 42,* 89-97. doi:10.1016/j.appdev.2015.11.007

Subtirelu, N. (2014). A language ideological perspective on willingness to communicate. *System, 42*, 120-132. doi:10.1016/j.system.2013.11.004

Suldo, S. M., Gelley, C. D., Roth, R. A., & Bateman, L. P. (2015). Influence of peer social experiences on positive and negative indicators of mental health among high school students. *Psychology in the Schools, 52*, 431-446. doi:10.1002/pits.21834

SurveyMonkey. (2017). *Survey services.* Retrieved from https://www.surveymonkey.com/

Szczepańska-Woszczyna, K., & Dacko-Pikiewicz, Z. (2014). Managerial competencies and innovations in the company–The case of enterprises in Poland. *Business, Management and Education, 12*, 266-282. doi:10.3846/bme.2014.240

Thatcher, J. B., Loughry, M. L., Lim, J., & McKnight, D. H. (2007). Internet anxiety: An empirical study of the effects of personality, beliefs, and social support. *Information & Management, 44*, 353-363. doi:10.1016/j.im.2006.11.007

Thomas, G. F., Tymon, W. G., Jr., & Thomas, K. W. (1994). Communication apprehension, interpretive styles, preparation, and performance in oral briefing. *Journal of Business Communication, 31*, 311-326. doi:10.1177/002194369403100405

Thorbeck, J.S. (2014). The Zara gap: Retail's big arbitrage. *Sourcing Journal.* Retrieved from https://sourcingjournalonline.com/zara-gap-retails-big-arbitrage/

Tice, C. (2007). Building the 21st century leader. *Entrepreneur*. Retrieved from https://www.entrepreneur.com/article/173522#

Tichon, J. G., Wallis, G., Riek, S., & Mavin, T. (2014). Physiological measurement of anxiety to evaluate performance in simulation training. *Cognition, Technology & Work, 16*, 203-210. doi:10.1007/s10111-013-0257-8

Tonellato, M. (2014, February 6-9). *Relational coordination in an open source software project: The role of attention networks.* Paper presented at the XX Organization Science Winter Conference, Steamboat Springs, Colorado.

Toossi, M., & Torpey, E. (2017). Older workers: Labor force trends and career options. *Bureau of Labor Statistics.* Retrieved from https://www.bls.gov/careeroutlook/2017/article/older-workers.htm

Torpey, E. (2017). Women in management. *Bureau of Labor Statistics.* Retrieved from https://www.bls.gov/careeroutlook/2017/data-on-display/women-managers.htm

Trautrims, A., Trautrims, A., Defee, C., Defee, C., Farris, T., & Farris, T. (2016). Preparing business students for workplace reality–using global virtual teams in logistics and SCM education. *International Journal of Logistics Management, 27*, 886-907. doi:10.1108/IJLM-01-2015-0003

Trochim, W. K. (2006). Research methods knowledge base. Retrieved from https://www.socialresearchmethods.net/kb/

Tummers, L. G., & Den Dulk, L. (2013). The effects of work alienation on organisational commitment, work effort and work-to-family enrichment. *Journal of Nursing Management, 21*, 850-859. doi:10.1111/jonm.12159

Tung, F. C., & Yu, T. W. (2016). Does innovation leadership enhance creativity in high-tech industries? *Leadership & Organization Development Journal, 37*, 579-592. doi:10.1108/LODJ-09-2014-0170

Valaei, N., & Rezaei, S. (2016). Job satisfaction and organizational commitment: An empirical investigation among ICT-SMEs. *Management Research Review, 39*, 1663-1694. doi:10.1108/mrr-09-2015-0216

Viita, K., & Campbell, M. (2015). Spotify value tops $8 billion as investors bet on streaming. *Bloomberg.* Retrieved from https://www.bloomberg.com/news/articles/2015-06-10/spotify-valued-at-8-2-billion-as-teliasonera-buys-stake

Vogt, W. P., & Johnson, R. B. (2011). *Dictionary of statistics & methodology: A nontechnical guide for the social sciences* (4th ed.). Thousand Oaks, CA: Sage.

Volberda, H. W., Van Den Bosch, F. A., & Mihalache, O. R. (2014). Advancing management innovation: Synthesizing processes, levels of analysis, and change agents. *Organization Studies, 35,* 1245-1264. doi:10.1177/0170840614546155

Vuori, T. O., & Huy, Q. N. (2015). Distributed attention and shared emotions in the innovation process: How Nokia lost the smartphone battle. *Administrative Science Quarterly, 61,* 9-51. doi:10.1177/0001839215606951

Walliman, N. (2006). *Social research methods.* Thousand Oaks, CA: Sage.

Ward, A. K., Ravlin, E. C., Klaas, B. S., Ployhart, R. E., & Buchan, N. R. (2016). When do high-context communicators speak up? Exploring contextual communication orientation and employee voice. *Journal of Applied Psychology, 101,* 1498-1511. doi:10.1037/apl0000144

Warnock, K., & Curtis, E. (1997, May 8-9). *Oral communication apprehension: A preliminary study of accounting students.* Paper presented at the Irish Accounting and Finance Association Conference, Dublin City University.

Weeks, J. W., & Howell, A. N. (2012). The bivalent fear of evaluation model of social anxiety: further integrating findings on fears of positive and negative evaluation. *Cognitive Behaviour Therapy, 41*(2), 83-95. doi:10.1080/16506073.2012.661452

Wells, S., Polglase, K., Andrews, H. B., Carrington, P., & Baker, A. H. (2003). Evaluation of a meridian-based intervention, emotional freedom techniques (EFT), for reducing specific phobias of small animals. *Journal of Clinical Psychology, 59*, 943-966. doi:10.1002/jclp.10189

Wilkinson, L. (1999). Statistical methods in psychology journals: Guidelines and explanations. *American Psychologist, 54*(8), 594-604. Retrieved from http://www.apa.org/pubs/journals/amp/

Winiecki, K. L., & Ayres, J. (1999). Communication apprehension and receiver apprehension in the workplace. *Communication Quarterly, 47*, 430-440. doi:10.1080/01463379909385572

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition.* Stanford, CA: Stanford University Press.

Wong, S. S., & Boh, W. F. (2014). The contingent effects of social network sparseness and centrality on managerial innovativeness. *Journal of Management Studies, 51*, 1180-1203. doi:10.1111/joms.12086

World Intellectual Property Association. (2012). The Global Innovation Index 2012. Retrieved from http://www.wipo.int/publications/en/details.jsp?id=247

Wu, C. H., Parker, S. K., & De Jong, J. P. (2014). Need for cognition as an antecedent of individual innovation behavior. *Journal of Management, 40*, 1511-1534. doi:10.1177/0149206311429862

Wu, C. P., & Lin, H. J. (2014). Anxiety about speaking a foreign language as a mediator of the relation between motivation and willingness to communicate. *Perceptual and Motor Skills, 119,* 785-798. doi:10.2466/22.PMS.119c32z7

Wunderlich, P., Größler, A., Zimmermann, N., & Vennix, J. A. (2014). Managerial influence on the diffusion of innovations within intra-organizational networks. *System Dynamics Review, 30,* 161-185. doi:10.1002/sdr.1516

Wuyts, S., & Dutta, S. (2014). Benefiting from alliance portfolio diversity: The role of past internal knowledge creation strategy. *Journal of Management, 40,* 1653-1674. Retrieved from http://journals.sagepub.com/home/jom

Yadav, G. K., & Nagle, Y. K. (2012). Work alienation and occupational stress. *Social Science International, 28,* 333-344. Retrieved from http://miar.ub.edu/issn/0970-1087

Yen, C. L., Singal, M., & Murrmann, S. K. (2016). Cultural context orientation and recruitment message strategy: Evidence from hospitality students in the United States and Taiwan. *Journal of Human Resources in Hospitality & Tourism, 15,* 325-345. doi:10.1080/15332845.2016.1147940

Yeramyan, P. (2014). The six defining traits of the successful 21st century organization. *Forbes.* Retrieved from https://www.forbes.com/sites/gapinternational/2014/09/03/the-six-defining-traits-of-the-successful-21st-century-organization/#7e6bd0b21c60

Yook, E. L., & Ahn, B. L. (1999). Comparison of apprehension about communication between Koreans and Americans. *Perceptual and Motor Skills, 89*, 161-164. doi:10.2466/pms.1999.89.1.161

Yukl, G. (2012). Effective leadership behavior: What we know and what questions need more attention. *Academy of Management Perspectives, 26*(4), 66-85. doi:10.5465/amp.2012.0088

Zacher, H., & Rosing, K. (2015). Ambidextrous leadership and team innovation. *Leadership & Organization Development Journal, 36*, 54-68. doi:10.1108/LODJ-11-2012-0141

Zakahi, W. R., Jordan, F. F., & Christophel, D. (1993). Social adjustment to college: Communication apprehension and social network development among college students. *Communication Research Reports, 10*, 39-46. doi:10.1080/08824099309359916

Zarrinabadi, N. (2012). Self-perceived communication competence in Iranian culture. *Communication Research Reports*, *29*(4), 292-298. doi:10.1080/08824096.2012.723271

Zarrinabadi, N., & Haidary, T. (2014). Willingness to communicate and identity styles of Iranian EFL learners. *Procedia—Social and Behavioral Sciences, 98*, 2010-2017. doi:10.1016/j.sbspro.2014.03.636

Zhang, Y., Butler, J., & Pryor, B. (1996). Comparison of apprehension about communication in China and the United States. *Perceptual and Motor Skills, 82*, 1168-1170. doi:10.2466/pms.1996.82.3c.1168

Zhong, Q. M. (2013). Understanding Chinese learners' willingness to communicate in a New Zealand ESL classroom: A multiple case study drawing on the theory of planned behavior. System, 41, 740-751. doi:10.1016/j.system.2013.08.001

Appendix A: Permission Letter

SIMON & SCHUSTER

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VIA EMAIL

July 6, 2017

Michelle Campagnola
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Michelle Campagnola:

You have our permission to include an adaptation of the figure "Adopter Categorization on the Basis of Innovativeness" from our book, DIFFUSION OF INNOVATIONS, 5E by Everett M. Rogers, in your doctoral dissertation entitled "Examining the Relationship Between Communication Apprehension and Individual Innovativeness in Managers."

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Sincerely,

Christine J. Lee

Christine J. Lee

AGREED TO AND ACCEPTED

Michelle Campagnola

Michelle Campagnola

Appendix B: Survey Instrument

Please indicate the degree to which each statement applies to you by marking whether you: Strongly Disagree; Disagree; are Neutral; Agree; or Strongly Agree.

There are no right or wrong answers, just record your first impression.

	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My peers often ask me for advice or information.					
2	I enjoy trying new ideas.					
3	I seek out new ways to do things.					
4	I am generally cautious about accepting new ideas.					
5	I frequently improvise methods for solving a problem when an answer is not apparent.					
6	I am suspicious of new inventions and new ways of thinking.					
7	I rarely trust new ideas until I can see whether the vast majority of people around me accept them.					
8	I feel that I am an influential member of my peer group.					
9	I consider myself to be creative and original in my thinking and behavior.					
10	I am aware that I am usually one of the last people in my group to accept something new.					
11	I am an inventive kind of person.					
12	I enjoy taking part in the leadership responsibilities of the group I belong to.					

13	I am reluctant about adopting new ways of doing things until I see them working for people around me.					
14	I find it stimulating to be original in my thinking and behavior.					
15	I tend to feel that the old way of living and doing things is the best way.					
16	I am challenged by ambiguities and unsolved problems.					
17	I must see other people using new innovations before I will consider them.					
18	I am receptive to new ideas.					
19	I am challenged by unanswered questions.					
20	I often find myself skeptical of new ideas.					
21	I dislike participating in group discussions.					
22	Generally, I am comfortable while participating in group discussions.					
23	I am tense and nervous while participating in group discussions.					
24	I like to get involved in group discussions.					
25	Engaging in a group discussion with new people makes me tense and nervous.					
26	I am calm and relaxed while participating in group discussions.					
27	Generally, I am nervous when I have to participate in a meeting.					
28	Usually, I am comfortable when I have to participate in a meeting.					
29	I am very calm and relaxed when I am called upon to express an opinion at a meeting.					
30	I am afraid to express myself at meetings.					

31	Communicating at meetings usually makes me uncomfortable.					
32	I am very relaxed when answering questions at a meeting.					
33	While participating in a conversation with a new acquaintance, I feel very nervous.					
34	I have no fear of speaking up in conversations.					
35	Ordinarily I am very tense and nervous in conversations.					
36	Ordinarily I am very calm and relaxed in conversations.					
37	While conversing with a new acquaintance, I feel very relaxed.					
38	I'm afraid to speak up in conversations.					
39	I have no fear of giving a speech.					
40	Certain parts of my body feel very tense and rigid while giving a speech.					
41	I feel relaxed while giving a speech.					
42	My thoughts become confused and jumbled when I am giving a speech.					
43	I face the prospect of giving a speech with confidence.					
44	While giving a speech, I get so nervous I forget facts I really know.					

Please indicate the following 4 Demographic characteristics:

Demographic Characteristics

45	Gender:	Male	Female
46	Age (please enter your age as a number in the space provided):		
47	Highest level of education attained:	Some high school	

		High school diploma/GED	
		Some college	
		2-year college degree	
		4-year college degree	
		Graduate degree	
48	Industry you currently work in:	Advertising & Marketing	Government
		Agriculture	Health Care & Pharmaceuticals
		Airlines & Aerospace (including Defense)	Insurance
		Automotive	Manufacturing
		Business Support & Logistics	Nonprofit
		Construction, Machinery and Homes	Retail & Consumer Durables
		Education	Real Estate
		Entertainment & Leisure	Telecommunications, Technology, Internet & Electronics
		Finance & Financial Services	Utilities, Energy, and Extraction
		Food & Beverages	

Appendix C: Invitation to Participate

"Dear XXXXX,

There is a new short survey waiting for you for which we would appreciate your valuable input. It will take you about 10 minutes to complete and you will earn $0.50 towards a participating charity of your choice. You will not be asked to provide your name, email address, or any other contact information. "IP address tracking" has also been disabled to further protect your anonymity.

If you have any problems, please reach out to support@surveymonkey.com.

Please click here to access the survey: survey link."