2018

Testing Matching and Mirroring With Homophily in Onboarding Leadership Socialization

Manuel Almendarez
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral dissertation by

Manuel Almendarez

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Richard Schuttler, Committee Chairperson, Management Faculty
Dr. Daphne Halkias, Committee Member, Management Faculty
Dr. Jean Gordon, University Reviewer, Management Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2018

Abstract

Testing Matching and Mirroring With Homophily in Onboarding Leadership Socialization

by

Manuel Almendarez

MBA, University of Phoenix, 2007

BBA, Houston Baptist University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Leadership and Organizational Change

Walden University

February 2018

Abstract

This study was designed to test the relationship between matching and mirroring (MM) and homophilous perceptions (PHM) in leadership socialization. Elevated PHM levels were hypothesized to affect workplace acceptance levels. The need for testing leadership socialization skills was magnified with the current demographic shift known as the leadership succession crisis, creating problems with onboarding strategies. The theoretical foundations of the study were based on the social identity theory, the social presence theory, the leader-member exchange theory, and the similarity-attraction paradigm. The study conducted at Workforce Solutions North Texas in Wichita Falls, Texas was sampled based on the calculated strength of the effect in a pilot study. Test group participants engaged in MM enhanced social conversation with a coached candidate and control group participants conversed with an uncoached participant from the general population engaging in normal conversation. MM processes were differentiated from natural synchronic tendencies using specialized software and Kinect® sensors. A contrasted group, quasi-experiment was examined with an analysis of covariance. No statistically significant difference was found between groups on PHM levels, correcting for age, gender, ethnicity, height, glasses, hobbies, and professions. However, PHM and coworker acceptance were statistically significant but with no difference between groups. Further research is needed to test PHM as a metric for rapport in socialization strategies. Nevertheless, the homophily lens rather than the rapport lens can help organizational development and human resource professionals quantify and develop more effective socialization strategies aimed at solving problems associated with the leadership succession crisis.

Testing Matching and Mirroring with Homophily in Onboarding Leadership Socialization

by

Manuel Almendarez

MBA, University of Phoenix, 2007

BBA, Houston Baptist University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Leadership and Organizational Change

Walden University

February 2018

Dedication

This work is dedicated to my father who, despite his lack of formal education, applied techniques of *mirroring* successfully in his life as a *troquero.* I humbly carry on my father's work in his search for excellence.

Also dedicated to my lovely wife who encouraged me throughout our lives to pursue my dreams and having faith every step of the way despite my hard-headedness. Without the freedom of direction she provided, I would not have reached this level of academic accomplishments.

To my many siblings who share in the pride felt throughout our familial nation; that their children may always strive for excellence as their ancestors have.

Acknowledgments

Thank you, to Dr. Richard Schuttler for providing sound advice at every step of the dissertation. His dedication to his students' successes is reflected in his sacrifices in time and effort. To the rest of the faculty at Walden University: Your wisdom is reflected in the quality of the product you produce. Thank you for your guidance.

Thank you to Dr. Lynda McCroskey for allowing the use of the Attitude Homophily Scale.

Table of Contents

List of Tables....vi

List of Figures....vii

Chapter 1: Introduction to the Study....1

Background of the Problem....5

Socialization and Orientation....7

Social Capital....8

Statement of the Problem....13

Purpose of the Study....15

Significance of the Study....16

Nature of the Study....18

Quantitative Research Method....18

Research Design....19

Primary Research Questions and Hypotheses....20

Theoretical Framework....22

Definition of Terms....24

Scope of the Study....25

Assumptions of the Study....27

Limitations to the Study....30

Delimitations of the Study....31

Summary....32

Chapter 2: Literature Review....34

Title Searches, Articles, Research Documents, and Journals 34
Baby Boom Historical Chronology 35
The Leadership Succession Crisis 39
Socialization 42
Leadership Socialization Strategies 44
Onboarding and Inboarding 45
Facets of Leadership Socialization 52
Socialization and Human Interaction 57
The Social Identity Approach 61
Anatomy of Prosociality 64
Matching and Mirroring Methodology 110
Gaps in the Literature 115
Conclusion 117
Chapter 3: Methodology 121
Purpose of the Study 122
Restatement of the Problem 123
Primary Research Questions and Hypotheses 126
Research Design 127
Sample Types 128
Data Collection Methods and Frequency 129
Data Analyses Type 133
Target Population and Participant Selection 133

Pilot Study Recruiting Procedures 134
Main Study Recruitment Strategy 138
Procedures 139
Protection of Participants 144
Data Collection Procedures 145
Coached and Uncoached Candidates 147
Data Analysis 148
Types of Data 148
Organizing Raw Data 161
Analysis Preparation 163
Conclusion 164
Chapter 4: Findings 166
Research Questions and Hypotheses 166
Research Tools 167
Microsoft® Kinect® Sensors and Vitruvius® 168
Praat 6.0.28® and Signal Processing 169
General Demographic Questionnaire 170
Attitude Homophily Scale 171
Response Rate 173
Pilot Study 173
Main Study 173
Demographic Data 175

Pilot Study 175
Main Study 176
Analysis 178
Findings 184
Summary 186
Chapter 5: Discussion, Conclusions, and Recommendations 188
Overview 188
Interpretation of Findings 190
Limitations of the Study 191
Social Change Implications 192
Recommendations for Action 194
Recommendations for Future Research 196
Concluding Statement 198
References 201
Appendix A: MWSU Flowchart 287
Appendix B: Main Study Flowchart 288
Appendix C: The Attitude Homophily Scale 289
Appendix D: Participant Invitation Flyer 290
Appendix E: Debriefing Statement 290
Appendix F: Appointment Card 292
Appendix G: Participant Invitation Flyer 293
Appendix H: Confidentiality Agreement 294

Appendix I: Permission to use Improved Homophily Measure 295

Appendix J: Human Subjects Research Approval 296

Appendix K: Letter of Cooperation 297

List of Tables

Table 1. G*Power 3.1 Sample Size Calculations 137

Table 2. Recorded Upper-Torso Movement in Spreadsheet Format 154

Table 3. Worksheet Cells Highlighted for Differences 156

Table 4. ROS Calculations and Scoring 160

Table 5. Control Group Participant Demographics 177

Table 6. Test Group Participant Demographics 178

Table 7. Test Group Analysis Table 182

Table 8. Control Group Analysis Table 183

List of Figures

Figure 1. Pilot study research design illustration 131

Figure 2. Main study research design illustration 132

Figure 3. Kinect® Sensor set up 142

Figure 4. Kinect® for Windows® Version 2 sensor components 151

Figure 5. Kinect® and Vitruvius® joint angle image 153

Figure 6. Praat® syllable nuclei frequency per second 159

Figure 7. Shapiro-Wilk test scatterplots 180

Figure 8. Residuals plotted for homoscedasticity 181

Figure 9. Pooled standard deviation 198

Chapter 1: Introduction to the Study

Socializing a new leader into an existing culture is a significant change event requiring the newcomer to establish social bonds with the existing membership. The strategy has been problematic. The new leader is required to exercise rapport-building transformational skills to effectively lead the group through the change event in what is known as an onboarding strategy (Bradt, 2010; Dai et al., 2011; Fursman, 2014; Ndunguru, 2012; Watkins, 2013). Seeking talent outside an organization is challenging when a new leader is unable to establish rapport with individual members (Bareil, 2013; Matos Marques Simoes & Esposito, 2014). Past leadership researchers focused on methods of rapport development between parties, often testing and defining rapport in an effort to strengthen leader/member bonds (Acosta, 2011; Cohen & Kassis-Henderson, 2012; Ho, 2014; Fatima & Razzaque, 2014; Tickle-Degnen & Rosenthal, 1990; Vacharkulksemsuk & Fredrickson, 2012; White, Campbell, & Kacmar, 2012). However, rapport was considered a qualitative concept that did not seem to fully define the social relationship necessary for leadership socialization.

Outwardly manifested behaviors observed in rapport have included: positive communicative exchanges, mutual agreement, affinity, and trust (Bronstein, Nelson, Livnat, & Ben-Ari, 2012; Fatima & Razzaque, 2014). However, a vital aspect of leadership socialization is the perception of congruent institutional logics in addition to the behaviors associated with rapport (Behsarov, 2014; Ocasio, Loewoenstein, & Nigam, 2015). Institutional logics are the belief structures that form the common thread between members of an organization, guiding the group to intended goals (Besharov & Smith,

2014; Lammers, 2011; Ocasio et al, 2015; Shipilov, Greve, & Rowley, 2010). Group common beliefs are the bonds that unify the members and establish a culture of particular operational logics. A leadership socialization strategy aimed at creating perceptions of congruent institutional logics could thus result in positive outcomes. Efforts at measuring the effectiveness of socialization strategies using rapport as a metric did not result in proper application nor in a quantifiable measure of effectiveness in leadership socialization (Barrett, 2016; Campbell, White, & Johnson, 2003; Ho, 2014). The ineffectiveness of the current socialization methods may become a greater challenge during the current demographic shift.

The leadership succession crisis presaged in Lund and Thomas (2012) described a demographic change event that would likely cause disruption when Baby Boomers representing one-third of the U.S. population reached retirement age. However, reaching retirement age did not presuppose retirement. Nevertheless, the staggered event could create disruption in individual organizations facing an increase in retirees in the coming years. The event would likely increase an organization's costs in time and resources if unprepared for the challenges (Cairns, 2011; Groves, 2010; Lund & Thomas, 2012). Concern regarding the demographic shift was reflected in a U.S. Securities and Exchange Commission ruling (Rule 14a-8) requiring publicly held companies to maintain leadership succession plans (Securities and Exchange Commission, 2009). Despite the efforts at government regulated succession planning, approximately 50% of U.S. companies continued to be unprepared (Burton & Fischer, 2015; Cairns, 2011; Leaver, 2014; White & Murphy Enright, 2013). The implications suggest that unprepared

companies would either rely on inexperienced internal or experienced external leadership replacements. In considering experienced outsiders, a new leader would be introduced or *onboarded* into an existing culture (Dai et al., 2011; Korte, Brunhaver, & Sheppard, 2015; Ndunguru, 2012). The onboarded new leader would face a generally resistant group (Bradt, 2010; Dai et al., 2011; Fursman, 2014; Ndunguru, 2012; Watkins, 2013). The challenges will likely persist during the leadership succession crisis as companies continue to utilize onboarding strategies. The economic impact when Baby Boomers entered the job market may be dwarfed by the exodus impact through retirement.

The foreboding implications of the leadership succession crisis required a closer examination of the current approach to leadership socialization to attempt to contribute to the curtailment or prevention of crisis conditions in individual organizations. Past studies in leadership socialization approached the problem by examining techniques in communication that were intended to create rapport with members (Cohen & Kassis-Henderson, 2012; Colwell, 2013; Fisher & Robbins, 2015; Jian, Shi, & Dalisay, 2014; White et al., 2012). The studies fell short of providing a congruent unit of analysis that could quantify the phenomenon of rapport. Some studies resorted to observing rapport as a subjective phenomenological outcome (Colwell, 2013; Delcourt, Gremler, van Riel, & van Birgelen, 2013; Fatima & Razzaque, 2014). For example, Delcourt, et al. (2013) suggested that emotionally competent employees were more apt to establish rapport with customers and that the result would lead to customer satisfaction and loyalty. With this assumption, the researchers created a structural model to test the correlation between employee emotional competence on satisfaction and loyalty. The correlation between

employee emotional competence and the ability to build rapport could not be properly tested and thus may have produced erroneous conclusions. Similary, Fatima and Razzaque (2014) examined how trust influenced the manifestations of rapport-like behavior between employees and customers. The development of trust was associated with various forms of communicative exchanges making attributions to rapport subjective. The inability to quantify the concept of rapport represented a significant gap in current research.

I proposed a new unit of analysis in this study to represent the inception of rapport-like behavior with the purpose of testing the mitigating effects of *matching* and *mirroring* (MM) and *homophily* (Alstott, Madnick, & Velu, 2014; Fu, Nowak, Christakis, & Fowler, 2012; Lozares, Verd, Cruz, & Baranco, 2014; McCroskey et al., 2006). Homophily is the tendency to associate disproportionately with a similar other (Golub & Jackson, 2012; Holzhauer, Krebs, & Ernst, 2013; McCroskey, McCroskey, & Richmond, 2006). MM is a technique used in sales and socialization to create rapport (Bashir & Ghani, 2012; Jacob, Guéguen, Martin, & Boulbry, 2011; Wood, 2006). The attitude homophily scale, a Likert-type scale, measures levels of homophilous perceptions and is considered an appositive fit (McCroskey et al., 2006). PHM is a robust metric of social interaction; it will be discussed in greater detail in the literature review.

The techniques used in MM involve cognitive mirroring between communicative dyads often used in clinical research (Hurley, 2008; Jacob, 2013; McGarry & Russo, 2011). The process was later shown to improve communication in business applications, creating rapport-like behavior (Bashir & Ghani, 2012; Jacob, Guéguen, Martin, &

Boulbry, 2011; Jacob, 2013; Peterson & Limbu, 2009). Jacob et al. (2011) found that mirroring resulted in the creation of an interpersonal bond between employees and customers. However, the study was based on observation of natural synchronic tendencies that produced a subjective social bond. No metric was introduced to measure the interpersonal bond.

Natural synchronic tendencies had been observed in various other studies (Llobera, et al., 2016; Hari, Himberg, Nummensmaa, Hämäläinen, & Parkkonen, 2013; Baimel, Severson, Baron, & Birch, 2015). Llobera et al. (2016) found that people who performed actions together naturally synchronized with the development of rapport-like behavior. The natural synchronic tendencies developed through physical interaction in a controlled environment. Thus, natural synchronic tendencies contrasted with MM cognitive mirroring to determine PHM levels produced. PHM scores could possibly be considered to quantify rapport inception. The nature of rapport was not conducive to quantitative studies of social interaction. Researchers may gain a better understanding of leader/member socialization using PHM as a metric for rapport.

Background of the Problem

Quantifying rapport in leadership socialization strategies may help define the mechanics of transformational communication during a critical time in history. The inability to quantify rapport will place a greater strain on leadership retention by relying on qualitative observations to measure socialization effectiveness. A new leader entering an existing organization, also known as onboarding, requires rapport-building skills to gain legitimacy with the existing culture. Organizations seeking global competitiveness

engaged in onboarding strategies to implement innovative changes (Bradt, 2010; Ferri-Reed, 2013; Graybill, Hudson Carpenter, Offord, Piorun, & Shaffer, 2013). However, onboarding requires the new leader to exercise transformational skills to lead the organization through the change event (Bradt, 2010; Dai et al., 2011; Fursman, 2014; Ndunguru, 2012), a proposition that had been plagued with socialization challenges. Onboarding was expected to be the norm during the demographic shift known as the leadership succession crisis.

To better understand the gravity of the leadership succession crisis it was necessary to first examine the historical aspects of the Baby Boom, a significant demographic event characterized by an explosion in world populations between 1941 and 1965 (Feyrer, 2011; Gibaldi, 2014; Macunovich, 2012; Roberts, 2012). The increase in the crude birth rate (CBR) had been attributed to various social and economic conditions (Feyrer, 2011; Gibaldi, 2014; Van Bavel & Reher, 2013). However, the increase had its inception prior to World War II in Europe, a possible product of continued recovery from the previous war.

The generation known as Baby Boomers comprised the largest demographic population in the U.S. (Gibaldi, 2014; Roberts, 2012; Van Bavel & Reher, 2013). According to the U.S. Census Bureau, the national population by the late 1940s was 141 million. According to the U.S. Department of Commerce (2014), the figure more than doubled with the population reaching over 300 million presently. Although the period attributed to the Baby Boom era was considered to have occurred immediately after the war, the most significant spike in CBR occurred between 1950 and 1960 (Gibaldi, 2014;

Roberts, 2012; Van Bavel & Reher, 2013). Van Bavel and Reher (2013) attributed the increase to the corresponding nuptial rates and ineffective contraception of the time.

By the mid-1960s, Baby Boomers were entering the workforce creating a significant influx, increasing markedly during the 1970s and 1980s (Macunovich, 2012; Roberts, 2012; Van Bavel & Reher, 2013). A high unemployment rate and a 20% national economic decline were directly attributed to the influx of the newly hired Baby Boomer workforce in the 1970s (Feyrer, 2011; Macunovich, 2012; Van Bavel & Reher, 2013). Baby Boomers, replacing older, more experienced managers, occupied management positions without the experience required to continue production at the ongoing levels, thus possibly causing the overall decrease in production in most industries.

During the 1980s and 1990s, Baby Boomers enjoyed greater success than their predecessors, occupying executive and governing board positions (Feyrer, 2011; Macunovich, 2012; Winkelmann-Gleed, 2011). Arora (2003) explained a hiring and training freeze in the 1990s by attributing it to an overabundance of workforce candidates, possibly causing the recession of the era. It is possible that the resultant shortage of middle managers negated candidates for future leadership training in succession planning today.

Socialization and Orientation

The practice of socialization and orientation during a time of candidate workplace increase was characterized by production acclimation and minimal social integration efforts (Feyrer, 2011; Macunovich, 2012; Van Maanen, 1978). Van Maanen (1978)

described the necessitated mass socializations occurring during the 1970s and 1980s as strategies meant to familiarize and train new hires for the assigned jobs and to teach the policies, values, mission, and politics in the social environment. The sessions seemed to approach integration into a new job by focusing on the procedural aspects of the organization such as payroll, parking permits, workspace assignment, security, training, and IT. However, mass newcomer socialization strategies were framed on task-related training and allowing *laissez-faire* approaches to socialization (King, Xia, Quick, & Sethi, 2005; Simosi, 2010; Snell, 2006). Thus, orientation sessions were meant to teach newcomers the skills necessary to become productive members of an organization and allow for self-determined socialization with the existing members.

Social Capital

Tactics for leadership onboarding seemed to be framed similarly to employee orientation by adoption of the *laissez-faire* approach to socialization (Bradt, 2010; Dai et al., 2011; Fursman, 2014; Ndunguru, 2012). The approach negated the concept of social capital by minimizing the significance of socialization in onboarding strategies. Tittenbrun (2014) argued that social capital was a misnomer, utilizing semantic explanations of each concept separately to discredit the term as a viable expression in social science. However, social capital referred to intangible assets, such as the goodwill maintained in network efforts that enhanced the survival of the organization. Additionally, the concept of social capital placed a value on the quality of relationships that developed within a workgroup or an organization such as trust and rapport (Korte & Lin, 2013; Lange, 2014; Nilsson, Svendsen, & Svendsen, 2012). Lange (2014)

considered the concept of social capital an integrating factor and a predictor of organizational behavior. This meant that the quality of the relationships established between people in an organization was a necessary element that resulted in a unified, productive organization.

Successfully integrating a newcomer into a workgroup would be considered an increase in social capital for that group. However, newcomers underwent distinct challenges in attempting to integrate with workgroups due to personality differences or political ingroup formations (Abrams, Palmer, Rutland, Cameron, & Van de Vyver, 2014; Kim, Lee, & Carlson, 2010; Korte & Lin, 2013; Mead & Maner, 2012). Those who could establish social relationships with the existing membership by establishing rapport with group members were more productive sooner than those who struggled with making connections (Abrams et al., 2014).

Social capital will likely continue to be a significant factor as Baby Boomers reach retirement age. Hagemann and Stroope (2013) estimated that one Baby Boomer every eight seconds would reach retirement age between 2015 and 2020. This led to concerns regarding the exit of leaders at every level and the loss of organizational intelligence as more experienced and knowledgeable employees were replaced by younger, less knowledgeable candidates; this has been also known as *brain drain* (Cairns, 2011; Korte & Lin, 2013; Lund & Thomas, 2012). The unplanned exit of leaders could exacerbate the crisis conditions affecting organizational operations significantly (Cairns, 2011; Dai et al., 2011; Lund & Thomas, 2012). Cairns (2011) estimated that approximately 50% of U.S. companies had no viable leadership succession plan in place.

Unplanned succession meant unplanned socialization that could result in a perpetuation of crisis conditions throughout the transition process.

As more Baby Boomers in leadership positions retire, the significance of social capital becomes more pronounced. However, the ability to create social capital was directly linked to transformational leadership (Bradt, 2010; Ravangard, Karimi, Farhadi, Sajjadnia, & Shokrpour, 2016; Anderson & Sun, 2015). A new leader needs to establish a connection with the existing membership early in order to successfully guide the organization through the change event. While membership socialization is the process of teaching a newcomer the social structure and acceptable behaviors based on group norms and values, new leader socialization through onboarding requires transformational abilities to initiate change within the organization via membership buy-in using rapport-building skills (King et al., 2005; Nihal Colakoglu & Gokus, 2015; Özdemir & Ergun, 2015). Whether onboarding strategies were implemented as a result of careful planning or forced upon the organization as a result of unpreparedness, onboarding a new leader through socialization and congruent institutional logics requires a more effective method of measuring social capital outcomes to avoid costly turnover.

Socialization and institutional logics. New leader socialization seems to require member perceptions of congruent institutional logics. Institutional logics are the embedded practices and social parameters by which people within an organization perform to make a living (Currie & Spyridonidis, 2016; Logue, Clegg, & Gray, 2016; Pinch & Sunley, 2015). Logue, et al. (2016) described institutional logics as a *collective rationality*:

> A collective rationality constructs relations and expectations, capacities and constraints on action, across an eco-system or field, providing a shared or dominant understanding of how things are done by multiple groups, within and beyond a (traditional) field, that is less embedded and more temporaneous than logics suggest. (p. 17)

The collective rationality unifies the group and creates membership perceptions that often result in leader legitimization (Chung & Luo, 2013; Dai et al., 2011; Logue, Clegg, & Gray, 2016). The multifaceted institutional logic framework operates as a culture of common beliefs and values. The change event that disrupts this framework also alters membership perceptions of congruent institutional logics (Jay, 2013; Lammers, 2011; Ocasio et al., 2015). This meant that membership perceptions of the new leader require a matching of logics. Institutional logics should be a significant consideration in socialization strategies.

A new leader should seek to acquire social capital through transformational communication with the existing membership (Bradt, 2010; Effelsberg & Solga, 2015; Hansbrough, 2012); thereby creating perceived institutional logic congruency. The new leader can then manage and lead the organization to continued or improved production. A leader's transformational ability to alter membership perceptions could thus be considered the antecedent to effective change that is dependent upon the quality of the relationships developed with the individual members.

A leader's ability to establish social bonds quickly with others may be the transformational quality necessary to socially integrate into the existing culture with its

inherent social structures and institutional logics (Cohen & Kassis-Henderson, 2012; Ellis et al., 2015; Korte & Lin, 2013; Perrot et al., 2014). Quantifiably testing any social or logics congruency perception was a challenge. Utilizing a suitable metric for perception congruency could reveal whether efforts at integration and socialization were having the lasting effects necessary for successful leadership socialization.

The retiring Baby Boomers are expected to have a greater impact on production when compared to any other demographic group in history (Carman, Leland, & Wilson, 2010; Feyrer, 2011; Gibaldi, 2014). Pisano's (2014) demographic study that linked GDP, tax contributions, and disposable income to past transitions, indicated that contributions to the economy were expected to decrease in direct proportion to the number of retirees. Additionally, onboarded leaders replacing aging Baby Boomers were predicted to create a downturn in production with increased expenses for executive turnover (Bordia, Restubog, Jimmieson, & Irmer, 2011; Cairns, 2011; Lund & Thomas, 2012; White & Murphy Enright, 2013). Thus, as one-third of the population exits the market, the search for transformational leadership candidates who can become productive expeditiously becomes a significant challenge that may have far-reaching effects upon an entire global economy.

The increased instances of onboarding in the near future will make the many facets of leadership socialization focal points for successful integration. Exploring new ways of testing rapport-building processes in leadership socialization, including MM, was necessary in light of the challenges expected during the leadership succession crisis.

Testing MM quantitatively had been nonexistent. It had been used as a communication tool for effective qualitative studies (Copeland, 2011; Hurley, 2008; Jacob, 2013). The studies seemed to indicate that MM created rapport-like behavior. Whether the processes created an actual alteration of perception was uncertain due to the qualitative nature of rapport (Cohen & Kassis-Henderson, 2012; Ho, 2014; Lakens & Stel, 2011; Tickle-Degnen & Rosenthal, 1990; Vacharkulksemsuk & Fredrickson, 2012). Although qualitative studies were necessary in studying social interaction, the current leadership succession and integration environment required a tested and validated metric that could show a measurable indication of social bonding and institutional logic congruency.

Statement of the Problem

The general problem was that the inability to quantifiably test social processes in leadership socialization could result in greater executive turnover during the demographic shift that would cost time and resources. Current socialization strategies may perpetuate the adverse conditions without an intervening effort. Although onboarding had been considered an intelligent strategic move in global markets (Dai et al., 2011; Ferri-Reed, 2013; Minnick et al., 2014), the strategy may result in unfavorable social conditions with the impingement of leadership change. Onboarding strategies solely focused on the managerial capabilities without equal consideration to socialization may cripple onboarding strategies by minimizing an integral part of leadership succession (Dai, DeMeuse, & Gaeddert, 2011; Fursman, 2014; Watkins, 2013). Current onboarding strategies do not appear to have been designed with effective socialization plans.

According to Dai et al. (2011), 40% of newly hired onboarded executives resigned within the first 18 months due to the inability to make social connections with the existing culture. Additionally, Bradt (2010) considered transformational leadership skills a requirement for onboarding leadership socialization. For nontransformational leaders, rapport would take years of personal exchanges with the existing culture, possibly perpetuating crisis conditions.

The specific problem was that studies that tested rapport-building techniques did not use outcomes reflective of the relationship development necessary for leadership socialization and thus generated biased results and erroneous inferences (Campbell et al., 2003; Cohen & Kassis-Henderson, 2012; Miles, Nind, & Macrae, 2009; White et al., 2012). Rapport was considered a qualitative state and therefore, quantitatively testing the techniques aimed at increasing the phenomena became a challenge of finding an appositive metric. Metrics such as trust, good communication, politeness, and coordination were considered indicators of rapport but did not provide proper applicability in new leader socialization (Campbell et al., 2003; Fatima & Razzaque, 2014; Ho, 2014; White et al., 2012). Without quantifiable evidence of effectiveness, leadership social integration would be hit-and-miss. According to Dai et al. (2011), rapport-building techniques required effectiveness within the critical first 18 months to avoid derailment of the onboarding process costing additional time and resources. The outcomes derived from using the qualitative aspects of rapport did not provide quantifiable evidence critical for timely implementation. Additionally, rapport as a metric for social integration success did not represent the necessary elements of leadership

integration in which perceived commonality was affected at various levels including institutional logics.

Purpose of the Study

The purpose of this quantitative quasi-experimental study was to test MM, a dyadic communication enhancement tool previously tested qualitatively, as the coached intervening independent variable for its effects on homophily. Homophily, the tendency for people to associate disproportionately with others who share self-similar qualities (Aksoy, 2015; Alstott et al., 2014; Lee et al., 2016; Lozares et al., 2014; McCroskey et al., 2006; McPherson, Smith-Lovin, & Cook, 2001), was a more robust measure of the relationship link that developed between members and leaders. Utilizing PHM in measuring MM effectiveness was congruent with leader-member socialization focused on group agreement. Homophily was a term first coined by Lazarsfeld & Merton (1954) to represent the tendency to associate with others who were perceived to share physical and attitudinal commonalities. In later studies, PHM was considered the element that bonded groups through common visions and goals (Aksoy, 2015; Daw, Margolis, & Verdery, 2015; Flashman & Gambetta, 2014; Gerber, Henry, & Lubell, 2013; Grund & Densley, 2015; Lee et al., 2016). In other studies PHM was shown to be a more robust measure for group cohesiveness (Alstott et al., 2014; Fu et al., 2012; McCroskey et al., 2006; Smith, McPherson, & Smith-Lovin, 2014; Wang & Zhu, 2014). Thus, I proposed PHM as the dependent variable to measure MM effectiveness, the independent treatment variable, in leadership socialization strategies.

Significance of the Study

The use of PHM as a metric for the qualitative state of rapport was a significant consideration for companies unprepared to meet the challenges of the Leadership Succession Crisis. *Onboarding* activities in the past focused on managerial aspects of the leadership position (Bradt, 2010; Dai et al., 2011; Ndunguru, 2012), relying on a new leader's abilities to gain legitimacy with the existing followership through socialization in an effort to gain rapport with members. MM was an ideal communication tactic to test against PHM levels as it had shown marked improvements in communication in past studies (Hasson & Frith, 2016; Peterson & Limbu, 2009; Zahavi D. , 2012). The data that resulted could help researchers gain a better understanding of rapport-building techniques as outcomes of homophilous perceptions in onboarding socialization strategies. A quantitatively tested communication tool could be a more reliable approach to the problem of onboarding socialization. The new leader could apply the tested tactics to free up time to focus on the managerial aspects of the position so that the company would not suffer downtime as a result of the transition.

Creating perceptions of rapport, developing into trust and empathy was considered a transformational ability that progressive organizations often sought in leaders (Bacha & Walker, 2013; Bradt, 2010; Men, 2014). However, according to the leader-member exchange (LMX) theory leaders actively created two distinct groups of followers; the *ingroup* and *outgroup* (Kelley & Bisel, 2014; Viki, Abrams, & Winchester, 2013; White et al., 2012). The *ingroup* was associated with members that had developed trust and close mutual interaction with the leader, ergo rapport. *Outgroup* members

consisted of those followers that had a formal transactional relationship with the leader as the authority figure (Mead & Maner, 2012; Viki et al., 2013; White et al., 2012). The split was shown to create friction between members and stifle communication as a result of protectionism. The ability to increase *homophilous* perceptions may make it possible for existing leaders to thin and ultimately remove barriers that separate both LMX groups. As followership perceptions of commonality increase so can improvements in transformational communication across the entire organization, thus enhancing communication and possibly increasing productivity and morale.

Creating or enhancing homophilous perceptions could reduce the time it takes to garner the full support of a membership in a change initiative. Change initiatives have often been hit-and-miss endeavors with communication breaks and organizational turbulence (Băeşu & Bejinaru, 2013; Bareil, 2013; Choi, 2011). Matos, Marques ,Simoes and Esposito (2014) asserted that one-on-one dialectical communication rather than directive communication was more effective in overcoming resistance to change through "*sensemaking"* and "*sensegiving"* (p. 326). Dialectical communication inferred social exchanges through free expression in dyadic sessions (Parent & Lovelace, 2011; Ravangard et al., 2016). The ability to measure successful socialization efforts using PHM can make sensemaking and sensemaking in face-to-face exchanges a reliable way of altering perceptions that create a common understanding of the proposed changes, thus resulting in greater instances of group buy-in.

Homophilous perceptions were a vital element in social mobilization (Alstott et al., 2014; Golub & Jackson, 2012; Wang & Zhu, 2014). Social mobilization referred to

the phenomenon of social group engagement into self-determinant activities aimed at an immediate goal, such as organizing a search party. The phenomenon was associated with what Stout (2014) described as social unity; a means by which a society accomplished ends with a collective voice and impetus. Creating or enhancing homophilous perceptions may be an effective way of creating social action, such as the continued concerted efforts at averting planetary sustainability crises or any social change initiative.

Nature of the Study

Quantitative Research Method

A quantitative methodology was used in this study to examine the relationship between MM as an intervening treatment variable and increased PHM levels. A quantitative approach was necessary for this study since the objective was to determine a relationship that could be tested in future duplicated studies. Addressing the leadership socialization problem required the testing of communication tactics such as MM to show applicability in real world applications. The attitude homophily scale, a Likert-type scale, was used to test the effectiveness of MM processes with the resultant data analyzed to ascertain correlative relationships. Technological advancements in 3D imaging and algorithmic synchrony calculations for articulation rate measurements between the CC and the UC differentiated MM synchrony from natural synchronic tendencies.

A qualitative approach was not appropriate for this particular study since subjective considerations of rapport were germane to individual organizations and not measurably effective in leadership socialization events (Cohen & Kassis-Henderson, 2012; Driskell, Blickensderfer, & Salas, 2012; Ho, 2014). Additionally, correlative

observations were not consistent with a qualitative approach and could not provide duplicable data that would apply to the entire target demography. A mixed approach would also seek subjective affinity considerations between members regarding the candidates. Neither a qualitative nor a mixed approach could provide the appropriate data needed to test MM with PHM as the metric for rapport inception.

Research Design

A quasi-experimental, contrasted groups design was suitable for the data sought since generalization was essential for applications in leadership socialization and onboarding. Participants were assigned to groups based on functional association with the membership rather than by gender, age, or ethnic origin. The characteristics of each individual participant were used in the analysis to isolate covariate effects for MM analysis. A posttest only for each group provided data that was analyzed for testing the null hypotheses.

A time-series design was not appropriate for this study since the design would entail pretest and posttest results that required monitoring of differences over time (Ramseyer, Kupper, Caspar, Znoj, & Tschacher, 2014). Since onboarding introduced a new leader into an existing culture, pretesting for homophilous perceptions could not yield usable data. Additionally, the immediate expected outcomes of MM processes were significant features for applicability in leadership transition. The effects of the processes over time were outside the scope of this study. Nevertheless, future research may use the time-series design in testing ratio differences of homophilous perceptions before and after an existing leader undergoes MM coaching.

Primary Research Questions and Hypotheses

Frankfort-Nachmias and Nachmias (2008) described a research question as a structured scientific inquiry bound by the rules of scientific methodology. Subjective questions of taste, values or beliefs were outside the scope of scientific inquiry in empirical studies since validation confirming or rejecting the findings based on observation were impossible. Subjective preferences were only studied scientifically to ascertain the underlying motives for preferences. Empirically grounded research questions must be clearly defined and specific regarding the units of analysis that will be studied (Frankfort-Nachmias & Nachmias, 2008). The units of analysis were the variables of interest. In this study, MM represented the independent treatment variable and PHM represented the dependent variable.

The first part of the study was guided by the first research question (RQ1) querying a relationship between MM and elevated PHM levels. The second research question (RQ2) focused on whether elevated PHM levels predicted candidate choices. Candidate choices referred to the measured comfort level of each test participant regarding workplace association. The highly defined and specific questions guided the formulation of possible outcomes in the form of hypotheses as testable predictions.

A hypothesis is a tentative answer to a research question or a prediction of the outcomes from the interaction of independent and dependent variables (Field, 2013). Hypotheses are required to be clearly stated, specific, testable, and unbiased. In the first part of this study, the interaction of the treatment variable, MM, was either predicted to have no significant relationship or a significant one with elevated PHM levels. The null

hypothesis ($H_0$1) for RQ1 thus predicted no significant relationship between MM and elevated PHM levels. The alternative null hypothesis (H_a1) states that a significant relationship does exist between MM and elevated PHM levels. In the context of leadership succession, elevated PHM levels were predicted to influence the selection of candidate choices. Whereas, the null hypotheses ($H_0$2) in the second part of the study predicted no relationship between elevated PHM levels and candidate choices. The second alternate hypothesis (H_a2) predicted a relationship does exist between PHM levels and candidate choices.

RQ1: To what extent, if any, is there a relationship between the application of MM processes and elevated PHM levels?

$H_0$1: There is no significant relationship between the application of MM processses and elevated PHM levels.

H_a1: There is a significant relationship between the application of MM processes and elevated PHM levels.

RQ2: To what extent, if any, is there a relationship between elevated PHM levels and positive candidate choices?

$H_0$2: There is no significant relationship between elevated PHM levels and positive candidate choices.

H_a2: There is a significant relationship between elevated PHM levels and positive candidate choices.

Theoretical Framework

This study was associated with various views regarding social integration such as the social identity theory (Amiot & Aubin, 2013; Loi, Chan, & Lam, 2014; Slater, Coffee, Barker, & Evans, 2014); the similarity attraction paradigm (Gonzalez & Chakraborty, 2012; Michinov & Michinov, 2011; Montoya & Horton, 2013); the behavioral integration theory (Hall, Millings, & Bouças, 2012; Vigil & Venner, 2012; Özdemir & Ergun, 2015); the social presence theory (Mennecke, Triplett, Hassall, & Conde, 2010; Ning Shen, Yan Yu, & Khalifa, 2010; Wang & Wang, 2012), and; the leader-member exchange theory (Chan & Mak, 2012; Kelley & Bisel, 2014; Kim et al., 2010). These theories seemed to be aligned with various forms of duplication or synchrony that formed the basis for social bonding. Amiot and Aubin (2013) considered the social identity theory (SIT) the identity motivation for becoming associated with similar others, whether physical or idealistic. An organization or group was thus considered an alliance of individuals with common characteristics or ideals. Therefore, leadership socialization required a matching of these common characteristics with the existing culture to ensure legitimacy (Chung & Luo, 2013; Huy, Corley, & Kraatz, 2014). The concept was in line with the similarity-attraction paradigm that indicated that higher levels of similarity between people increased affinity and instances of harmonious action (Michinov & Michinov, 2011; Montoya & Horton, 2013; Sears & Holmvall, 2010). Sears and Holmvall (2010) believed that the phenomenon was a product of self-validating beliefs, suggesting that a higher level of trust would develop between interlocutors. Malik, Cooper-Thomas, and Zikic (2014) introduced a sub-theory of the similarity-

attraction paradigm, the behavioral integration theory that indicated that socialization was dependent upon attitude similarities between the existing culture and the new entrant. Other views regarding socialization were described in greater detail in the literature review.

The theoretical foundation of the present study posited MM as a creation of commonality perceptions differentiated by visual, auditory, and kinesthetic (VAK) tendencies (Bartkowiak, 2012; Leopold, 2012; Malouin, Richards, Jackson, & Lafleur, 2007). Bandler and Grinder (1976) theorized VAK tendencies to be relatively constant defining the proclivities as default modes of communication or what the researchers called a Personal Representational System (PRS) establishing the NLP theory. According to NLP theory, PRS categorized VAK tendencies to predict behaviors. People who spoke at a rapid pace were considered to have visual tendencies and thus exhibited verbal and nonverbal communication signals; an auditory person spoke more attuned to sound and correct pronunciation of words, and; a kinesthetic person spoke at a slower pace, often pausing between words (Bartkowiak, 2012; Sandhu, Reeves, & Portes, 1993; Wood, 2006). PRS theory was an attempt to predict human communication through observable tendencies.

Various aspects of PRS theory did not hold up to scientific inquiry and thus were excluded from the scope of the present study (Fromme & Daniell, 1984; Sharpley, 1987). In this study, the isolated techniques specific to mirroring processes were applied to varying situations regardless of PRS considerations. Although the *matching* of VAK sub-modes of communication were used in NLP sessions (Agness, 2011; Bartkowiak, 2012;

Wood, 2006), the methods were born from and continue to be studied by psychologists in attempting to improve communication with patients in clinical studies (Cummings, 2013; Ramseyer & Tschacher, 2011; Tschacher et al., 2014; Setter & Stojanovick, 2013). This study was more closely aligned with the clinical application of MM as it may apply to leadership socialization enhancements.

MM was the cognitive coordination of communication signals that often resulted in qualitative relationship improvements in past studies (Bartkowiak, 2012; Bashir & Ghani, 2012; Pishghadam, Shayesteh, & Shapoori, 2011). However, the quantitative approach to measuring MM effectiveness had not been explored. Past studies had associated the end phenomenon with rapport; a subjective measure of relationship cohesiveness, subject to qualitative studies (Cohen & Kassis-Henderson, 2012; Ho, 2014; Lakens & Stel, 2011). The current quantitative approach tested whether a significant relationship existed between MM and increased PHM levels. Homophily, the tendency for people to associate disproportionately with similar others, (Fu et al., 2012; Smith et al., 2014; Wang & Zhu, 2014) seemed to align more with socialization outcomes. Cognitive synchrony was more aligned with PHM than with rapport. Past studies considered homophily the base commonality in groups (Aksoy, 2015; Alstott et al., 2014; Atouba & Shumate, 2015; Collet & Philippe, 2014; Daw et al., 2015; Grund & Densley, 2015; Lee et al., 2016), thus aligning the metric with leadership socialization.

Definition of Terms

Homophily: "The tendency of individuals to associate disproportionately with others who are similar to themselves" (Golub & Jackson, 2012, p. 1288).

Inboarding: "A process that addresses the 'shoemakers children' syndrome, ensuring that appropriate guidance, coaching, and training (if necessary) is provided to all newly-promoted directors" (Kroh, 2012, p. 19).

Matching and mirroring: A communication tactic that involves cognitively mirroring the body positions and vocal pace of another in an effort to improve communication (Vázquez-Montilla, Reyes-Blanes, Hyun, & Brovelli, 2000).

Onboarding: "The practice of socializing new managers or executives as they enter a new organization" (Fursman, 2014, p. 12).

Perceived homophily measure (*PHM):* The resultant score from the attitude homophily scale designed to ascertain the level of commonality perceived (McCroskey, Richmond, & Daly, 1975).

Prosody: Audible, nonverbal signals that include intonation, stress, and speech rate (Setter & Stojanovick, 2013).

Scope of the Study

The scope of the study involved MM applied in leadership socialization strategies for onboarding, to test its effectiveness in creating or enhancing PHM in contrasted groups. MM was a coached technique attributed to rapport-building abilities in which verbal and nonverbal signals, rather than context, were used as cues for synchronization (Agness, 2011; Bartkowiak, 2012; Farley, 2014; Hurley, 2008; Jacob et al., 2011; Peterson & Limbu, 2009). The techniques will be discussed in greater detail in Chapter 2.

MM and natural tendencies were differentiated using Microsoft® Kinect® sensors, discussed in greater detail in Chapter 3. I was considered the MM-coached

candidate (CC) contrasted with a research participant as the uncoached candidate (UC). Participants met individually with candidates in a private, social, conversational environment, then assessed the candidate based on the attitude homophily scale (PHM), a Likert-type scale. The CC conducted MM processes during social conversation, synchronizing cues from each test participant. The UC relied on natural tendencies in social conversation. Following the conversation sessions, research participants answered the queries in the attitude homophily scale. The homophily scale was used to produce data to either reject or fail to reject the null hypothesis.

The sampling size analysis was conducted under the assumption that the commonality shared amongst group members, homophilized the group to varying degrees. In this study, sampling for the pilot study was based on a sample size analysis with a statistical power range at .95 (95%). This range provided a higher likelihood that the size of the samples selected produced a statistical probability of detecting a real effect. Additionally, this study utilized the conventional measure for alpha at .05 to increase the opportunities for rejecting the null hypotheses. The effect size for the pilot study was set at .704 as determined in Pishdghadam, et al. (2011) who conducted communication studies using similar techniques between students and teachers. Using a t-test for two independent samples, the estimated total sample size of 16 was shown to be adequate in the pilot study. A total of 24 Midwestern State University (MWSU) students and faculty per group were recruited to participate in the pilot study.

Assumptions of the Study

Field (2013) considered assumptions a necessary element related to the quality of the framework in which a study is constructed. The accuracy of conclusions was dependent upon the assumptions made about the data collected. The assumptions for an analysis of covariance (ANCOVA) reduced within-group error variance and eliminated confounds in the experiment (Karp, Segonds-Pichon, Gerdin, Ramirez-Solis, & White, 2012). Reducing within-group error variance allowed a more accurate assessment of the effects of the independent treatment variable (MM) upon the dependent variable (PHM). Additionally, this minimized confounds by isolating the effects of MM processes from the independent covariates of age, gender, ethnicity, height, weight, glasses, hobbies, and professions.

The first four assumptions for using ANCOVA were: (a) the dependent variable must be continuous, (b) the independent variable must be categorical and independent with two or more independent groups, (c) covariate variables must also be continuous, and (d) observations must be independent. All four assumptions were fulfilled with PHM as a continuous dependent variable; MM as a categorical independent variable with control and test groups; and all other covariates were continuous variables that were either perceived as homophilous or not. The fourth assumption was that observations from test participants were independent. In the context of this study, test participant responses were not influenced by other test participants or outside influences. Participants were not allowed to confer with one another on the personal perception of candidates. Each individual participant privately completed the attitude homophily scale. If test

participants were allowed to confer on the answers given, the fourth assumption would be violated.

The fifth assumption within this statistical family of assumptions was that the covariates needed to be linearly related to the dependent variable at each level of the independent variable. To test the assumption, it was necessary to create a scatterplot of the dependent variable against all the covariates. Linearity was confirmed by visual inspection of the scatterplots.

The sixth assumption ensured no interaction between the covariates and the independent variable. This assumption fulfillment was determined running interaction terms for each covariate in SPSS. All covariates were not statistically significant to the dependent variable thus fulfilling the sixth assumption.

The seventh assumption required the dependent variable to be approximately normally distributed for each group of the independent variable. The assumption of normality was necessary for statistical significance although ANCOVA was considered robust to violations of normality. The Shapiro-Wilk test was an appropriate test for normality since the sample size was smaller than 50 participants. Standardized residuals for PHM were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$).

The eighth assumption for a one-way ANCOVA was that the data had to have homoscedasticity of error variance within each and between groups. This assumption was checked by creating a scatterplot in SPSS of the standardized residuals against the predicted values, paneled by the groups. There was homoscedasticity, as assessed by visual inspection of the standardized residuals plotted against the predicted values.

The ninth assumption for a one-way ANCOVA was that variances of the residuals were equal for all groups of the independent variable. Unequal variances can affect Type I error rates. The assumption of homogeneity of variances was tested using Levene's test of equality of variances. In this analysis the variance of the standardized residuals were equal for both groups. Thus, there was homogeneity of variances, as assessed by Levene's test of homogeneity of variance (p = .123).

The tenth assumption states that there should be no significant outliers in the groups of the independent variable in terms of the dependent variable. Outliers are scores that are unusual in either group in that their value was extremely small or large compared to the other scores. Outliers are more important to consider with small samples. Outliers are tested by observing the standardized residuals for scores greater than ±3 standard deviations. There were no outliers in the data, as assessed by no cases with standardized residuals greater than ±3 standard deviations.

The final assumption was a general consideration regarding the reliability of the responses given by test participants and the reliability of the attitude homophily scale. It was assumed that test participants answered homophily scale queries truthfully and accurately. The veracity of the findings was highly dependent upon this assumption. The reliability of the source of any data involved relevance and truthfulness (Pichon, Dubois, & Denœux, 2012). In this study, deception was not advantageous to research participants and was therefore assumed to have no effect upon the veracity of the responses. Additionally, the demographic composition of the sample; adults of average intelligence with the ability to function in a social environment was believed to further increase the

reliability of the answers given. The reliability of the scale ($\alpha = .886$) was comparable to measures conducted in earlier studies. Additionally, the split-half method and Cronbach's alpha strengthened reliability measures in this study.

Limitations to the Study

The original concerns regarding external validity due to a proposed mock recruiting tactic that involved the assistance of organizational membership, was not pursued due to a change in community partners. The original community partner, Jimmy Cleveland Nissan, underwent management changes disallowing the study at the location. The new location, Workforce Solutions of Texas, allowed for testing that was similar to the pilot study.

Although the internal reliability of the attitude homophily scale was confirmed in past research it was not used as extensively as attraction scales in measuring communication interactions in past studies, possibly due to continued interest in the correlation between communication and attraction (Baruh & Cemalcilar, 2015; Croes, Antheunis, Schouten, & Krahmer, 2016; McCroskey et al., 2006; Myers & Huebner, 2011; Skvoretz, 2013). However, since homophily scales had been used limitedly to observe communication context or behavior, the scales were tested for internal reliability in this study as well.

PHM was assumed to be affected by various other stimuli besides MM processes. For example, age, gender, ethnicity, height, glasses, hobbies and professions were also expected to affect PHM levels. Most covariates, except for hobbies and professions, were conspicuous and were used to identify the strength of the effect that MM had upon PHM.

Nevertheless, the covariates did not take into account mannerisms and personality differences between the candidates. Using a CC and a UC was a limitation that weakened the study. Observing human behavior quantitatively using a few proclivities could not account for all subjective behaviors that may have affected PHM levels as well. I accepted the limitation to account for applicability in a leadership socialization platform using two possible candidates. The data harvested from this study was analyzed statistically with an analysis of covariance (ANCOVA) isolating MM from the conspicuous and conversation content covariates to analyze its effect on PHM levels.

Delimitations of the Study

Perceptual commonalities between candidates were a necessary element in this test. The UC was matched as closely as possible with the CC based on conspicuous characteristics such as comparable age, gender, ethnicity, height, and glasses. Participants in each group were randomized, providing the structure necessary to test MM effectiveness. Group convergence was outside the scope of this study and was only analyzed through individual test participants using regression analysis. The homophilous covariates of conspicuous characteristics were partialed out to isolate and observe MM effects by inserting it as a fixed variable.

The verbal and non-verbal interactions between the CC or UC and research participants were a significant consideration for all phases of this study. MM was differentiated between CC and UC to observe any possible relationship with homophilous perceptions in both categorical groups. Differentiation was established using Microsoft® Kinect® sensors as in Won, Bailenson, Stathatos, and Wenqing (2014). However, the

calculation of joint-angle synchrony was simplified with Vitruvius ® software. Rate of speech (ROS) synchrony was calculated in a similar way using specialized software developed by linguistic scientists at the University of Amsterdam (Boersma, 2002; De Jong & Wempe, 2009). The posttest, the attitude homophily scale, measured PHM levels after social contact with either the CC or UC.

Summary

MM was tested for its effectiveness in increasing homophilous perceptions PHM for possible application in onboarding leadership socialization strategies. The significance of the study was linked to the Leadership Succession Crisis due to expected increases in onboarding strategies. The demographic shift was expected to have a significant impact upon national and global organizations with retiring leadership positions. Historically, onboarded non-transformational leaders have faced significant challenges in creating commonality bonds necessary for the change event (Cairns, 2011; Chung & Luo, 2013; Lund & Thomas, 2012). The problem could multiply as an increasing number of leadership positions become vacant, making new leadership socialization a global imperative.

Communication and socialization in leadership succession have been approached by various methods, most of which have relied upon a new leader's ability to build social capital in the existing membership (Bradt, 2010; Korte & Lin, 2013; Lange, 2014). Minimizing the importance of socialization resulted in unpredictable outcomes due to varying social skills trained or inherent in the new leader (Ellis, et al., 2015; Korte & Lin, 2013; Nihal Colakoglu & Gokus, 2015; Özdemir & Ergun, 2015; Perrot, et al., 2014;

Smith, Gillespie, Callan, & Fitzsimmons, 2016; van der Werf & Buckley, 2014). The approach to socialization for successful leadership integration required transformational communication; a quality not inherent in all leaders (Felfe & Schyns, 2010; Hansbrough, 2012; Levine, Muenchen, & Brooks, 2010) and thus not expected to be prevalent during the Leadership Succession Crisis.

Felfe and Schyns (2010) revealed the similarity-attraction hypothesis as the possible underlying factor of the relationship created by transformational leaders, indicating that the phenomenon of transformational communication was defined by the homophilous perceptions. Understanding outcomes in leadership socialization as methods for creating homophilous perceptions aligned efforts with group convergence. MM served as an appositive treatment variable, hypothesized to increase PHM levels in crisis conditions. However, to fully understand this study and its possible impact on leadership socialization and transition it was necessary to review the literature encompassing past efforts and shortcomings; the science of MM processes, and; the significance of homophily as a metric for rapport. The synthesis of the mechanics, science, and metrics of this new approach to leadership socialization laid the foundation for this study and possibly opened the door to future studies into social capital enhancement using tactical communication methods with homophily as the metric of effectiveness.

Chapter 2: Literature Review

To understand the current macroenvironment regarding leadership socialization and the urgency for quantitatively testing rapport-building tools, a full review of the literature regarding these topics was necessary. The academic literature was replete with research regarding the Baby Boom (Feyrer, 2011; Gibaldi, 2014; Macunovich, 2012; Redlitz, 2013; Reester Jr., 2008; Van Bavel & Reher, 2013), the presaged leadership succession crisis (Cairns, 2011; Chung & Luo, 2013; Groves, 2010; Valentine, 2011), leadership socialization (Korte, 2010; Korte & Lin, 2013; Korte et al., 2015; Lapointe, Vandeberghe, & Boudrias, 2014; Nihal Colakoglu & Gokus, 2015; Özdemir & Ergun, 2015; Perrot et al., 2014), homophily (Aguiar & Parravano, 2015; Aksoy, 2015; Alstott et al., 2014; Atouba & Shumate, 2015; Collet & Philippe, 2014; Daw et al., 2015; Flashman & Gambetta, 2014; Fu et al., 2012; McCroskey et al., 2006), and MM (Avanzino, et al., 2015; Budell, Jackson, & Rainville, 2010; Budell, Kunz, Jackson, & Rainville, 2015; Hasson & Frith, 2016; Hurley, 2008; Jacob et al., 2011; McGarry & Russo, 2011; Peterson & Limbu, 2009; Zahavi, 2012). The preceding topics in the literature, however, had distinct focal points. The goal of this literature review was to lay the foundation of the study by examining the focal points and to logically synthesize a theory based on the relationship between MM and increased PHM.

Title Searches, Articles, Research Documents, and Journals

The Walden University online library provided much of the data for the literature review via ABI/INFORMS Complete, ProQuest, EBSCOhost, Thoreau, Sage Premier, Business Source Complete, PsycARTICLES, PsycInfo, Emerald Management,

Communication and Mass Media Complete, and Google Scholar. Keyword searches varied as the literature research developed. They included: *onboarding, leadership succession, neurolinguistic programming, rapport,* homophily*, resistance to change, new employee socialization, socialization, acculturation, leadership development, group cohesiveness, sensegiving, sensetaking, group unity, group cohesion, business continuity, institutional logics, embodiments, LMX, communication, prosociality, brain drain, social capital, empathy", apprenticeships, mirror neurons, social identity theory, mirroring, similarity-attraction paradigm, trust, affinity, convergence, social distance, dialogue, transformational leadership, organizational identity, visual, auditory, and kinesthetic, prosody, social presence theory, mirror neuron theory, interactive alignment, group reality,* and *self-focused.*

Google Scholar was used as a topic search engine for availability in the Walden University library. If keywords returned a substantial amount of articles, the search was then conducted in the library in various journals depending on the topic. Additionally, Google Scholar was used as an article-finder to locate items not available in the Walden University library. Every attempt was made to recover articles that were unavailable by contacting library personnel. In many instances, the articles were not peer-reviewed and thus discarded and new searches were conducted on the same topic. The following literature review represents the findings from the research.

Baby Boom Historical Chronology

The Baby Boom was considered to be the most significant demographic event of the twentieth century marked by a substantial increase in births. Gibaldi's (2014) fertility

recuperation hypothesis that attributed the growth to a sudden increase in marriages and pregnancies after the war could be rejected due to the significant spike that occurred between 1950 and 1960, making the phenomenon a prolonged trend rather than a short-term recovery (Van Bavel & Reher, 2013). Regardless of the reasons for the CBR increase, the trend impacted every industry with an inundation of new workforce candidates in later years. By the mid-1960s, early Baby Boomers were entering the workforce creating a significant influx and increasing markedly during the 1970s and 1980s (Macunovich, 2012). Feyrer (2011) correlated the increase in Baby Boomer workforce participation with long-term trends of workforce engagement, increased unemployment, and wage reductions. It is possible that the supply increase in the Baby Boomer workforce created a demand deficiency and thus a reduction in wages.

Baby Boomers were competing for leadership positions in the 1990s as a result of an overabundance of qualified managers (Arora, 2003; Roberts, 2012; Van Bavel & Reher, 2013). The inundation of skilled managers brought about a hiring and training freeze possibly causing the job recession of the era (Arora, 2003). The resultant shortage of middle managers likely negated candidates for future leadership training in succession planning today. Those who succeeded to leadership positions began to reach retirement age in the early 2000s. According to Hagemann and Stroope (2013), between 2016 and 2020, one Baby Boomer every eight seconds would reach retirement age. However, reaching retirement age did not presuppose the act of retirement since attitudes about retirement were dictated by cohort characteristics and economic conditions (Hagemann & Stroope, 2013; Roberts, 2012). Nevertheless, whether the decision to retire came at the

age of retirement or ten years from that date, the enormity of the Baby Boomer retirement trend is likely to create crisis conditions due to its volume and longevity.

Socioeconomic impact. Economic decline marked the entrance of the Baby Boomers into the global workforce. Feyrer (2011) attributed a 20% national decline to the influx of Baby Boomers during the 1970s. It was plausible to attribute the decline to less experienced Baby Boomers replacing experienced managers and thus unable to maintain production at the previous levels. The entry of the Baby Boomer workforce also corresponded with decreasing management quality between 1960 and 1980, then rising as Baby Boomers gained experience and management acumen (Macunovich, 2012; Roberts, 2012; Van Bavel & Reher, 2013). The enormity of the cohort group was felt globally as more inexperienced Baby Boomers overtook workforce populations. Roberts (2012) estimated that European countries experienced an economic decline from an annual growth rate of 4.06% between 1950 and 1973 to 1.86% annually during the influx. The U.S. experienced a comparable decline during the same period. Predictions of economic decline were not unfounded when viewed through a systemic lens (Roberts, 2012). Generational and cultural differences as younger, less experienced managers entered the workforce seemed to cause breaks in communication and thus interrupt necessary exchange flows in the absence of an intervention measure.

Workplace socialization. Early socialization efforts seemed to be aimed at acclimating new workers to an existing working environment with the goal of maintaining communication lines to facilitate expedient productivity (Macunovich, 2012; Roberts, 2012; Van Bavel & Reher, 2013). The mass influx of Baby Boomers into the

workforce in the 1960s and 1970s necessitated mass socialization strategies meant to facilitate newcomer adjustment. Orientation sessions covered training, policy overviews, acclimation to company values, alignment of mission objectives, and social politics (Macunovich, 2012; Simosi, 2010; Van Maanen, 1978). The strategies were framed based on task-related training, allowing *laissez-faire* approaches to socialization. Thus, orientation sessions were primarily meant to teach newcomers the skills necessary to become productive members of the organization. The *laissez-faire* approach to socialization allowed the natural formation of ingroups and outgroups, making the informal process a probable challenge for newcomers seeking to establish links with workgroups or departments.

Socializing a newcomer had the underlying purpose of creating a productive member who developed a certain level of commitment to the organization through social contact with leaders and coworkers (Ma, Qu, & Wilson, 2016; Simosi, 2010; Pradhan & Pradhan, 2015). Simosi (2010) associated affective attitudes towards a new job with socialization in which organization-related rather than task-related communication was considered of equal importance. Organizational commitment reflected the attachment level the newcomer developed with the organization (Mercurio, 2015; Vandenberghe, Mignonac, & Manville, 2015). According to the Meyer and Allen (1991) construct, the three levels of employee commitment were affective, normative, and continuous (Jaros, 1997; Mercurio, 2015; Stazyk, Pandey, & Wright, 2011). The levels described the attachment motivation an organizational member assumed based on personal viewpoints. Affective commitment was the emotional attachment a newcomer associated with staying

in or leaving a new job (Ma et al., 2016). Continuous commitment involved fiscal considerations associated with staying or leaving the job (Srivastava, 2013), and normative commitment referred to the ongoing commitment that came from duty (Vandenberghe et al., 2015). Vandenberghe et al. (2015) found that normative commitment was more detrimental to the individual and organization in well-being and performance.

In the context of commitment, socialization was more closely related to affective rather than to continuous or normative commitment (Khasawneh, Aieman, & Abu-Tineh, 2012; Ma et al., 2016; Pradhan & Pradhan, 2015). Khasawneh et al. (2012) found that transformational leadership enhanced affective commitment within the organizational membership. Pradhan and Pradhan (2015) concluded that the affective commitment to the organization was agreed upon based on emotion rather than logical reasoning. Affective commitment could thus be considered an emotional attachment to the organization based on positivity and coordination.

The Leadership Succession Crisis

The Baby Boom retirement phase could have as great a socioeconomic impact as the entrance period by way of disruptions, costly turnovers, and production lags (Carman et al., 2010; Lund & Thomas, 2012; Macunovich, 2012; Roberts, 2012; Watkins, 2013). The literature abounded with articles showing concern regarding the detrimental effects upon a great many ill-prepared companies and an already fragile economy (Ballinger, Lehman, & Schoorman, 2010; Cairns, 2011; Carman et al., 2010; Dai et al., 2011; Lund & Thomas, 2012; Macunovich, 2012; Redlitz, 2013; Roberts, 2012; Watkins, 2013).

Despite the efforts at government regulation of succession planning, approximately 50% of U.S. companies continued to lack a clear plan (Cairns, 2011; Carman et al., 2010). Succession planning was expected to provide direction to mitigate the risks involved in leadership integration including socialization. However, the sheer number of Baby Boomer cohorts reaching retirement age, when compared to the available Generation X cohorts, could negate the efforts with a shortage of leadership candidates.

Generation X cohorts acquired the experience and knowledge required to lead, but according to Reester Jr. (2008), the CBR left only 9.7 million qualified cohorts during a critical retirement phase. The implications were that less than 10 million experienced and knowledgeable cohorts were expected to replace more than 40 million experienced Baby Boomers retiring in the coming decade. Dramatic increases in CBR from Generation Y would not be felt for years. The Baby Boom exodus is likely impacting the U.S. economy and thousands of companies in every industry many of which will be lacking the leadership capacity to maintain status quo, let alone seek competitive strategies.

Brain drain and knowledge transfer. The leadership succession crisis should not be considered a problem of upper echelon management, but a systemic problem. Leadership was not synonymous with management and was not the result of a bestowed-upon title, but occurred at every level of an organization, conferred upon by its members (Kaiser, Lindberg McGinnis, & Overfield, 2012; Nagarajan & Jiji, 2010; Zacher, Rosing, Henning, & Frese, 2011). Baby Boomers currently occupy many management positions, but those without a title have acquired years of experience and knowledge, leading from within organizations as opinion leaders.

Professionalism, life experience, knowledge, and social skills are considered the benefits of aging that reflect in the work environment. Baby Boomers have reached the pinnacle of experience and knowledge as they approach retirement age raising concerns regarding brain drain (Carrington, 2013; Docquier & Rapoport, 2012; Redlitz, 2013). Brain drain was a term used to describe the exodus of knowledge from countries in which experienced and educated citizens became expatriates as a result of globalization. Redlitz (2013) identified the problem of brain drain within the Baby Boomer retirement phase as executives and knowledgeable employees left the workforce. The transfer of knowledge would either be handled through a well-designed knowledge management system or the result of effective socialization. Organizations could suffer greater losses than those suffered from failed leadership retention if steps are not taken to transfer knowledge that was often guarded in the workplace.

Social capital drain. The loss of social capital is another area of concern that has not been fully explored in the literature for its impact upon an organization. When considering the salience of social capital, its loss would have a wider spherical impact upon internal and external environments. The concept of social capital placed value on the social ties that were supposedly created over time and developed into good working relationships through the development of rapport with internal and external terminals (Hollenbeck & Jamieson, 2015; Tacon, 2016; Tantardini & Kroll, 2016). External terminals included vendors and clients that relied on the social relationships established between organizations. Tantardini and Kroll (2016) identified social capital as a bi-dimensional concept; organizational social capital and community social capital.

Organizational social capital referred to the connections made between people within an organization through reciprocity and trust. Community social capital was the social connections made with individuals outside the organization that also developed through reciprocity and trust.

Nilsson et al. (2012) identified social capital drain in agricultural cooperatives where the exodus of cooperative members significantly affected fiscal strength. Agricultural cooperatives relied on social capital more heavily since principals had a hands-on strategy of operation. Wang, Zhan, McCune, and Truxillo (2011) predicted social capital drain in the Baby Boomer retirement phase as a result of communication breaks that could stall operations due to personality clashes and uncertainty newcomer stress. Abrams, et al. (2014) concluded that personality and social clashes were significant challenges newcomers would have to face in attempting to integrate with an existing group. Socialization thus became a more significant consideration with leadership integration and transition strategies. Additionally, the socialization processes could take years to develop unless every newcomer possessed transformational leadership qualities; an implausible proposition.

Socialization

Mass socialization of newcomers during the Baby Boom *invasion* set the foundation for continued institutional, *laissez-faire* approaches to socialization. Orientation sessions were focused on teaching newcomers the skills necessary to become productive members of the organization and allowed the natural selection of social interaction be the basis for rapport with existing members (Buoziute-Rafanaviciene,

Sarapovas, & Barsauskas, 2011; Ellis, et al., 2015; Korte & Lin, 2013). The primary concern for leaders in organizations was production in the shortest time. Abrams, et al. (2014) identified personality differences and political ingroup embeddedness in the *laissez-faire* approach to socialization often resulting in cliquish behavior. Conversely, Korte and Lin (2013) attributed production increases to newcomers that established social relationships quickly with group members and a performance deficiency in the newcomers that struggled with making connections. Thus, socialization should be a critical consideration with newcomer orientation.

The process of natural selection in socialization resulted in the establishment of varying social relationships with distinct group members. The LMX theory explained ingroup and outgroup member formations based on commonalities shared amongst each group (Kelley & Bisel, 2014; Kim et al., 2010; Venkataramani, Labianca, & Grosser, 2013). Ingroup formations were directly linked to homophily*;* the tendency to associate with others that were perceived to share commonalities or similarities with themselves in some way (Fu et al., 2012; Kim, 2015; Smith et al., 2014). The concept of homophily will be discussed in greater detail later in this chapter.

As a result of positive interaction with a leader, some members adopted positive attitudes and increased levels of production, thus becoming ingroup members (Abrams et al., 2014; Mead & Maner, 2012; Viki et al., 2013). Outgroup member communication was more formal and task-oriented that often led to poor performance (der Schalk, et al., 2011; Viki et al., 2013; Malangwasira, 2013). In the context of a new leader entering an existing membership structure, reactions from previous leadership ingroup and outgroup

members would likely vary based on the uncertainty of the transition, possibly reversing the adjustment role from newcomer to organizational member.

Leadership Socialization Strategies

Leadership socialization contrasted with employee socialization and orientation in perceptual evaluations and expected outcomes. Employee socialization and orientation focused on removing newcomer uncertainty (Boswell, Shipp, Payne, & Culberton, 2009; Ellis, et al., 2015; Perrot, et al., 2014). A new employee had to adjust to a social and work environment with little change expected; the new leader had to adjust an environment through social interaction and communication to introduce change. The necessary sensegiving and sensemaking sessions a new leader underwent, were considered critical issues of communication during acclimation (Kelley & Bisel, 2014; Maitlis, Vogus, & Lawrence, 2013; Minei, 2015). Thus, removing uncertainty was considered the sensemaking phase of leadership socialization for the leader and sensegiving was the interpreted direction to organizational members.

Sensemaking and sensemaking were challenging processes possibly resulting from identity threats and a mismatching of core values and beliefs (Chung & Luo, 2013; Nihal Colakoglu & Gokus, 2015; Valentine, 2011). The processes proposed for accomplishing the process by past researchers have not shown quantitative evidence of effectiveness (Buoziute-Rafanaviciene et al., 2011; Ellis, et al., 2015; Kim et al., 2010; Korte, 2010; Perrot, et al., 2014; Scott, Motes, & Irving, 2012; Simosi, 2010). The studies have nevertheless advanced data that can be synthesized for testing the effectiveness of specific integration processes. A recurring underlying theme in the literature was an

emphasis on social interaction as a significant factor to successful integration (Ellis, et al., 2015; Nihal Colakoglu & Gokus, 2015; Özdemir & Ergun, 2015). Garnering social acceptance from the existing membership through the development of trust was a significant expectation outcome from the sensemaking and sensemaking phases of socialization.

The general foci of employee socialization was orientation and adjustment to existing norms while leadership socialization, strategy and socialization. Adopting a *laissez-faire* approach to leadership socialization had not been effective evidenced by a 40% quit ratio of newly hired executives within the first 18 months (Ballinger et al., 2010; Carman et al., 2010; Dai et al., 2011; Kelley & Bisel, 2014; Maitlis et al., 2013). The approach seemed to negate the concept of social capital as a significant asset of an organization. The concept of social capital introduced the idea that the relationships formed between an organizational leader and internal and external social contacts had intrinsic value for the organization and its members (Korte & Lin, 2013; Lange, 2014; Seok-Woo & Adler, 2014). The ability to gain social capital with the existing membership could be considered closely tied to transformational leadership.

Onboarding and Inboarding

Organizational social capital is a significant consideration when a newcomer leader comes onboard into an existing organization. Onboarding referred to the strategy of seeking candidates from outside the organization to succeed a retiring leader (Bradt, 2010; Dai et al., 2012). Inboarding referred to the strategy of training and honing candidates from within an organization (Baldi, Brüggemann-Borck, & Schlaak, 2014;

Kroh, 2012; Mrkvicka, 2014). An onboarding leader was required to establish working relationships with communication terminals to gain acceptance and eventually increase social capital through socialization tactics (Dai et al., 2011; Fursman, 2014; Ndunguru, 2012). Early transitioning Baby Boomers were often promoted through inboarding. However, emerging markets and globalization began to change institutional logics regarding the benefits derived from onboarding (Chung & Luo, 2013; Ndunguru, 2012; Olcott, 2010). The adopted strategies were dependent upon the institutional logics of the existing organizational structure. If the membership wished to maintain the status quo, a new leader was honed and trained from within the organization. Changing direction and adapting to emerging business environments, however, possibly influenced the current onboarding trend.

Inboarding. The process of *inboarding* became a part of the organizational structure that maintained the status quo through a carefully planned process requiring significant investments of time and resources (Baldi et al., 2014; Hogarth & Gambin, 2014; Kroh, 2012; Mrkvicka, 2014). The recruiting practice of *inboarding* can best be described as an ongoing apprenticeship program designed to train and hone future leaders. Kroh (2012) defended inboarding as a practical approach to leadership succession that was inexpensive yet required organizational input and support through mentoring programs. *Inboarding* programs were designed to support leadership transition using a structured framework outlining the steps to a successful outcome. As in apprenticeship programs, inboarding constituted the basic framework for uncertainty reduction through training (Kroh, 2012; Sinkin & Putney, 2015). Inboarding strategies

were likely used with the presupposition that an organization should focus on a continuance of ongoing goals and visions despite the transition. Maintaining goals and visions in the midst of global competition and emerging markets, however, may stifle growth. A global economy, deregulation and increased competition formed the institutional logic that organizations would realize more benefits from hiring an outside leader (Chung & Luo, 2013; Dai et al., 2011; Ndunguru, 2012). Thus, an onboarded leader could bring in fresh new ideas and move the organization into global competition.

Perceptions that promote *onboarding* may affect stock valuation but not the actual effectiveness of a leader. The true quality of a leader is dependent upon followership perceptions of effectiveness as is evident in the group coordination theory of leadership (Belz, Pyritz, & Boos, 2013; Cavagna, et al., 2010; Kaiser & Curphy, 2013). The group coordination theory was evident in Cavagna, et al. (2010) in which observed animal behavior revealed that group collective decisions that enhanced survival were decided upon by the group rather than by an alpha male leader. Belz, Pyritz, and Boos (2013) compared the universal social behavior of flocking found in the animal kingdom to the group coordination theory that focused on the group as a coordinating instrument rather than the leader/follower concept.

Humans seemed to imitate the animal behavior of flocking spontaneously rather than just when they were instructed to do so. Thus, it would be erroneous to presuppose that leadership occurred in a leadership dominance bubble in which organizational members blindly played follow-the-leader. The purpose of leadership in the context of the group coordination theory would thus be to maintain good communication lines with

existing terminals as the isolated leadership function (Kaiser & Curphy, 2013). Leadership effectiveness is dependent upon followership perceptions of effectiveness.

Leaders who succeeded to a leadership position through inboarding may have had pre-established social connections and thus removed much of the uncertainty for the new position. Corner (2014) found that organizations that could create leaders solidified organizational competitiveness and thus emanated an image of knowledge retention and sound institutional logics. Sound institutional logics seemed congruous with the direction of the organization and thus possibly affecting global competitive value. Although the implementation of internal leadership development programs conveyed a progressive message of stability to world markets, market valuations appear to favor leadership onboarding.

Onboarding. Onboarding was the practice of seeking candidates from outside an organization in an effort to accomplish specific strategic goals or to replace a retiring leader (Bradt, 2010; Dai et al., 2011; Minnick, et al., 2014; Ndunguru, 2012; Tonello, 2013; Watkins, 2013). Global competitive markets have prompted onboarding as a more progressive and adaptable strategy that resulted in favorable stock market reactions in the past (Cheung & Jackson, 2012; Dai et al., 2011; Jung, 2014). The strategy may have been sound for short-term stock valuation increases, but the process had been fraught with social challenges when a new leader was not transformational (Cheung & Jackson, 2012; Trahms, Ndofor, & Sirmon, 2013; Tonello, 2013). Short-term gains were not reflective of true strategic functionality in gaining organizational strength. Short-term capital gains at the expense of long-term stability may promote social capital devaluation. The *laissez-*

faire approach to onboarding required the leader's inherent or trained ability of establishing good working relationships with the existing members while pursuing organizational goals (Chung & Luo, 2013; Jung, 2014). The demands of change management and socialization without the necessary transformational tools often resulted in derailment of the onboarding process (Ballinger et al., 2010; Balser & Carmin, 2009; Cairns, 2011; Chung & Luo, 2013; Dai et al., 2011; Tonello, 2013). Thus the short-term advantages of onboarding must be coupled with the long-term benefits of socialization to maintain legitimacy and function.

Onboarding to fill an employee slot can be distinguished from onboarding a leadership position. An employee entered an existing culture expecting to adjust to the ongoing activities and social norms. An onboarding leader entered an existing organization with membership perceived, anticipated change. Huy et al. (2014) explained the dangers of membership reactions to radical change such as leadership onboarding that placed a new leader in the midst of membership perceptions of expected change. If the departing leader was charismatic and the new leader non-transformational the problem could be worsened due to a natural tendency in the membership to resist change (Bareil, 2013; Levay, 2010; Matos Marques Simoes & Esposito, 2014). Bareil (2013) observed a paradigm shift of resistance to change in a leadership transition environment by showing the act of opposition as an opportunity for dealing with resistance through communication. However, Huy et al. (2014) concluded that directive communication was not effective in onboarding leadership transitional efforts since the resistance to change would outweigh the perceived benefits. Bradt (2010) had suggested that an onboarding

leader had to possess the particular transformational ability of altering group perceptions. Group perception alteration was a transformational trait that made a drastic change event more manageable and prevented costly turn overs.

Altering group social perceptions means having the ability to create social relationships with a multitude of personalities. Simosi (2010) coined the term, *social socialization* to emphasize the necessary elements of onboarding strategies that involved the particular efforts and methodology of establishing social relationships with the existing group. Followership perceptions were antecedents of leadership effectiveness and directly related to the level of commitment a leader or a follower had toward the group (Bacha & Walker, 2013; Černe, Dimovski, Marič, Penger, & Škerlavaj, 2014; Felfe & Schyns, 2010; Hansbrough, 2012). Past onboarding strategies focused on productivity in the shortest time and thus approached socialization in a *laissez-faire* fashion (Bradt, 2010; Buoziute-Rafanaviciene et al., 2011; Dai et al., 2011). Relying on the inherent social skills of the new leader led Bradt (2010) to consider onboarding an act of transformational leadership (Graybill et al., 2013). The onboarding steps that led to full integration were considered stages aimed at creating a common purpose between the new leader and the followership. The new leader's ability to lead, inspire, and enable others toward a shared purpose seemed to be necessary for leadership socialization. Thus, an onboarding leader that could successfully alter perceptions of group solidarity would be better able to integrate successfully.

Effective onboarding strategies appeared to be aligned with the particular transformational leadership ability of establishing or creating *rapport* with the existing

organization. Watkins (2013) developed a socialization framework for success in onboarding programs that focused on the efforts of individual new leaders; attributing strengths and weaknesses as they manifested in role interactions with the membership. A failing new leader was the result of misunderstood role demands and thus resulted in an inability to adapt to those needs. The particular framework focused on indispensable tasks that were aimed at accelerating the leadership transition whether to realign the existing organizational direction or if the outcome sought was a turnaround (Watkins, 2013). If the company sought a strategic turnaround, the added challenge of attempting to realign the existing social structure could derail the process if the new leader was not able to establish *rapport* with the membership (Ahmed, Shields, White, & Wilbert, 2010; Ho, 2014; White et al., 2012). If the company sought a realignment of business goals, the new leader would inevitably be challenged in attempting to tap into the existing knowledge pool. In either case, the necessity to make social connections and build leadership teams further necessitated transformational abilities as Bradt (2010) identified. The essential elements of the onboarding stages that include: learning the structure of the organization, strategizing, building teams, shifting mindsets, and gaining support from the existing membership presume leadership transformational abilities.

Opinion leaders and onboarding. Gaining support of an existing membership may appear to be an overwhelming task when considering the social standing given to select members. Opinion leaders were shown to alter group attitudes in various change initiatives (Holt & Ryan, 2012; Kaiser et al., 2012), that often directed member perceptions to accept or reject a new leader. Since opinion leaders seemed to orchestrate

the acceptability of a new leader, to be successful in the new position, a new leader necessarily opened communication lines with opinion leaders (Holt & Ryan, 2012; Kashima, 2016; Loeper, Steiner, & Stewart, 2014). Thus, gaining the social acceptance of opinion leaders could be a necessary element in leadership onboarding.

Facets of Leadership Socialization

Bringing a new leader into alignment with organizational goals should be approached bi-dimensionally; socialization combined with institutional logics (Besharov & Smith, 2014; Currie & Spyridonidis, 2016; Huy et al., 2014; Lammers, 2011; Ocasio et al., 2015). Huy et al. (2014) explained that socialization increased stakeholder legitimacy by making it possible to access available resources necessary for success. The social aspects of leadership integration established the links necessary to carry out the managerial aspects of the new position and role. Social ties allowed the new leader to become acquainted with the institutional logics shared amongst the group (Lammers, 2011; Logue et al., 2016; Ocasio et al., 2015; Smith et al.,, 2016). As discussed earlier, institutional logics were the established beliefs in methods of operations espousing particular outcomes. The common beliefs shared between group members regarding procedure, protocol, communication, and focus formed the logics by which an organization operated.

Institutional logics. Institutional logics were the principles adopted by members of an organization that became the organizational decision-making schemas. Lammers (2011) traced the etiology of institutional logics to instances of instructive or persuasive communication disseminated throughout the organization and accepted as policy. The

particular type of communication became an understanding between members of the organization of the how and why of procedures. Ocasio et al. (2015) theorized that the functions rather than the context of the communication constituted the components of institutional logics. If a leader communicated a persuasive message of action regarding a recurring outcome, the call to action would become a part of the institutional logics by which members made daily decisions (Logue et al., 2016; Ocasio et al., 2015; Pinch & Sunley, 2015; Smith et al., 2016). This model presupposed that the communicative functions of coordinating, sensegiving, translating and theorizing were the fundamental elements of the creation of institutional logics (Ocasio et al., 2015; Thornton & Ocasio, 1999; Tight, 2010). Thus, a combination of all four components, rather than each individually, could produce institutional logics that guided an organization to common goals.

An example of how a disparity of institutional logics within an organization can be detrimental to its unity can be seen in hybrid organizations. The hybrid organization combined socially conscious institutional logics with market goals for sustainability rather than relying on donations (Battilana & Dorado, 2010; Ebrahim, Battilanna, & Mair, 2014; Jay, 2013) creating incongruent logics. For example, McElroy (2013) described how for-profit corporations sought to ensure market position by adopting a socially responsible image by implementing social programs such as the recent move by the Coca Cola Corporation to cease marketing soda pops to school children. Battilana and Dorado (2010) argued that incongruent institutional logics often resulted in conflict. An example of conflict derived from incongruent institutional logics was related in the story

of BancoSol, an organization formed from the microfinance industry to provide financing to the poor for social and economic development in South America (Besharov & Smith, 2014); an idea sprung from the Grameen Bank in Bangladesh (Ali, FerdausurRahman, Bhuiyan, & Sina, 2014). Conflicting social and market goals were incompatible and resulted in challenges between the social and banking subgroups each vying for contradictory goals. The eventual CEO resignations and mass turnovers indicated a necessity to consider institutional logic congruency. In the context of leadership socialization, a newcomer-leader should understand the institutional logics underlying group cohesion in order to integrate successfully and introduce change.

The relationship between institutional logics and leadership social integration was not well represented in the academic literature. Although some researchers have shown an indirect connection, the relationship between institutional logics and leadership effectiveness was limited to corporate governance (Lammers, 2011; Ocasio et al., 2015; Shipilov et al., 2010; Tihanyi, Graffin, & George, 2014). A new leader entering an organization should adopt the institutional logics shared amongst the membership, and then, if the strategy is a turnaround, adopt a process of gradual change to avoid crisis conditions. Since institutional logics encompass the beliefs and values shared amongst members of an organization, a leader that can create perceptions of institutional logics congruency would thus be able to integrate into an existing culture more successfully while maintaining group cohesion. Onboarding socialization should be defined by the existing institutional logics. The inability to alter perceptions to that of congruent

institutional logics could significantly decrease the chances for a successful socialization process and negatively affect future group cohesion.

Group cohesion and affective tone. Group cohesion could be described as the bonding phenomenon between group members who share common goals or visions. Although these factors are implicit in any group seeking common areas of concern, Palmer and Kawakami (2014, p. 5) discovered that "loosely organized groups" that did not share goals or visions maintained cohesion nonetheless. Although the researchers attributed humor in conversations, and other elements such as furniture arrangements as salient factors to cohesion, the fundamental covariate of group affectivity as synchrony of movement or posture were not considered possible salient bonds (Lakens & Stel, 2011; Paxton & Dale, 2013; Ramseyer & Tschacher, 2011; Tschacher et al., 2014). Investigating group cohesion and its relation to how group members socialize with each other can clarify leadership socialization and integration at the dyadic level.

The anatomy of group cohesion requires an examination of the social aggregate group as the existing membership to an onboarding leader. A social aggregate group can be described as a convergence of shared beliefs, visions, ideals, common purposes, and standard contextual communication (Amiot & Aubin, 2013; Collins, Lawrence, Troth, & Jordan, 2013; Jayashree, 2012). Collins, Lawrence, Troth, and Jordan (2013) observed that convergent members shared an affective bond communicated and utilized as institutional logics for decision-making. Regardless of whether a group had a positive or negative affectivity, the commonality of the views was the element that kept the group together. Schneider (1987) believed that personality was the common factor that was

sought when a newcomer entered a social group, explained by the attraction-selection-attrition framework. However, the seminal work of George (1990) contributed to the understanding of positive and negative social relationships in the workplace by introducing the concept of *group affective tone* as produced from individual positive or negative affectivity shared between group members. Group affectivity tone could be useful in relating positivity or negativity to workplace consequences. However, in the context of social integration, the concept has limited applicability. The salient findings applicable to social integration and socialization in George (1990) were the findings that the contagion of attitudes was prevalent due to the result of natural selection and commonality, thus making group social bonds evidently linked through instantiations of cohesive individual member communication. The concerted efforts of a cohesive group could thus be compared to the dyadic phenomenon of rapport.

Rapport, as a function of leadership, facilitated positive social group relationships to enhance cooperation, coordination, and cohesion. Studies have shown that members of cohesive groups were more productive and more apt to stay loyal to the group (Case & Maner, 2014; Cheng-Chen & Tai-Kuang, 2010). The lack of cohesiveness in a group was thus implied to produce less productive members that distrusted each other. For example, Lei and Vesely (2010) observed trust factors developed amongst ingroup and outgroup members and showed that mistrust developed due to the perceptions of wealth inequality within groups. As outgroup members gained elevated levels of income, trust developed towards the richer ingroup and distrust towards the poorer outgroup (Chhetri, 2014; Mead & Maner, 2012; Lei & Vesely, 2010). The perceptions of income equality or inequality

appeared to be the underlying causes for mistrust between the groups, making the conclusions in Lei and Vesely (2010) seem spurious and biased towards an economic view of trust. It is probable that the salient factor was not income inequality, but *heterophilous* perceptions, or differences perceived by each member.

A new leader intending to socialize with a highly cohesive group was often challenged by legitimacy issues as a result of heterophilous perceptions within the group (Aguiar & Parravano, 2015; Chung & Luo, 2013; Streukens & Andreassen, 2013). The cohesiveness of ingroup and outgroup formations were thus attributed to the same salient factors that kept an organization together, homophily (Aguiar & Parravano, 2015; Golub & Jackson, 2012; Kim, 2015). Homophily was the tendency for people to associate disproportionately with others that were perceived to be similar to themselves (Lee, Kim, & Piercy, 2016; Lozares et al., 2014; McCroskey et al., 2006). Thus, a new leader entering an existing cohesive group would gain more ground attempting to create homophilous perceptions to integrate successfully. Heterophilous perceptions could breed disagreements and communication lags.

Socialization and Human Interaction

Since past strategies of socialization emphasized production at the earliest possible time, hiring managers put new employees on a fast track to removing uncertainty from task related communications (Antheunis, Valkenburg, & Peter, 2010; Ellis, et al., 2015; Perrot, et al., 2014). The high turnover rates from mass orientation sessions compelled researchers to seek out and understand the mental processes of social interaction and inducements (Holton III, 1996; Lee, Liu, Rousseau, Hui, & Chen, 2011).

Lee et al. (2011) explored ways of inducing newcomers to stay in an effort to reduce turnover. It was apparent that the social aspects of the recruitment and orientation processes continued to be overlooked for decades in organizations seeking expediency. Underestimating the quality of social relationships as a necessary ingredient for a positive outcome in leadership succession could be considered a critical error.

Uncertainty and stress. Literature on socialization tactics were often aimed at reducing stress through learning and socialization. The seminal work of Berger and Calabrese (1975) on the uncertainty reduction theory, modeled socialization as a process of learning task and social aspects of a new job. It was assumed that the reduction of uncertainty reduced the level of stress related to the transition (Ellis, et al., 2015; Syrek, Apostel, & Antoni, 2013). However, stress, as an indirect negative impact on the socialization process, lacked empirical evidence in the literature (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hendricks & Louw-Potgieter, 2012; Ellis, et al., 2015). Applicability of uncertainty as a salient factor in leadership socialization appeared to be limited to aspects of creating social capital.

An alternative to the uncertainty reduction theory, the job demands-resources model (JD-R) utilized the transactional theory of stress and the challenge-hindrance stressor framework that reflected a bi-dimensional process of burn-out that involved demands and resources as the primary sources of stress enhancers (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Syrek et al., 2013). Time pressure demands of an onboarded leader were closely associated with exhaustion while the lack of resources predicted withdrawal. Syrek, Apostel, and Antoni (2013) suggested that the same time

pressure stressors could have a positive effect on a newcomer when a transformational leader was involved in the process. However, when the newcomer was the new leader, the process would then imply transformational leadership, a proposition that is implausible in every instance. An onboarded leader must deal with the stressor associated with the inaccessability of resources and the inability to establish social working relationships with the existing membership that often resulted in turnovers (Cairns, 2011; Chung & Luo, 2013; Dai et al., 2011). Thus, the link between the formation of workplace attitudes and individual social relationships were a significant factor in promoting job satisfaction (Chiaburu & Harrison, 2008; Choi, 2011; Venkataramani et al., 2013) Positive social interaction between members of an organization and the new leader could significantly affect attitudes by signaling an environment of trust. Social capital should thus be a critical focus of leadership onboarding.

Signaling theory. Mitigating risks in leadership onboarding required an assessment of predicted newcomer future contributions to the organization. The prediction of future performance prompted the necessity to attract quality candidates, emanating signals that promoted an acceptable work environment (Connelly, Certo, Ireland, & Reutzel, 2011). Spence's (1973) seminal work described the market signaling theory as a two-way form of communication with returned signals from candidates.

According to the signaling theory, organizational image enhancements indicated an acceptable work environment for an appropriate candidate (Celani & Singh, 2011; Connelly, Certo, Ireland, & Reutzel, 2011; Karasek & Bryant, 2012). Conversely, Karasek and Bryant (2012) noted that a job candidate attempted to enhance personal

image through education, attire, and experience to gain acceptance from a recruiter and thus signal congruency with the organization. In the case of newcomer and organizational fit, it seemed that signal emanations between social partners could be considered predictors or moderators of homophily.

In an organizational context, predictors were communicated via a resume or curriculum vitae while moderators were unalterable characteristics such as gender, race, age, personality, and communication modes emanated through personal dyadic exchange (Boswell, Zimmerman, & Swider, 2012; Jain, 2015; Miceli, Near, Rehg, & Van Scotter, 2012). An employer could make various assumptions regarding a candidate based on the predictors while taking the modulators into account for other work-related factors (Celani & Singh, 2011; Chapman, Uggerslev, Carroll, Piasentin, & Jones, 2005; Devendorf & Highhouse, 2008). Thus, the signaling theory mitigated the risks involved in recruiting and socializing by relying on signals that predicted the quality and fit of a candidate.

An onboarded leader or a newcomer employee could be assumed to exchange signals throughout the socialization process. Filling a vacancy relying on the signals emanated from the candidate was an effective way of mitigating risks prior to hiring (Brymer, Molloy, & Gilbert, 2014; Leung, 2014; Pinder, 2015; Scott et al., 2012), yet the exchange of signals throughout the socialization process played a greater role in newcomer retention. Scott, Motes, and Irving (2012) found that socialization processes, with the application of the market signaling theory influenced the development of trust between recruiter and candidate.

Emanated signals could produce favorable or unfavorable perceptions in both a recruiter and a candidate depending on the interpretation of the signals. If the signals were interpreted positively, trust would develop between recruiter and candidate (Venkataramani et al., 2013; Leung, 2014). The dyadic exchange of signals produced elevated levels of trust, forming perceptions of candidate adequacy through predictor and moderator signals emanated through various forms of communication. The dyadic process of signaling in the context of leadership integration required an understanding of the inner-workings that form positive perceptions.

The Social Identity Approach

The signaling theory provided a framework for recruiter/candidate exchange of verbal and nonverbal communication on various levels to determine a good-fit outcome. Dyadic signal exchanges created uncertainty regarding which signals were considered favorable or unfavorable to either terminal (Celani & Singh, 2011; Leung, 2014; Weaver, 2015). According to Griepentrog, Harold, Holtz, Klimoski, and Marsh (2012), the social identity theory (SIT) was associated with the emotional attachment garnered during the recruitment and orientation process. SIT made *commonality* the base perception in group formation and the salient feature of positive relational outcomes (Aksoy, 2015; Amiot & Aubin, 2013; Gómez, Dovidio, Gaertner, Fernández, & Vázquez, 2013; Ho, Kuo, & Lin, 2012; Rivera, 2012; Wells & Aicher, 2011). This meant that emotional attachment to a social group through social connections and resources was a *commonality* bond of attachments to the organization and could thereby affect newcomer intentions.

The identity newcomers sought to adopt in socialization were likely the result of choices based on homphilous perceptions with group members within an organization. In adopting the attitudes, beliefs, values, and behaviors shared amongst the group, the newcomer self-categorized to the social identity of that group (Caprara, Alessandri, & Eisenberg, 2012; Coleman & Williams, 2013; Skvoretz, 2013), seeking out homophilous others that can be perceived to make the transition smoother. Similarly, Coleman and Williams (2013) suggested that framing communication, matching perceptions of identity, made messages to distinct target populations more effective. This meant that exchanges aimed at creating matched perceptions improved communincation. Bahns, Pickett, and Crandall (2011) showed that the perceptions of similar qualities shared amongst members of an organization created emotional attachments developed in dyadic exchanges. Thus, transferred signals in a recruiter/newcomer exchange qualified the favorability of the encounter based on homophilous perceptions (Aksoy, 2015; Rivera, 2012). Thus, newcomer acceptance could be considered proportional to the perception of adopted common values, beliefs, and other salient organizational characteristics shared amongst the organization.

Signals emanating commonality exchanged in dyadic pairs appear to create psychosocial bonds that may explain how rapport developed between members of an existing social structure and a newcomer. Studies in the field of social psychology have yielded evidence that positive human interaction was the product of perception alteration through verbal and nonverbal synchrony (Paxton & Dale, 2013; Ramseyer & Tschacher, 2011; Tschacher et al., 2014; Won et al., 2014). A common theme among the studies was

the phenomenon of natural-forming nonverbal synchrony that led to positive outcomes. Fahim and Eslamdoost (2015) identified nonverbal synchrony, in the form of body language, as natural manifestations of embodiment mirroring during dyadic interaction. This meant that synchronization of body movements occurred naturally.

Body movements in human interaction shown to naturally synchronize during positive dyadic exchanges were called embodiments (Block, 2010; Fahim & Eslamdoost, 2015; Lakens & Stel, 2011; Paxton & Dale, 2013; Ramseyer & Tschacher, 2011). Hawk, Fischer, and Van Kleef (2012) sought to understand communication embodiments by observing naturally-occurring facial expression matching. Emotional states were found to transfer from one dyadic terminal to the other when facial and auditory expressions were in synchrony. Ramseyer and Tschacher (2011) used video analysis algorithms observing embodiment synchrony resulting in positive therapeutic results in patient/therapist exchanges. The connection between signaling body movements and the observed emotional transfer further advanced the premise that synchronic body movements seemed to create emotional bonds between dyadic terminals (Decety, 2011; Elfenbein, 2014; Englander & Folkesson, 2014; Preston & Hofelich, 2012). Cadence marching in military training was considered an attempt to create a common bond through synchronized body movements for centuries thereby generating perceptions of unity between soldiers and leaders (Wiltermuth, 2012; Fessler & Holbrook, 2014).

The signaling theory was not fully developed in a newcomer integration context. Its applicability in clinical studies do not necessarily transfer to the process of newcomer socialization since the relationships differ significantly. Nevertheless, past signaling

theory research has laid the groundwork for further developments in the field of leadership socialization by contributing to the anatomy of social acceptance (Kane & Rink, 2016; Karasek & Bryant, 2012; Lavigne, Vallerand, & Crevier-Braud, 2011). Understanding the neural and psychological processes of social exchanges affected by homophilous or *heterophilous* perceptions established the foundation for a measurable variable of social acceptance in leadership socialization efforts.

Anatomy of Prosociality

Cross-cultural and cross-generational socialization required an understanding of the causality of social relationships and the manifestations of positive and negative relationships in a workplace environment. Prosociality, a term used in psychological studies, referring to the propensity of youth in exhibiting positive social interaction as opposed to antisocial behavior (Alessandri, et al., 2014; Caprara, et al., 2012; Caprara, Alessandri, & Eisenberg, 2012; Mikolajewski, Chavarria, Moltisanti, & Taylor, 2014), was the focus of socialization as it related to positive and negative attitudes. Caprara, Alessandri, and Eisenberg (2012) associated prosociality to personality traits, claiming that some traits were more propensic of positive social relationships than others. Correlations between certain personality traits and the development of prosocial behavior appeared biased and the conclusions spurious by not considering other possible covariates. Mikolajewski, et al. (2014) included the environment in conjunction with personality propensities in youth to the etiology of prosociality. However, the views did not provide sufficient evidence of prosociality etiology in cross-cultural and cross-generational socialization.

Etiology was a term used widely in the medical field that referred to the study of the causality of diseases or disorders (Micic, et al., 2016; Nyenwe & Kitabchi, 2016; Morris, Meier, Griffin, Branda, & Phelan, 2016; Zeng, Tao, Lei, Dong, & Liu, 2015). Seeking the etiology of positive human socialization helped to identify core components of transformational synchronization for further research and applicability. Exploring etiological aspects of prosociality in dyadic interactions seemed to show further evidence that supported the use of PHM as a dependent variable for testing *rapport-building* tactics.

In the context of leadership socialization, prosociality was considered the condition of positive social interaction, indicated by group acceptance, and resulting in legitimacy (Fareri & Delgado, 2014; Godman, Nagatsu, & Salmela, 2014; Wood & Furr, 2016). Godman, Nagatsu, and Salmela (2014) associated the social motivation hypothesis directly with prosocial behavior. The social motivation hypothesis stated that people were psychologically motivated to behave prosocially based on expected intrinsic social rewards including economic gain. This meant that people were ultimately motivated by personal gain; a plausible conclusion, nevertheless, biased. Wood and Furr (2016) linked commonality with prosocial behavior but could be considered a false-positive outcome due to differences in prosociality intrepretation. The expressed motivation for being a "good person" seemed to confound the similarity hypothesis. However, focusing on expressed rather than observed prosociality created biased responses.

Empathy. Attempts at identifying etiological aspects of prosociality led some researchers to identify empathy as a significant variable (Agnihotri & Krush, 2015; Imel,

et al., 2014; Pelligra, 2011; Walter, 2012; Wood & Furr, 2016). Agnihotri and Krush (2015) identified empathy in sales relationships as a level of concern and interest for a customer that included comprehension and discernment of thought processes. Empathy, as a communicative state, was considered a tool by which people attempted to understand the emotional states and experiences of others (Chiao, 2011; Regenbogen, et al., 2012; Shen, 2010). Empathic signals were believed to evoke feelings of trust that developed between the salesman and the customer. Additionally, empathic states often evoked physical somatics that were reflected in expressions and embodiments (Betti & Aglioti, 2016; Kobach & Weaver, 2012; Seiryte & Rusconi, 2015; Schaefer, Heinze, & Rotte, 2012). For example, the cringing sounds and body movements made by a crowd observing a person on a tightrope were indicative of empathic states. According to Pelligra (2011) a state of empathy occurred when an affective state was observed by another who shared the state and became emotionally synchronized with the other. The synchronization of emotion occurred as a result of synchrony of affective states and perhaps of body movements.

The exchange and synchronization of states were supported in the field of neuroscience with the discovery of mirror neurons that seemed to explain the physiological processes of synchrony (Caramazza, Anzelotti, Strnad, & Lingnau, 2014; Ferrari, Rozzi, & Fogassi, 2005; Gallese, Gernbacher, Heyes, Hickok, & Iacoboni, 2011; Kilner & Lemon, 2013). Ferrari, Rozzi, and Fogassi (2005) discovered the activation of mirror neurons in macaque monkeys' neural network in which motor neurons fired simultaneously with those of another monkey when observing the performance of an

action. In other words, the motor neurons that necessarily fired in the monkey engaged in the action, also fired in the monkey observing the action. The discoveries implied that mirroring was part of the innate characteristics that stimulated social interaction in humans as well (Caramazza et al., 2014; Gallese et al., 2011). The mirror neuron theory may explain empathic states and the mechanics of emotional transference that occurred as a result of physical and emotional mirroring.

Rapport. At the pinnacle of social interaction was the concept of rapport which could be described as a multi-faceted condition in dyadic exchanges characterized by good communication and a feeling of oneness (Cohen & Kassis-Henderson, 2012; Lakens & Stel, 2011; Miles et al., 2009; Tickle-Degnen & Rosenthal, 1990; White et al., 2012). Rapport was distinguished as the single most significant aspect of positive human relationships. Tickle-Degnen and Rosenthal (1990) defined rapport as exchanges that were composed of "positivity, mutual attentiveness, and coordination" (p. 286). In the field of leadership, researchers posited the ability to establish rapport as a necessary transformational tool (Fisher & Robbins, 2015; Cha, Kim, Lee, & Bachrach, 2015). Rapport was considered the unifying factor in group cohesion (Tickle-Degnen & Rosenthal, 1990). As a result, researchers attempted to identify behavior that induced or enhanced rapport between people to improve relationships. (Duffy & Chartrand, 2015; Hyun & Kim, 2014). For example, Duffy and Chartrand (2015) attributed extravert rapport-building ability to selective mimicry; if an extravert was attracted to someone, a series of mimicked movements and voice inflections were observed. Hyun and Kim (2014) explored rapport-building behavior that emotionally induced patrons to continue

to do business with luxury restaurants. Service employees that showed uncommon attentive behavior, shared commonalities, exhibited courteous behavior, shared humorous stories or jokes, and shared opinions with goodwill intent induced rapport and emotional attachment. However, the many facets of rapport made the concept qualitative and thus immeasurable as a quantitative metric.

The concept of rapport however, required examination with greater attention to its etiological factors to attempt to identify a viable metric. Tickle-Degnen and Rosenthal (1990) definition of rapport was considered one of the most accurate; comprising three core components: *mutual attentiveness*, *positivity*, and *coordination*. Members of an organization were believed to undergo stages of interactions that began with positivity and mutual attention (Egan, Harcourt, Rumsey, & Collaboration, 2011; Fulmer & Gelfand, 2012). The continued interactions would eventually become coordinated, if positivity persisted a state of rapport would be realized (Campos-Castillo & Hitlin, 2013; Duffy & Chartrand, 2015; Sommer & Bernieri, 2015). The tri-phasic structure of the development of rapport over time as proposed by Tickle-Degnen and Rosenthal (1990) revealed components that could be explored for understanding the etiology of prosocial exchanges and the development of rapport. *Positivity* referred to a state rather than a trait; *mutual attentiveness* was the condition by which rapport could occur, and; *coordination* was the resultant phenomenon (Bronstein et al., 2012; Campos-Castillo & Hitlin, 2013; Fogarty, Augoustinos, & Kettler, 2013). In the foregoing subsections each individual component was qualified to identify etiological factors of prosociality within the concept of rapport.

Mutual attentiveness. The convergence theories of communication required various components; any lack of which would then result in no communication (Borman, Cragan, & Shields, 2016). Communication occurred on various verbal and non-verbal levels (Bama & Barna, 2012; Talley & Temple, 2015) resulting from emanated signals requiring attentiveness from sender to receiver (Budd & Velasquez, 2014; Kang & Hyun, 2012). The emanated signals would thus be transmitted by sender attentively intending to generate a duplication or synchrony of intention (Cummings, 2013; Lumsden, Miles, & Macrae, 2012). Once the signal was received and duplicated, the receiver would acknowledge its duplication by responding verbally or non-verbally, and the communication cycle thus ended (Epler, 2014; Kang & Hyun, 2012). The response was an acknowledgement that the message was received and duplicated in the mind of the receiver. Thus, for communication to occur, dyadic terminals required mutual attentiveness to create receiver signal duplication. Mutual attentiveness as a significant component of a communication cycle does not ensure the perception of rapport but is expected to occur in this state. Defining rapport with mutual attentiveness did not explain the causality of prosocial behavior, but related the concept to communicative behavior and thus a necessary component to any communication cycle.

Positivity. Positivity was an attitude emanated through various forms of communication. The seminal work of Uznadze (1940, as cited in Nadirashvili, 2013) defined attitude as the "psychophysical readiness for a behavior with which it satisfies his vital requirement[s]" (p. 92). This meant that an attitude was manifested internally, then externally and could act as a signal of predicted action. Attitudes could thus be

considered precursors to behaviors and thus necessary for effective communication. According to the anthropic theory, attitudes, whether positive or negative, were manifested in people as a result of experiences, situations, dispositions, embodiments, and interactions (Nadirashvili, 2013; Regnier, 2009). Past experiences often set a fixed attitude with changes occurring as a result of situations and other's movement or interaction (Förderer & Unkelbach, 2011; Walther, Weil, & Düsing, 2011). External stimuli could thus change positive or negative attitudes. The development of attitudes was considered evaluative conditioning (EC) based on verbal and nonverbal signals from others (Förderer & Unkelbach, 2011). Implicit attitudes could thus be altered as a result of the evaluation of other's external signals.

Relating the attitude of positivity to rapport classified the concept as a qualitative condition. The etiology of prosociality may be associated with positivity though a natural consequence of mutual attentiveness or coordination. However, an optimistic person may or may not be able to establish rapport with a pessimistic person regardless of the positivity involved in the exchange. The influence could go either way. In fact, deviant behavior was more readily transferred in youth due to a natural social convergence of negative viewpoints (Kobayashi, Akers, & Sharp, 2011) rather than on positivity. However, mutual attentiveness combined with positivity in both terminals would create the process of *coordination*.

Coordination. The third component of rapport was perhaps the most salient in identifying etiological factors of prosociality. Coordination referred to a synchrony or harmony of verbal and nonverbal signals that created perceptions of unity and oneness.

Gordon, Tranel, and Duff (2014) concurred with this view, attributing synchronous conversational interaction directly to the natural formation of rapport between dyadic pairs. Arizmendi (2011) observed physical synchrony during dyadic sessions and considered it a natural occurrence in counselor/patient exchanges. The synchrony, however, was considered to be non-cognitive, occurring naturally and independently (Farley, 2014; Inzlicht, Gutsell, & Legault, 2012; Jacob et al., 2011). In the field of applied psychology, however, clinicians utilized cognitive synchrony in counselor/patient exchanges in efforts to gain rapport and case gains with some indications of success (Imel, et al., 2014; Lakens & Stel, 2011; Ramseyer & Tschacher, 2011; Tschacher et al., 2014). Coordination as synchrony appeared to be the salient component of the Tickle-Degnen and Rosenthal (1990) definition of rapport, sharing the common salient factor with empathy and homophily. Coordination as synchrony indicated an alignment with PHM since commonality of movement may emanate perceptions of commonality as sub-signals.

Homophily. Human relationships are likely formed based on expressed or implied commonalities. In an organizational scenario, the social identity theory (SIT) confirmed the premise that people assumed a social identity and then interacted with others who assumed a similar identity (Coleman & Williams, 2013; Feitosa, Salas, & Salazar, 2012; Griepentrog, Harold, Holtz, Klimoski, & Marsh, 2012; Loi et al., 2014; Slater, Coffee, Barker, & Evans, 2014; Wells & Aicher, 2011). Signals of commonality between a newcomer and a group was what seemed to conjoin the two. SIT thus made

homophily, the human tendency to associate disproportionately with similar others, the salient factor in prosociality.

Homophily was observed in many social interactions in past studies (Alstott et al., 2014; Fu et al., 2012; Golub & Jackson, 2012; Holzhauer et al., 2013; McPherson et al., 2001; Smith et al., 2014; Streukens & Andreassen, 2013; Wang & Zhu, 2014; Wright, 2000). The term, homophily, likely derived from the word, *homogamy*, meaning the choice of nuptial partners based on similarities (Aaltonen, 2016; Smith et al., 2014;). The term has become pervasive in the current social science nomenclature. Lazarsfeld and Merton (1954) coined the term, homophily to represent the tendency for people to associate disproportionately with others who shared self-similar qualities. Homophilous perceptions thus described internally or externally perceived commonalities between people in pairs or groups (Atouba & Shumate, 2015; Hamilton, et al., 2016; Piazza & Castellucci, 2014; Yavaş & Yücel, 2014). Smith et al., (2014) concluded that homophily seemed to pervade multiple facets of human relationships and could explain how people related to each other.

Huang, Shen, and Contractor (2013) suggested that proximity was more salient in group selection than homophily. Proximity referred to *geography-based* homophily that grouped people based on specific global areas that shared cultural, spiritual, and temporal commonalities (Atouba & Shumate, 2015; Huang et al., 2012; Sommer & Bernieri, 2015). However, proximity and distance can also be related to homophily in organizations. Organizational homophilous perceptions between members of a specific department were based on shared duties and concerns, occupying common

spatial/temporal areas (Atouba & Shumate, 2015; Castilla, 2011; Mackinnon, Jordan, & Wilson, 2011). In a group setting, the underlying homophilous perceptions likely developed as a result of physical proximity and commonality of function between communicators to form social bonds. Huang et al., (2013) failed to consider that proximity was a by-product of homophilous perceptions and that physical proximity simply bred homophily through natural synchronization. For example, the realization of shared hometowns between two people in social conversation bred a series of homophilous perceptions regarding the physical attributes of the shared views (Beneito-Montagut, 2015; Lee & Kramer, 2013). Proximal communication allowed for verbal and non-verbal signals to synchronize while distal communication such as written or Internet online exchanges limited the interactions (Huang et al., 2013; Huber, 2012; Sommer & Bernieri, 2015). Thus, proximity simply bred homophilous perceptions between members of a departmental group.

In a socialization context, a person that joined an organization would likely seek out homophilous characteristics amongst the membership to perhaps find a comfort zone (Abrams et al., 2014; Gómez et al., 2013; Viki et al., 2013). Similarly, an organization sought out members who were homophilous to the group to attempt to carry on with people who were like-minded (Brymer, Molloy, & Gilbert, 2014; Rivera, 2012; Skvoretz & Bailey, 2016). This meant that homophilous perceptions were necessary for a newcomer to become integrated into the existing group. Additionally, the group more readily reached a consensus based on shared homophilous perceptions (Alstott et al., 2014; Flache & Macy, 2011; Liu & Srivastava, 2015; Yavaş & Yücel, 2014). For

example, Alstott et al. (2014) attributed an increase in the speed of social mobilization to homophily amongst interactants. Social mobilization referred to the phenomenon of immediate group coordination aimed at a conjoined and specific goal, such as organizing a search and rescue party (Alstott et al., 2014; Flache & Macy, 2011; Liu & Srivastava, 2015). This meant that the time it took for a group to reach a decision was dependent upon the frequency of homophilous perceptions within the group.

***Baseline and inbreeding* homophily.** McPherson, Smith-Lovin, and Cook (2001) distinguished between baseline homophily and inbreeding homophily based on spatial boundaries and self-determinant choices. Inbreeding homophily referred to the self-determinant choice of exploring commonalities outside social or geographic boundaries (Daw et al., 2015; Holzhauer et al., 2013; Li, Wu, Luo, & Zhang, 2013; Lozares et al., 2014). Holzhauer et al. (2013) considered that baseline homophily existed when people were constrained by geographic boundaries thus limiting the choices to others within the boundaries. A newcomer entering an existing workplace constrained economically to remain with the organization, thus created a type of spatial boundary (Daw et al., 2015; Li et al., 2013; Yap & Harrigan, 2015). The newcomer would be faced with the necessity of finding commonality within the boundaries associating with either ingroup or outgroup members.

The commonality shared between members of an existing group should be a necessary consideration in leadership onboarding socialization. An onboarded leader must cope with baseline homophily in addition to all the other challenges involved in the sensemaking process. DeKrey and Portugal (2014) described the sensemaking process as

the first few months requiring intense communication and data gathering to understand institutional logics. The critical time period of adjustment became one of social exchange between the leader and members. As described in Holzhauer et al. (2013) baseline homophily limited social opportunities within the specific organizational boundaries and thus redefined the perceptions of commonality by adjusting to group norms. Waismel-Manor, Tziner, Berger and Dikstein (2010) attributed the formation of specific ingroup and outgroup members with distinct attitudes regarding the change to baseline homophily. The dyadic exchanges between a new leader and members became critical, depending on the quality of the exchanges that resulted in the creation of either homophilous or *heterophilous* perceptions (Gómez et al., 2013; Gong, 2012; Kelley & Bisel, 2014; Wang, Zhou, & Dong, 2016).

Status homophily. The commonality shared between two people may be the result of similar cultural, social, educational, economic, and geographic backgrounds, known as status homophily (Collet & Philippe, 2014; Logan, 2013; Reeves, 2012; Wang & Zhu, 2014). Wang and Zhu (2014) described status homophily as the tendency for people to seek out common ethnicity, circle of friends, or common schools. Overt signals of status homophily included attire, emanating signals of socio-economic homophily (Trapido, 2013; van Tubergen, 2015; Lee, 2016); ethnic origin, emanating visual signals of cultural and geographic homophily (Gerber et al., 2013; Mazur & Richards, 2011; Zhou, 2013), and; verbal expressions that implied education and ethnic homophily (Reeves, 2012; Wang & Zhu, 2014). Status homophily may be the initial attractant in a social encounter.

McCroskey, McCroskey, and Richmond (2006) considered appearance and background homophily developed by comparison observations, considered types of status homophily. Trapido (2013) claimed that economic homophily, a sub-category of status homophily, was believed to be suppressed in business associations making *heterophily* an attractant rather than a repellant. However, homophily had been shown to exist on various levels (Fu et al., 2012; Golub & Jackson, 2012; Holzhauer et al., 2013; Huang et al., 2013; Smith et al., 2014; Wang & Zhu, 2014; Wright, 2000) and attributing one instance of suppressed perceptions to positive cohesive results would rely on biased conclusions. It is more likely that homophily was not suppressed, but replaced with other homophilous perceptions communicated in multitudinous ways.

Attitude homophily. By operationalizing homophily, other commonalities could be observed between dyadic partners such as attitudes, beliefs, visions, and other expressed characteristics. Di Gregorio (2012) attributed value homophily to higher density coalitions in organizations as a result of social communication and evaluation of values. Organizations were able to function better when members freely exchanged values and beliefs (Ellinger, Ellinger, Yang, & Howton, 2002; Garvin, Edmondson, & Gino, 2008; Jo & Joo, 2011), facilitating alliances based on shared homophilous perceptions. The implications suggested that value homophily could be considered the salient factor of group cohesion based on functional commonalities shared between members (McPherson et al., 2001; Phillips, Tracey, & Karra, 2013).

Attitude homophily was a sub-category of value homophily and was perhaps the most pervasive tendency in organizational socialization (Chu & Kim, 2011; Myers &

Huebner, 2011). Attitude homophily could be considered the perceived commonality of positive or negative views. McCroskey et al. (2006) isolated attitude homophily as a viable metric for measuring the level of perceived attitudes between people. The perceieved homophily measure PHM was shown to have high predictive power associated with either positive or negative dimensions (Berten & Van Rossen, 2015; Flashman & Gambetta, 2014; McCroskey et al., 2006). This meant that the prediction of prosociality between dyadic partners could be directly attributed to perceived homophilous attitudes. Additionally, attitude homophily was observed in politics where opinion filtering brought about an alteration of positivity or negativity (Goel, Mason, & Watts, 2010; Kobayashi, Akers, & Sharp, 2011). This meant that the perception of attitude homophily was not necessarily factual.

If attitude was a product of contrasting or similar political views, then attitude homophily was based on limited information about the dyadic partner's positive or negative views. Goel et al. (2010) noted that in the political arena, once political views were exposed, one terminal would attempt to convince the other to arrive at a convergence of opinion thereby reconciling homophilous perceptions. Similarly, when divergent scientific views became convergent, the transference produced an agreed-upon reality (Barros & Mion, 2010; Cavagna, et al., 2010; Echterhoff, Higgins, & Levine, 2009). If applied to social interaction, it could be expressed as a solidification of the reality of relationships. This meant that dyadic partners, perceiving that internal characteristics were similar, caused a convergence of thought patterns and emotions leading to the establishment of a prosocial relationship.

Distance and homophily. The synonymization of distance to homophily could be justified by the way humans perceive in a 3-dimensional space. The proximity of an object brings an object into focus, while a distant object becomes blurry when viewing the proximal object. The perception can be compared to the attention we place on objects that are physically, socially, and culturally closer to our own space and viewpoint (Buchan & Grimalda, 2011; Huang et al., 2013; Matthews & Matlock, 2011; Tversky, 2011; Williams, 2014; Yeganeh, 2011). Prosociality in dyadic exchanges seemed to be linked to various levels of distance between terminals. Williams (2014) described the construal level theory (CLT) indicating that thought processes were directed based on distance or proximity whether abstractly or concretely. Abstract thinking was the consideration of objects in a general sense while concrete thinking was more focused on details that were construed to be of more importance (Napier & Luguri, 2012; van Oers, 2012; Tversky, 2011). The degree of cognitive attention was determined by the proximity or distance perceived (Cole, Riccio, & Balcetis, 2014; Heatherton & Wagner, 2011; Young, Lenné, Beanland, Salmon, & Stanton, 2015). Perceived high proximity correlated with homophilous perceptions (Gerber et al., 2013; Huang et al., 2013; Zhou, 2011); low proximity, or increased distance would be more indicative of heterophilous perceptions (Berten & Van Rossen, 2015; Piazza & Castellucci, 2014; Smith et al., 2014). Zhou (2011) observed various instances in which proximity induced homophilous perceptions. This meant that the higher the proximity, the more homophilous the perceptions shared between two interactants.

Cultural distance. Cultural differences may affect membership perceptions regarding a new leader. Cultural distance between two people referred to the degree of cultural similarities or differences perceived between both (Ahammada, Tarbab, Liuc, & Glaisterd, 2016; Trope & Liberman, 2010; Williams, 2014). When a new leader entered an existing organization, members determined legitimacy and acceptance through an observation of various psychic distances including cultural assessments (Ahammada, Tarbab, Liuc, & Glaisterd, 2016; Bauer, Matzler, & Wolf, 2016; Franck & Rainer, 2012; Melamed, 2013). Melamed (2013) found that cultural distance was a probable determinate for leadership legitimacy based on attitude, appearance, gender, and expected actions.

The seminal work of Berger et al. (1985) introduced the theory of status characteristics and expectation states (SCT) and was supported based on differentiations between cultural views regarding power and status. SCT theory addressed group behavior regarding generalized expectations of how members of the group performed, predetermined based on outward appearances (Hysom, Webster Jr., & Walker, 2015; Shollen & Brunner, 2016; Skvoretz & Bailey, 2016). For example, cultural differences between an emergent leader and the existing group were based on expected performance measures on prejudged characteristic beliefs whether they were cultural or behavioral. Nevertheless, when uncertainty about a new leader emerged, members relied heavily upon opinion leaders to attempt a consensus (Loeper et al., 2014; Melamed & Savage, 2013). Leader and member status were thus dependent upon individual perceptions of cultural signals of status. In the context of new leader socialization, members were likely

to initially attribute status and legitimacy upon the new leader dependent upon cultural cues.

Social distance. Social distance represented the perceived difference in social status between two people or two groups (Lammers, Galinsky, Gordijn, & Otten, 2012; Stephan, Liberman, & Trope, 2011; Zhao & Xie, 2011). In the field of psychology, social distance referred to the similarity estimation between the status of self and others (Buchan & Grimalda, 2011; Kern, Lee, Aytug, & Brett, 2012; Smith et al., 2014). Lammers et al. (2012) rejected the assumption that power alone increased social distance between the newly appointed leader and former status acquaintances, but that legitimacy of power did increase social distance. The seminal work of Bogardus (1925, as cited in Buchan & Grimalda, 2011) regarding social distance as the measure of affinity between two people, continued to have relevance in group interaction and cooperation in current organizations. Affinity was an attraction through a synchrony of sympathetic signals that became an interaction of similarity (Barker, Dozier, Weiss, & Borden, 2015; Bell & Daly, 1984). Bell and Daly's (1984) seminal work presented a construct of ways in which people consciously sought out to generate affinity through what was described as *affinity-seeking* strategies. The strategies were meant to create similarities. Affinity, as defined by the Oxford English Dictionary (2015), was "the state of being closely connected or mutually dependent" upon another. A feeling of connectivity and emotional attachment was associated with a developed affinity based trust that was believed to derive from perceptions of similarity (Kim, 2015; Martin, 2014; Powell, Richmond, & Williams, 2011).

Kern, Lee, Aytug and Brett (2012) found that similarities between group members improved the chances of group convergence in *sense-making* strategies. This meant that social distance was also related to the theory of status characteristics and expectation states (SCT) since attributions of social status were dependent upon cultural distances. When social distance increased, the chances for social interaction decreased. Matthew and Matlock (2011) observed that people from distinct groups associated with each other based on commonalities shared between groups. Thus social distance could be described as the degree of homophily perceived between group members.

It is possible that social distance and homophily may explain phenomena that had been attributed to other social factors. For example, Homans (1958) introduced the social exchange theory (SET) in an attempt to explain social relationships as continuous assessments of costs versus benefits. According to the theory, humans entered and exited relationships based solely upon selfish ends. The theory was biased to specific western philosophies and failed to consider global and cultural relationships. SET was later researched in attempts to explain social phenomena occurring in organizational relationships (Bishop, K, Goldsby, & Cropanzano, 2005; Colquitt, Baer, Long, & Halvorsen-Ganepola, 2014; Cropanzano, Rehar, & Chen, 2002; Zhang & Jia, 2010) Colquitt, Baer, Long, and Halvorsen-Ganepola (2014) found that all of the studies fell short of producing a valid metric that could test the veracity of the SET. Additionally, Homans (1958) did not follow the traditional scientific methodology of testing and validating a premise before introducing it . When considering the current research on homophily and social distance, it is more probable that relationships were based on

perceptions of commonality and that the continuous cohesiveness of relationships continued as long as homophilous perceptions persisted.

Physical distance. Physical distance may also have a significant effect upon prosociality in groups. The tendency to think of others abstractly when at a distance reduced the chances of making homophilous judgments (Huber, 2012; Williams & Bargh, 2008). The perception of others became more concrete as proximity increased. Additionally, communication occurred on various levels via embodiments, such as the semiotic resources of eye contact, posture, gestures, expressions, and other physiological exchanges (Block, 2010; Hawk, Fischer, & Van Kleef, 2012; Virkkula-Räisänen, 2010). The full range of communication required physical proximity. Technological advancements, such as video conferencing accessed part of the entire communications spectrum limited by visual and auditory perceptions alone (Botella, et al., 2012; Riva, Baños, Botella, Wiederhold, & Gaggioli, 2012). Thus, physiological exchanges may affect more senses such as emotional and physical responses that increase the chances for social bonds to develop. .

Physical proximity may allow for responses to nonverbal emanated signals from one dyadic terminal to access more communication levels. It is perhaps only possible to engage in complete cognitive communication with the full human communication range through synchrony (Hall, Millings, & Bouças, 2012; Lakens & Stel, 2011; Paxton & Dale, 2013; Tschacher et al., 2014). Hall, Millings, and Bouças, (2012) described the synchrony as implicit behavioral mimicry; the unintentional mirroring that occurred between a dyadic pair while engaging in verbal communication. The mirroring occurred

naturally during normal conversation. Lakens and Stel (2011) demonstrated how synchronic motion improved communication and resulting in what was attributed to be rapport. Additionally, facial mimicry, according to Hawk, Fischer, and Van Kleef (2012), was shown to transfer emotional states and were often considered natural in filial attraction exchanges. Thus, physical proximity could facilitate the use of mimicry as a form of communication that could affect emotional and possibly homophilous transference of states.

Homophily, trust, and the social identity theory. Trust is perhaps the most significant aspects of the sensemaking process in leadership integration. The sensemaking process is considered the early stages of socialization for a new leader involved with social and organizational navigation (DeKrey & Portugal, 2014; Kelley & Bisel, 2014; Sluss, Ployhart, Cobb, & Ashforth, 2012). Kelley and Biel (2014) noted that in carrying out the sensemaking process, new leaders were challenged with establishing trust with communication terminals and identifying who to trust within the organization. The sensemaking process became one of social and transactional communication (Baker & Omilion-Hodges, 2013; Brown, Colville, & Pye, 2015; Carmeli, Tishler, & Edmondson, 2011; Rothausen, Henderson, Arnold, & Malshe, 2015). The ideal outcomes of the sensemaking process of trust, respect, and loyalty, were benchmarks Baker and Omilion-Hodges (2013) attributed to the LMX and coworker exchange (CWX) theories. The outcomes likely derived from homophilous perceptions shared in the exchanges.

Trust was perhaps one of the most salient desireable outcomes in any dyadic relationship. Expertise trust was the form most often associated with LMX and CMX

referring to the confidence placed on others based on levels of proficiency or education (Baker & Omilion-Hodges, 2013; Barton & Bunderson, 2014; Kim Y. , 2015; Sankowska & Söderlund, 2015). Kim (2015) distinguished between expertise-based trust and homophily-based trust in online exchanges and concluded that a greater density of trust could be realized with the presence of both. The inference suggested that increased homophilous perceptions resulted in an increased likelihood of trust developing between two interactants (Flashman & Gambetta, 2014; Lusher, Kremer, & Robins, 2014; Grund & Densley, 2015). Thus, trust seemed to be linked to homophilous perceptions. The relationship between homophily and trust was evident in the social identity theory (SIT), grounding human relationships based on commonalities (Coleman & Williams, 2013; Feitosa et al., 2012; Griepentrog et al., 2012; Loi et al., 2014). According to Loi, Chan, and Lam (2014), the underlying motivation for homophily-seeking activity appeared related to the basic human need of reducing uncertainty and seeking self-improvement. The premise seemed to suggest that members acted self-determinantly in seeking out commonality in other members.

The self-determination theory (SDT) is built around the premise that the more self-determined people are, the better the behaviors and the motivation for seeking out like-minded individuals within an organization (Amiot & Aubin, 2013; Smith, Amiot, Smith, Callan, & Terry, 2013; Ünlü & Dettweiler, 2015). The motivation was believed to be an effort to reduce uncertainty of self as part of the organizational unit and to fulfill basic identity needs (Maitlis et al., 2013; Minei, 2015; Smith et al., 2013). Directed assignment into groups could relegate efforts to a limited population from which to seek

out homophilous others thereby limiting choices and possibly increasing the chances for conflict.

In the context of LMX, members who shared homophilous characteristics with a new leader were more likely to become part of the ingroup that often formed in these exchanges (Abrams et al., 2014; Mead & Maner, 2012; Viki et al., 2013; Waismel-Manor, Tziner, Berger, & Dikstein, 2010). Waismel-Manor, Tziner, Berger and Dikstein (2010) observed that homophilous ethnic backgrounds shared between new leaders and organizational members were a more salient factor in ingroup formations characterized by trust and loyalty. Although not all ingroup members were of the same ethnic background, homophilous perceptions were considered the salient factor in the inclusion of ingroup members (Aksoy, 2015; Dokko, Kane, & Tortoriello, 2014; Nakai, 2014). Trust and loyalty seemed to develop more readily when a leader and a member shared homophilous characteristics.

Understanding the components of trust in an organizational setting can better clarify its connection to homophily and social integration. Trust was related to the removal of uncertainty according to the uncertainty reduction theory URT of socialization and thus should be an essential element in the leadership socialization process (Ellis, et al., 2015; Meng, Fulk, & Yuan, 2015; Toma & D'Angelo, 2015; van der Werf & Buckley, 2014). The reduction of uncertainty was shown to enhance trust between interactants (Bente, Baptis, & Leuschner, 2012; Kusumasondjaja, Shanka, & Marchegiani, 2012; Malik & Kabiraj, 2011). Bente, Baptis, and Leuschner (2012)

identified the main goal of communication according to the URT as certainty enhancement that improved communication.

The creation of trust developed between members of an organization, according to Martin (2014), was composed of two levels related to internal and external perceptions: affinity and competence. Competence based trust was derived from the perception that a person was skilled or proficient thereby removing a degree of uncertainty (Chhetri, 2014; Ho, Kuo, & Lin, 2012; Schaubroeck, Lam, & Peng, 2011). If a member had proven to be competent in a role, the continued performance would increase the trust between leader and member. Kayeser & Abdur Razzaque (2014) associated competence and goodwill trust with the establisment of rapport in an organization. Competence-based and benevolence-based trust were both necessary to ensure knowledge sharing (Ho, Kuo, & Lin, 2012). Attempting to understand trust by combining two types of trust, however, does not clarify the process or provide useable data. Martin's (2015) model of trust was more in line with understanding its etiological factors. A high level of affinity in combination with high levels of perceived competence seemed to increase the chances of trust developing in an organizational setting (Barker et al., 2015; Bell & Daly, 1984).

The similarity-attraction paradigm and homophily. Affinity and trust also seemed to be related to the commonality shared between two people. Finding things in common with another person were the first steps to assessing a relational fit when considering social relationships (Flashman & Gambetta, 2014; Lozares et al., 2014; Smith et al., 2014). The similarity-attraction paradigm premise indicated that people who were similar to each other tended to like each other (Michinov & Michinov, 2011;

Montoya & Horton, 2013; Wells & Aicher, 2011). In the context of organizational relationships, organizational members who perceived a leader dissimilar to themselves performed less efficiently and often resulted in conflict (Aguiar & Parravano, 2015; Malangwasira, 2013; Qiumei & Jianfeng, 2010). Thus, the similarity-attraction paradigm made homophily the salient factor in prosocial human relationships thus making the opposite true for *heterophilous* group members, bringing about conflict, decreased performance, and eventual separation.

Some researchers have postulated that complementarity made people who differed from each other attracted based on needs fulfillment (Streukens & Andreassen, 2013; Trapido, 2013). For example, Streukens and Andreassen (2013) tested the homophily effect and the *heterophily* effect using personality traits between customers and frontline employees by querying customers on preferences. Self evaluation of personality traits in comparison to preferred personality traits in others did not properly test homophilous or *heterophilous* perceptions. The perception of homophily in others is based on physical encounters that allow for verbal and non-verbal communication (Shalizi & Thomas, 2011; Smith et al., 2014). Piazza and Castellucci (2014) attempted to discredit the claims that homophily was the basis for cross-status affiliations claiming that heterophilous characteristics persisted during the association. The researchers failed to consider the possibility that PHM could have emanated from either terminal on various levels including embodiment synchrony, ROS synchrony, cultural and ethnic commonality, and other proximal exchanged signals regardless of the difference in status.

Trapido (2013) explored economic homophily and *heterophily* seeking to understand the relationship development between two members of cross-identity groups. The association was believed to enhance trust factors based on reducing relationship-based uncertainty. However, both research groups failed to consider that homophily could be perceived and communicated through emodiments and other non-verbal signals other than outward characteristic observations (Kim, 2015; Lakens & Stel, 2011; Lumsden, Miles, & Macrae, 2012; Miles et al., 2009; Paxton & Dale, 2013; Ramseyer & Tschacher, 2011; Schmidt, Nie, Franco, & Richardson, 2014; Tschacher et al., 2014). If an attraction existed between *heterophilous* personality traits, homophily would probably have developed on other communicative levels. Thus, to explain *heterophily* as an attractant based on group preferences without considering other homophilous variables makes the conclusions erroneous. Homophilous perceptions between members of an organization derived from outward signals of commonality communicated in verbal and non-verbal modes. Observations of homophilous or *heterophilous* characteristics between two people cannot be explained by third-party observations of commonality or disparity.

According to the social identity theory (SIT), the self-assigned identity of a newcomer joining an organization determined the corresponding selection of socialization partners based on homophilous perceptions (Coleman & Williams, 2013; Dokko, Kane, & Tortoriello, 2014; Feitosa et al., 2012; Griepentrog et al., 2012; Loi, Chan, & Lam, 2014; Slater, Coffee, Barker, & Evans, 2014; Wells & Aicher, 2011). Assuming a social identity preceded identifying homophilous others to establish trust and cohesion (Feitosa et al., 2012; Griepentrog et al., 2012; Loi, Chan, & Lam, 2014;

Schaubroek, Peng, & Hannah, 2013). This meant that, prior to selecting a social group within an organization, the newcomer first self-assigned a social identity to seek out others who had assumed similar identities.

The selection of social connections were based on seeking out homophilous others and thus enhanced affect-based trust (Casimir, Lee, & Loon, 2012; Lapointe et al., 2014; Schaubroeck, Lam, & Peng, 2011; Schaubroek, Peng, & Hannah, 2013). Schaubroek, Peng, and Hannah (2013) concluded that affect-based trust between newcomers, insiders, and leaders promoted organizational identification and clarified role-related expectations and performance; a sensemaking process. Additionally, Casimir, Lee and Loon (2012) made affect-based trust a catalyst for knowledge sharing, making it a necessary element in leadership succession.

The primary components of successful socialization, according to Schaubroeck et al. (2013) was social identity and social exchange. The sensemaking process as it applied to socialization was essentially a manner by which a newcomer leader reconciled homophilous perceptions of the group and within the group in order to remove uncertainty. Since the social identity of the group was based on shared homophilous perceptions (Gonzalez & Chakraborty, 2012),. However, it should be noted that the perception of similarity was senior to actual similarity (Goel, Mason, & Watts, 2010; Kacmar, Harris, Carlson, & Zivnuska, 2009). The perception of homophily, regardless of whether actual similarities existed correlated with social acceptance.

Homophily and organizational behaviors. Ingroup and outgroup formations were based on homophilous perceptions shared between a newcomer and the social

circles that inevitably formed (Gómez et al., 2013; Mead & Maner, 2012; Stark & Flache, 2012). Ingroup members were those who had established a good working and social relationship with the leader while outgroup members maintained a transactional relationship (Abrams et al., 2014; Mead & Maner, 2012; Viki et al., 2013). Ingroup members were thus more likely to exhibit organizational citizenship behaviors (OCB); a characteristic of members that became embedded in the organization and showed commitment that exceeded expectations (Beeri, 2012; Oren, Tziner, Sharoni, Amor, & Alon, 2012; Rose, 2016; Zhong, Lam, & Chen, 2011). Some researchers credited OCB to transformational leadership (Carter, Mossholder, Feild, & Armenakis, 2014; Huang J. , 2013; Nasra & Heilbrunn, 2016); benevolent leadership (Chan S. , 2014; Chan & Mak, 2012; Chen, Eberly, Chiang, Farh, & Cheng, 2011); organizational climate (Qadeer & Jaffery, 2014; Randhawa & Kaur, 2015; Sethibe & Steyn, 2016) and; trust (Chhetri, 2014; Singh & Srivastava, 2016)(Chhetri, 2014). OCB researchers may have overlooked antecedent homophily as a significant motivator and thus a necessary ingredient to ingroup behavior.

Ingroup and outgroup attitudes. The ingroup and outgroup relationships that developed between a leader and members were likely based on homophilous and *heterophilous* perceptions (Bakar & McCann, 2015; Tasselli, 2014; Tasselli, Kilduff, & Menges, 2015). Taselli, Kilduff and Menges (2015) identified homophily as the prime ingredient to organizational member association and that visible characteristics were often the deciding factors for positive dyadic encounters in a group setting. Tasselli (2014) found that group member affiliation was most often based on gender and

ethnicity, but it also indicated that visual perceptions played a significant role in the formation of ingroups and outgroups. *Heterophily,* consequentially, resulted in members creating differing "social worlds" that separated ingroup and outgroup associations (Tasselli, 2014, p. 625). Kabo (2016) found that homophily was not as a significant factor as spatial distance, organizational structure, and perceived networks in the formation of group associations. However, the researcher used observable background homophily with demographic characteristics rather than surveying dyads for perceptual homophily between individual group members to determine its salience. Homophilous perceptions occurred individually as a result of initial visual commonalities through nonverbal signals followed by auditory observations using verbal exchanges (Horan & Houser, 2012; Human & Biesanz, 2012; Schaefer, Kornienko, & Fox, 2011). First impressions were likely a search for homophily between dyadic partners and groups.

Group members initially adopted positive or negative views regarding an onboarding new leader based on visual perceptions such as gender and ethnicity (Ellis, et al., 2015; Korte & Lin, 2013; Smith et al., 2013). The previous leader's ingroup members, that had developed close social ties to the previous leader, more likely developed *heterophilous* perceptions of the new leader, possibly coming from the loss of leverage (Ellis, et al., 2015; Korte et al., 2015; Perrot, et al., 2014). Ingroup members were thus more likely to challenge the new leader's legitimacy (Ballinger et al., 2010; Kangas, 2013; Perrot, et al., 2014). Perrot, et al. (2014) suggested that a leader that perceived support from the existing membership was able to establish trust and thus able to meet the challenges of the leadership position. This meant that membership support

was shown to be dependent upon the new leader's ability to establish trust (Agote, Aramburu, & Lines, 2016; Caillier, 2016; Xiong, Lin, Li, & Wang, 2016). In a leadership succession context, membership perceptions have a greater impact on leadership success (Ballinger et al., 2010; Chung & Luo, 2013; Zacher et al., 2011). Thus, the challenge for the new leader was to successfully alter followership perceptions of commonality and trust that melded with institutional logics of the group in a limited time frame.

Onboarding succession attitudes. The introduction of an onboarding new leader into an existing group presented socialization challenges related to perceptions of uncertainty. The issue was that organizational members were homophilous based on shared institutional logics adopting an organizational identity that could be threatened with leadership change (Ballinger et al., 2010; Balser & Carmin, 2009; Chung & Luo, 2013). Inboarding a new leader helped remove some uncertainty due to the new leader's existing social ties within the organization (Björnberg & Nicholson, 2012; Contillo, 2014; Kroh, 2012). However, the problems regarding demographic shortages made internal succession a rarity in Western economies except in family organizations in which cultural and trained behavior ensured the organization's continued identity (Gedajlovic, Carney, Chrisman, & Kellermanns, 2012; Gill, 2013; Odora & Naong, 2014). Rivera (2012) suggested that hiring a new leader should be more concentrated upon matching leader-member cultures for a smoother transition, thus simulating a family succession environment. The proposition had merit if cultural matches were readily available in various forms in the market. The problem was that culture varied considerably between organizations thus requiring a new leader to make cultural adjustments regardless of

cultural proximity (Millward & Haslam, 2013; Bloom, Genakos, Sadun, & Van Reenen, 2012). With limited leadership resources in a demographic shortage environment, matching cultures may not be a viable alternative.

Homophily and transformational leadership. Transformational abilities may be linked to a leader's ability to create homophilous perceptions. When organizational members perceived commonality with a new leader, higher levels of organizational identity (OI) created perceptions of transformational leadership (Behsarov, 2014; Effelsberg & Solga, 2015; Eun-Suk, Tae-Youn, & Bonjin, 2015). Usually based on a founder's or a leader's vision, organizational identity was acquired after years of sensemaking and sensemaking in a process of negotiations and conciliations with individual membership identities (Ashforth, Schinoff, & Rogers, 2016; Gioia, Price, Hamilton, & Thomas, 2010; Kreiner, Hollensbe, Sheep, Smith, & Kataria, 2015). Members that melded self-identity with organizational identity often displayed Organizational Citizenship Behavior (OCB), thus becoming part of the ingroup (Oren et al., 2012; Zhong et al., 2011). The increased frequency of interaction between a leader and an ingroup member could be due to increased proximity and thereby opportunities for developing homophilous perceptions.

In the context of leadership socialization and integration, homophily could be considered a significant factor in the successful implementation of succession plans. Homophilous perceptions were the result of the assessment of external stimuli that signaled commonality (Centola, 2015; Holzhauer et al., 2013; Skvoretz, 2013). The assumption was supported by the signaling theory that was used to explain dyadic

communication occurring in verbal and nonverbal modes resulting in elevated attraction levels (Celani & Singh, 2011; Karasek & Bryant, 2012). Viewing newcomer socialization through the lens of personal relationships made social interaction signaling a necessity in the process.

Bahns et al. (2011) discovered that the social ecology of a cultural environment mitigated the similarity-attraction effect (SAE) showing that relational choices varied in socio-ecological size. This meant that the organizational boundaries seemed limited by the choices available for social attraction also known as baseline homophily. Although the ratio of similarities between dyads varied, the natural inclination seemed to indicate that homophily perceived on multiple levels resulted in social dyadic choices (Bahns et al., 2011; Smith et al., 2014; Yap & Harrigan, 2015). The binding nature of homophily led Feitosa, Salas, and Salazar (2012) to consider group homophily the measure of cohesiveness based on communication levels between members. The implications were that a new leader that emanated homophilous signals was more likely to be accepted by the existing group.

The reason a transformational leader was ideal for onboarding may have had to do with the ability to enhance or create homophilous perceptions with the membership. Since homophilous perceptions seemed to be the salient factor in group cohesion (Aksoy, 2015; Alstott et al., 2014; Lozares et al., 2014), the transformation of these perceptions could be considered the necessary ingredient to successful leadership socialization. Altering membership homophilous perceptions was thus the transformational ability that was ideal in onboarding strategies (Bradt, 2010; Caillier, 2016; Carter et al., 2014;

Hoffman, Bynum, Piccolo, & Sutton, 2011). Hoffman, Bynum, Piccolo and Sutton (2011) sought to explain the effectiveness of transformational leadership upon group effectiveness by attributing the salience to value congruency. Value congruency was explained as a matching of values between the leader and his environment (Chaney & Martin, 2016; Conner, 2014; Hoffman et al., 2011; Williams Jr., Novicevic, & Ammeter, 2015). Studies revealed that although transformational leadership could not directly alter membership values, it could change value congruency perception. This meant that a transformational leader could alter membership congruency perceptions in what could be considered value homophily.

The perception that a leader has homophilous values with the organization seemed to correlate with value congruency and institutional logics. A transformational leader can be said to have the ability to *transform* membership viewpoints by emanating signals that reflect homophilous values and thus create positive causal outcomes (Carter et al., 2014; Li, Mitchell, & Boyle, 2016; Liou, Daly, Brown, & del Fresno, 2015). The emanated signals of commonality were similar to the methodology used in counselor/patient sessions (Cummings, 2013; Ramseyer et al., 2014; Ramseyer & Tschacher, 2011; Setter & Stojanovick, 2013). The clinical studies indicated that emanating signals of commonality through non-verbal communication resulted in patient case gains through improved communication. The process was later used in creating indications of rapport in customer relations and sales, later known as MM (Copeland, 2011; Davidsen & Fosgerau, 2015; Miles C. , 2015). Cognitive mirroring seemed to

improve communication and relationships. The process could correlate with the formation of attitude homophily.

Homophily scales. The alteration of homophilous perceptions seemed to be the significant factor in successful leadership socialization. Subjective elements of homophilous perceptions led McCroskey and Hamilton (1972) to devise a self-assessed, multi-dimensional homophily Likert-type scale. PHM was later developed into a self-assessed metric instrument (McCroskey et al., 1975) used in past studies most of which focused on communication context and behavior (Antheunis et al., 2010; Baruh & Cemalcilar, 2015; Lundy & Drouin, 2016; McCroskey et al., 2006). Lundy and Drouin (2016) tested the effectiveness of an abreviated form of the *FastFriends protocol* using PHM as the metric. The *FastFriends protocol* was a series of self-disclosure questions and relationship-building tasks that increased in intensity in an effort to create feelings of closeness in dyadic pairs (Aron, Melinat, Aron, Vallone, & Bator, 1997). Attitude homophily was shown to have increased only in face-to-face or phone exchanges, using the *FastFriends protocol* (Lundy & Drouin, 2016). In most studies, PHM was found to be a valid measure of homophilous perceptions (Antheunis et al., 2010; Baruh & Cemalcilar, 2015; Lundy & Drouin, 2016; McCroskey et al., 2006).

McCroskey, McCroskey, and Richmond (2006) tested background and attitude homophily scales to seek out improvements to strengthen PHM validity. It was discovered that attitude homophily was a more robust measure for PHM than background homophily (Antheunis et al., 2010; Frymier & Wanzer, 2003; McCroskey et al., 2006; Wright, 2000). McCroskey et al. (2006) found the reliability of the attitude homophily

scale ranging from 0.75 to 0.93 while background homophily reliability ranging from 0.51 to 0.83. In the context of leadership socialization, background homophily was not considered a good measure for the relationship that existed at the moment of introduction since the background of a new leader would not be a complete observable trait.

Membership attitudes are a significant consideration in leadership socialization, making attitude homophily an essential measure. The attitude homophily scale consisted of 15 bipolar items with 8 reversed polarity queries (McCroskey, et al., 2006). Researchers warned that adding to or omitting items from the attitude homophily scale could significantly reduce PHM reliability. For example, Antheunis et al. (2010) utilized PHM in a study regarding online communication to understand how homophily impinged upon relationship choices using only four items from the attitude homophily scale thereby reducing the reliability of the outcomes. King, et al. (2009) utilized the full attitude homophily scale returning reliability scores closer to the ranges found in McCroskey, et al. (2006). The attitude homophily scale seemed to be an appositive fit for measuring the effectiveness of MM processes in leadership socialization efforts.

Perceiving homophily. Homophily, the tendency to associate disproportionately with others who had self-similar qualities, may be the result of perceptions based on available visual, auditory, and kinesthetic (VAK) signals and thus not necessarily a reflection of actuality. VAK modes had been associated with learning styles rather than communication modes in past studies (Al Muhaidib, 2011; Kozhevnikov, Evans, & Kosslyn, 2014; Newton, 2015). Kozhevnikov, Evans, and Kosslyn (2014) indicated that VAK was an integral part of cognitive styles of processing information through

environmental interaction based on abilities and personality. Cognitive style referred to perceptual information processing based on memory and external influences (Kozhevnikov et al., 2014; Price, Ottati, Wilson, & Kim, 2015; Sternberg, 2014; Đurišić-Bojanović, 2016). This meant that the choice of perception was influenced by personality disposition. Processed perceptual information based on past experiences and environmental circumstances explained varied reactions to change and communication (Kozhevnikov et al., 2014; Sprehn, Okudan Kremer, & Riley, 2013; Đurišić-Bojanović, 2016). Thus, visual, auditory, and kinesthetic dispositions seemed to originate from social interactions seeking homophilous others.

Emanations of homophilous or *heterophilous* signals were exchanged based on VAK preferences through verbal and non-verbal communication (Dunbar, Jensen, Tower, & Burgoon, 2014; Kidwell & Hasford, 2014; Ledford, Canzona, & Cafferty, 2015). Dunbar, et al. (2014) associated the synchronization of non-verbal signals with the establishment of rapport and the foundation for successful relationships. The synchronization was believed to have occurred naturally. Additionally, the synchronization of embodiments and facial gestures were believed to transfer emotions in competitive contexts such as negotiations (Kidwell & Hasford, 2014). Thus, a transference of empathic states occurred as a result of natural nonverbal synchronization.

Creating homophilous perceptions through MM processes required a form of active empathic listening (Bodie, Gearhart, Denham, & Vickery, 2013) that could sense embodiments and verbal communication. Sensing embodiments such as posture, limb movement or position, breathing rate, and ROS was focused on VAK manifestations in

the exchange. The process was related to cognitive styles of communication (Cienki, 2013; Cuffari, Di Paolo, & De Jaegher, 2015; Đurišić-Bojanović, 2016; Kozhevnikov et al., 2014; Ledford et al., 2015). Cognitive styles referred to VAK tendencies in learning preferences. However, the observation of VAK tendencies in others could also be considered a branch of cognitive styles. Active empathic listening, focused on verbal and non-verbal signals to thereby attempt a synchrony of movements and actions, were the basic premises of MM. To describe the process in detail required re-engineered semantic labels to describe the exercise. In this case: *cognitive-visual assessments, cognitive-auditory assessments,* and *cognitive-kinesthetic assessment.*

Cognitive-visual assessments. Assessing VAK signals for MM required a systematic method of sensing the emanated signals from an interlocutor. The process of assessing valuations using visual perceptions was labeled in this work as cognitive-visual assessments (CVA). The term CVA had been used in the field of physical therapy referring to assessments made about a person's ability to visually identify objects accurately (Unsworth, et al., 2012). In this work CVA referred to the considerations used in assessing visual signals emanated by others in the visible area. CVA could be considered activated upon first impressions in which non-verbal embodiments, such as posture and eye movements emanated significance to the observer (Castelli, Carraro, Pavan, Murelli, & Carraro, 2012; Mumenthaler & Sander, 2012; Phutela, 2015). Mumenthaler and Sander (2012) considered social appraisal to be a necessary activity in socialization and that ingroup and outgroup members influenced the assessment of facial

expressions. CVA used in MM-enhanced socialization resulted in cognitively identifying gender, ethnicity, attire, facial expressions, posture, eye movements, and other signals.

Cognitive-auditory assessments. The term *auditory assessment* is a process used in neurophysiology to evaluate hearing loss experienced as a result of illness or injury (Carrara, et al., 2008). In the context of socialization, cognitive auditory assessment (CAA) referred to the assessment of audible signals in social exchanges. Audible signals were bi-dimensional; what was said and how it was said were verbal and non-verbal observations related to active-empathic listening (Cline, 2013; Floyd, 2014; Gearhart & Bodie, 2011; Hall, 2012). Gearhart and Bodie (2011) explored active-empathic listening as a multi-dimensional form of information processing during dyadic communication and found a strong correlation with 4 of the 6 social skill dimensions in the social skill inventory (SSI). Riggio's (1986; as cited in Gearhart & Bodie, 2011) SSI was used to assess social skills necessary for successful interaction based on homophilous perceptions triggered as a result of active-empathic listening. Floyd (2014) associated empathic listening to affectionate gestures that promoted social connection. Empathic listening can be considered part of CAA and CVA encompassing observations of verbal and visual signals.

Observations of verbal audible signals were interpreted contextually regarding vocabulary and phraseology, producing perceptions of education, ethnicity, culture, and authority (Barnett & Benefield, 2015; Yavaş & Yücel, 2014). Since assessments in socialization were based on homophilous perceptions, those who used similar vocabulary and phraseology tended to create close social relationships sharing emanated signals of

similar education and culture (Lee et al., 2016; Smith et al., 2014; Yavaş & Yücel, 2014). Nonverbal signals assessed with CAA included ROS or prosody. Prosody referred to audible linguistic signals that included intonation, stress, and ROS (Hoque & Picard, 2014; Rodero, 2015; Setter & Stojanovick, 2013; Uskul, Paulmann, & Weick, 2016). Thus, the tendency to associate with others who had similar ROS or intonation would be an instance of prosody homophily.

Prosody can be contextual, such as speaking rapidly due to emotional, habitual or cultural influences of a particular ROS (Gendron, Roberson, van der Vyver, & Barrett, 2014; Gili Fivela & Bazzanella, 2014; Tamuri & Mihkla, 2012; Uskul et al., 2016; Zellers & Ogden, 2014). Zellers and Ogden (2014) defended methods for quantitatively measuring contrasted prosodic signals such as the articulation rate and syllable accents similar to the methodology used in this work. However, the researchers used a mixed method to study prosody in a controlled environment based on phonetic expressions, measuring pace by having participants read material under certain conditions. Reading pace could not be associated with social exchanges and the natural formation of prosodic signals. Prosody synchrony is more aligned with conversation analyses of natural linguistic pace.

The natural synchronization of prosodic signals may be related to Calvo-Sotelo's (2014) *sonic affinity*. Sonic affinity referred to the effect musical rhythm and tempo had upon groups of people such as its mimetic effects in various business environments. For example, people in restaurants ate slower when a slower tempo was played indicating a natural mimicry of audible signals (Caldwell & Hibbert, 2002; Calvo-Sotelo, 2014;

Zellers & Ogden, 2014). Prosody synchronization seemed related to sonic affinity as interlocutors matched ROS during prosocial conversation. Past research had revealed that natural prosodic synchronization was an indication of rapport and alignment, often referred to as phonetic convergence (Karpiński, 2015; Pardo, 2013; Pardo, Jordan, Mallari, Scanlon, & Lewandowski, 2013). Phonetic convergence was the hypothesized outcome of MM processes in prosodic synchronization

Cognitive-kinesthetic assessments. In the medical field, kinesthetic assessment was a term used in motor skill evaluation for neurophysiological examinations (Kim, Rapcsak, Andersen, & Beeson, 2011; Semrau, Herter, Kiss, & Dukelow, 2015; Toledo, Manzano, Barela, & Kohn, 2016). The term kinesthetic referred to the sense of feeling and had been used to describe a particular learning style that involved physical touch (Bokyung, 2015; Leopold, 2012; Williams, 2012). However, in MM processes CKA referred to the assessment of another person's embodiments. Embodiments referred to body movements such as posture, limbs, head, eyes, and breathing rate. The MM practitioner mirrored these movements cognitively.

Emotional transference had been attributed to embodiment mirroring in past studies (Budell et al., 2010; Budell et al., 2015; Hurley, 2008; Jacob P. , 2013; McGarry & Russo, 2011; Peterson & Limbu, 2009). The transference of emotions through visual, auditory, and embodiments had been attributed to intuition (Hodgkinson, Sadler-Smith, Burke, Claxton, & Sparrow, 2009). However, the seminal work of Simon (1955, as cited in Akinci & Sadler-Smith, 2012) explained intuition as a judgment reached as a result of familiar, intepreted signals. This meant that intuition was not an enigmatic process

derived from an unknown source, but an assessment of tell-tale signals, received incognizantly, from which a manager could reach decisions. In the context of MM proccesses, CKA would thus be used to perceive embodiments in an attempt to alter kinesthetic homophilous perceptions.

The socialization process of seeking homophilous others was probably not a naturally cognizant activity. The tendency appeared to exist in every life form (Fu et al., 2012; Mann, Stanton, Patterson, Bienenstock, & Singh, 2012) and considered the cause of cliquish behavior in humans, such as in ethnic groups (Grund & Densley, 2015; Smith, Maas, & van Tubergen, 2014) and in professional and social ingroups and outgroups (Bonner, Hesfor, Van Der Stede, & Young, 2012; Launay & Dunbar, 2015). The socialization process thus became one of seeking out homophilous others regardless of the form of communication used whether verbal or nonverbal.

With the assumption that communication signals were constantly emanated and received in dyadic exchanges, the natural synchronization of embodiments and speech patterns during social engagement was an effort at creating social bonds (Tschacher et al., 2014; Vacharkulksemsuk & Fredrickson, 2012). Tschacher et al. (2014) identified brief moments of synchrony, labeling it the *social present*; a moment lasting about 5 seconds indicating positive and harmonious states of mind in psychotherapeutic sessions. In the context of socialization, the *social present* was considered in this work as a *nowness* of positive interaction and the probable inception of homophilous perceptions. The synchronization process was one that had been imitated in rapport-building techniques such as in MM processes (Bartkowiak, 2012; Campos-Castillo & Hitlin, 2013; Davidsen

& Fosgerau, 2015). Thus, assessments were based on visual, auditory, and kinesthetic signals in an attempt to *homophilize* a communication dyad through synchronization.

Neurolinguistic programming. Bandler and Grinder (1976) introduced Neurolinguistic programming (NLP) developed through observation of successful psychotherapist in an effort to discover underlying positive patterns. The premise of NLP theory was that social interaction produced prosociality when commonality signals were duplicated or synchronized in dyadic exchanges (Bartkowiak, 2012; Bashir & Ghani, 2012). NLP tenets believed that duplicating how others excelled reproduced the same results in others (Bartkowiak, 2012; Bashir & Ghani, 2012; Grimley, 2012; Gumm, Walker, & Day, 1982; Hejase, 2015). Additionally, it was postulated that the matching of belief systems could significantly enhance performance. Sharpley (1987), however, compiled an exhaustive list of NLP research that had been conducted to that date and found that very few studies supported particular NLP tenets. However, the overwhelming response to NLP theory resulted in applications in businesses and organizational enhancements nonetheless, often reporting positive results (Dixon, Parr, Yarbrough, & Rathael, 1986; Grosu, Rusu, & Grosu, 2013; Hejase, 2015; Thompson, Courtney, & Dickson, 2002). Many of the studies reported in Sharpley (1987), however, questioned particular aspects of NLP techniques that continue to show questionable applicability such as the prediction of behavior through eye movement (Wiseman, et al., 2012). Despite the discreditation of many NLP tenets, one technique inidicated possible applicability in improving prosociality, MM that exhibited workability in possibly creating inceptions of homophily in dyadic exchanges (Agness, 2011; Bartkowiak, 2012;

Gheorghe, 2013; Grimley, 2012; Wood J. , 2006). All other NLP tenets were disregarded in this work.

Matching and mirroring. MM was a technique used extensively in sales to attempt to build rapport with clients (Agness, 2011; Bashir & Ghani, 2012; Bradford, Challagalla, Hunter, & Moncrief, 2012). Some researchers believed that humans communicated utilizing a preferred representation system (PRS) evoking either VAK habitual modes (Grimley, 2012; Odendaal, 2015; Bandler & Grinder, 1982). PRS claims were not consistent phenomena and were thus more probable of VAK mode fluctuations dependent upon context. Although PRS may have been an assumption in applying MM processes, the assumption did not apply to the current study. Mirroring, however, appeared to be a salient socializing factor in all lifeforms, as was evident in the discovery of mirror neurons in macaque monkeys (Caramazza et al., 2014; Fadiga, Tia, & Viaro, 2015; Ferrari et al., 2005; Gallese et al., 2011; Kilner & Lemon, 2013; Schieber, 2013). The discovery may explain the basic human need for social synchrony.

Neurosociological aspects of mirroring. The relationship between neuroscience and sociology would not seem to be a typical combination. However, the discovery of mirror neurons in macaque monkeys prompted Franks (2010) to predict a necessary link between these two sciences. The mirror neuron theory inferred a natural biological synchronization in human action communication (Lapenta & Boggio, 2014; Southgate, 2013) and emotive interactions (Decety, 2010; Schaefer et al., 2012). Additionally, the theory explained how specific motor neurons were used to understand action and production through direct observation and mental mirroring (Caramazza et al., 2014;

Ferrari et al., 2005; Hasson & Frith, 2016; Kilner & Lemon, 2013; Southgate, 2013). Hasson and Frith (2016) theorized that only through the activation of mirror neurons could a full understanding of human action motions be understood by another. This meant that meaning could be derived from embodiments and emotions to access the entire spectrum of past physical and mental experiences through mental mirroring.

Possible mirror neuron stimulation during MM processes is an area of research that could reveal the physiology of the *social present*, as described in Tschacher et al. (2014). The activation of mirror neurons in dyadic exchanges during MM processes could be inferred, however by the *direct-matching* model that related *understanding* to a significant goal in human interaction (Caramazza et al., 2014; Jacob, 2013; Michael, et al., 2014). The *direct-matching* model indicated that mirroring of experiences, rather than conceptual reasoning, could enhance the understanding of a dyadic partner's experience. Steinhorst and Funke (2014), however, refuted the assumption that understanding occurred through the activation of mirror neurons, but through the duplication of identical actions between observer and communicator. This meant that activation of mirror neurons could be attributed to embodiment mirroring, creating the *social present* hypothetically be cognitively attained.

The social present. The social presence theory was used in past studies to determine online social climate by defining the quality of communication through verbal and nonverbal signals (Kruikemeier, van Noort, Vliegenthart, & de Vreese, 2013; Park & Cameron, 2014; Wang & Wang, 2012). Wang and Wang (2012) tested the social presence theory in online communication to identify perceptual measures of immediacy

between dyadic partners. The premise was that successful online interaction required the perception that a real person was present and communicating (Croes et al., 2016; Ning Shen et al., 2010; Park & Cameron, 2014; Wang & Wang, 2012). Thus, the development of mediated face-to-face communication enhanced social presence through the exchange of embodiments such as facial expressions, eye movement, and other visible signals.

Visual aspects of communication between interlocutors led researchers to investigate the phenomenon further (Mennecke et al., 2010; Ning Shen et al., 2010; Nowak, 2013; Tschacher & Ramseyer, 2014). Tschacher and Ramseyer (2014) developed the social presence theory further describing the moment in which prosociality could be attained through what was called the *social present*; the instance of positive social interaction through a naturally occurring embodiment synchrony lasting an estimated five seconds. The moment of synchrony could be considered the inception of homophilous perceptions. Since the social present was postulated to occur at the moment of natural synchrony, MM processes could thus be considered the reproduction of a simulated social present. If the social present is the moment of homophily inception, then MM could possibly alter homophilous perception. In the context of leadership socialization, altering homophilous perceptions is the transformational ability necessary to conduct successful leadership socialization strategies.

Human mirroring inferred. The activation of human mirror neurons can only be inferred since the process of neuron tracking required the removal of the scalp (Fadiga, Tia, & Viaro, 2015; Kilner & Lemon, 2013; Schieber, 2013). The inference was that the social present may have developed as a result of mirror neuron activity. The activation of

mirror neurons was attributed to action observations that created a mental-image duplicate of the action. Thus, physical mirroring activated mirror neurons creating the perception of commonality. The hypothetical activation of mirror neurons through MM processes may be a way in which the exchange of empathic transference can occur. The exchange of empathic signals was *emotive mirroring* as a result of physiological and emotional responses (Budell et al., 2010; Budell et al., 2015; Walter, 2012; Westbrook, 2015). Empathy could thus be considered an activation of mirror neurons that affect emotions and could thus be experienced by another dyadic partner (Chiao, 2011; Decety, 2011; Hasson & Frith, 2016; Lopez, Falconder, & Mast, 2013). The exchange of emotions was part of the theory of mind that was used to suggest that attributions of both cognitive and affective empathy are either cognitively assessed or felt (Betti & Aglioti, 2016; Chiao, 2011; Sebastian, et al., 2012; Stueber, 2012). Affective empathy was a distinction of actual exchanges of emotional states rather than cognitive empathy characterized by the social concepts attributed to sympathy.

Cognitively assessing another's emotions also involved verbal content. The neurocognitive approach using the perception-action model associated empathy with the phenomenon of increased familiarity, similarity, learning, and salience (Betti & Aglioti, 2016; Preston & de Waal, 2002; Zahavi & Rochat, 2015). The neurocognitive approach bred the perception-action model, introduced by Milner and Goodale (1992, as cited in Ochsner, Silvers, & Buhle, 2012) who identified two distinct pathways for visual perception and action perception, making the activation of mirror neurons an interaction between both perceptions. The foundational basis may have been laid from the simulation

theory of other minds that established the idea that understanding mental states required an internal re-experiencing of those mental states including emotions (Gallagher, 2015; Press & Cook, 2015). Stueber (2012), however, referred to simulation as a reenacting empathy, stating that the experiences of others are reenacted in another's mind through audible assessments.

Verbal communication research showed that semantic knowledge was a product of, not only the meaning of a word, but the mental image representation of the word along with past somatophysical memory of feeling the image (Carlson, Simmons, Kriegeskorte, & Slevc, 2014; Ferrari et al., 2005; Hoffman & Crutch, 2016). This meant that the semantic meaning of an audible signal created a mental image picture that represented the meaning along with the memory of interacting with the object in the image. If mirror neurons were activated from visual observation, it could be hypothesized that the activation of mirror neurons were stimulated by the replication of the mental image reproduction rather than verbalization.

Alignment and reality. Conversation required intricate verbal maneuvering that transformed into synchronized interaction, referred to as interactive alignment (Christensen, Fusaroli, & Tylén, 2016; Menenti, Pickering, & Garrod, 2012; Reitter & Moore, 2014). Alignment was explained using the grounding theory that indicated a collaborative role between dyadic partners in creating an agreed-upon reality (Kashima, 2016; Nicolás, 2013). The alignment of thought patterns in a dyadic exchange may be a significant aspect of the human perceptions of reality. Social reality was a philosophical term that had been argued for decades on its constitutive and generative qualities

(Goncharenko, 2015; Kashima, 2016). Kashima (2016) described shared reality as a collective view of inner representations of the perceived environment. This meant that the perception of reality was dependent upon a shared view.

Butcher and Ryan's (1974) description of Admiral Byrd's experiences while in total isolation for 6 months in the Antarctic related instances in which a separate reality may have bred hallucinations and fantasies. The "world-to-mind" view in Searle (2010, as cited in Tuomela, 2011) made social reality the basis for linguistic interchange in which a declaration of a specific view was then accepted as truth by the group. The agreement of shared perceptions could thus be considered group reality in a socialization context. Thus, the agreed-upon acceptance of a new leader could be expressed as group reality creating legitimacy.

Matching and Mirroring Methodology

MM processes possibly created an *agreed-upon* reality through the synchronization of verbal and non-verbal signals. The application of MM processes relied on visual then auditory observations. Observation and assessment of VAK modes were considered constant monitoring, utilizing cognitive visual assessment (CVA), cognitive auditory assessment (CAA), and cognitive kinesthetic assessment (CKA) of signals. The identification of emanated VAK signals were then *mirrored* (Bartkowiak, 2012; Breen, 2014; Hasson & Frith, 2016) in an effort to create the social present as described in Tschacher and Ramseyer (2014) hypothetically creating homophily inception. Visual aspects of the process involved the observation of embodiments, such as posture, eye movement, and any other observable bodily emanations that could be *mirrored* (Kreiner

& Eviatar, 2014; Jacob, 2013). *Mirroring* did not involve exact synchronization, but a natural adjustment to observed embodiment shifts and audible emanations (Cacioppo, et al., 2014; Jacob, 2013; Kim, 2015). The continued dyadic interaction meant that CVA and CKA monitoring of bodily movements as observations shift to CAA when verbal communication started. Auditory signals were then processed bi-dimensionally, verbal and prosodic. CAA would reveal verbal aspects of the exchange such as vocabulary, phrases, and content. Content matching was not a necessary element in the process although the chance *matching* would increase the synchronization effect.

The primary nonverbal emanated signals in CAA was prosody. Prosody referred to intonation, stress, and rate of speech (Acosta, 2011; Breen, 2014; Hellbernd & Sammler, 2016). When a person communicated visually, whether from an excited or a natural state, speech rate increased (Bartkowiak, 2012; Hasson & Frith, 2016; Kreiner & Eviatar, 2014). The increase in speech rate was then *matched* in the continued process of evoking synchrony in the dyadic exchange. Other emotional states or tendencies were shown to decrease speech rate markedly with added pauses, considered kinesthetic communication (Bashir & Ghani, 2012; Lang E. , 2012). The tendency to pronounce words precisely indicated that a person was auditorily inclined and thus emanated signals that evoked sound (Agness, 2011; Odendaal, 2015). Pronouncing words precisely with an auditory communicator were hypothesized to emanate homophilous signals of prosody homophily . A mismatch would likely result in a break in communication with the introduction of *heterophilous* signals if a dyadic partner communicated visually while the other partner communicated kinesthetically.

Verbal and nonverbal signals were continuously emanated between dyadic partners. Communication thus occurred at multi-levels of human contact (Cienki, 2013; Kong, Law, Kwan, Lai, & Lam, 2015; Perlman & Cain, 2014). Gestures, posture, eye movement, breathing pace, and ROS were visual and auditory signals that if *mirrored* and *matched* were shown to result in qualitative aspects of prosociality (Germani & Rivas, 2016; Gheorghe, 2013; Loehr, 2012) and successful in psychotherapeutic dyadic sessions (Nolan, 2012; Won et al., 2014). MM also seemed to evoke subjective aspects involving emotional emanations (Dewaele, 2012; Singer & Klimecki, 2014; Inzlicht et al., 2012). Although empathy was an area of interest in dyadic exchanges during socialization it was not observed in this study. The emotional state of a dyadic partner, however, may reduce ROS in highly kinesthetic communicators allowing for prosody *matching* using CAA. CKA may be a subject for future research into emotional assessments in the socialization processes.

Embodiments were thus signals emanated via posture, movement, and gestures that implied an activation of mirror neurons, creating empathic signals of commonality (Jacob, 2013; McGarry & Russo, 2011). Since embodiments were more likely to activate mirror neurons (Caramazza et al., 2014; Perlovsky & Ilin, 2013; Streeck, 2015), synchrony of body movements may have created a congruence of motion that simulated mirror neuron activity. The natural embodiment adjustments that mirrored the receiver were likely unnoticed due to the tendency for self-focused rather than other-focused social conversation during moments of stress (Jakymin & Harris, 2012; Bautista & Hope,

2015; Boehme, Miltner, & Straube, 2015). Social conversation in new leader socialization often resulted in elevated levels of stress as a result of anticipated change.

The MM process involved dyadic conversation, cognitively assessing verbal and non-verbal signals in order to create a synchrony of embodiments and ROS. The details of the process will be discussed in terms associated with cognitive methods rather than NLP associated terminology that focused on rapport-building techniques (Agness, 2011; Alder, 2002; Bartkowiak, 2012; Cox, Bachkirova, & Clutterbuck, 2014; Miles C. , 2015). The quantitative nature of this study required an objective view of the process to provide generalizable data.

The CC, executing MM processes was considered *source* and the affected partner, the research participant, the *receiver*. Engaging the process began immediately upon visual contact. *Source*, utilizing CVA became aware of embodiments such as posture, body motion, eye movements, and breathing patterns. The process may have occurred simultaneously with verbal exchanges thus engaging *source* CAA, signaling bidimensional aspects of non-verbal communication such as ROS and tone (Breen, 2014; Gili Fivela & Bazzanella, 2014; Hellbernd & Sammler, 2016; Regenbogen, et al., 2012). *Source* then mirrored embodiments by naturally shifting body positions, engaging in similar eye movements, and matching breathing patterns while listening to tone and ROS as the *receiver* engaged in conversation (Agness, 2011; Bartkowiak, 2012; Hasson & Frith, 2016; Zahavi D. , 2012). The cognitive mirroring was executed naturally with delayed body shifts and positions as the conversation progressed.

It was possible that participants had a preferred VAK method of expressing or communicating as theorized in NLP's preferred representational system (PRS) (Harriss, 2013; Odendaal, 2015; Sturt, et al., 2012). However, it is probable that VAK modes fluctuated as communication improved or was led through pacing or emotional changes (Cox et al., 2014; Miles C. , 2015). Pacing was a technique used by NLP practitioners that first matched and then altered ROS through gradual conversational progression (Joey & Yazdanifard, 2015; Kupper, Ramseyer, Hoffmann, & Tschacher, 2015). An increased ROS was attributed to visual communication; a moderate, methodical rate was more associated with auditory communication, and; a slow rate indicated kinesthetic communication (Bashir & Ghani, 2012; Grosu et al., 2013; Bylund, Peterson, & Cameron, 2012).

Pacing occurred with *source* assessing ROS, matching the rate and then changing it on a gradual basis (Joey & Yazdanifard, 2015; Kupper et al., 2015; Ramseyer & Tschacher, 2011). Testing VAK components separately did not duplicate human verbal and non-verbal exchanges. The matching of VAK components required a combination and continuous mirroring of verbal and non-verbal exchanges in order for signals of commonality to be emanated between the two (Avanzino, et al., 2015; Koudenburg, Postmes, & Gordijn, 2016; Murphy & Rodríguez-Manzanares, 2012). Conversations fluctuated between visual, auditory, and kinesthetic modes. It was up to MM *source* to keep up with the *receiver* by matching the modes as they changed.

Testing MM processes quantitatively was problematic in that *source* activity would have required many hours of human observation and hand-coding resulting in

higher rates of error in the assessment. Technological advancements made it possible to measure moments of synchrony utilizing specialized software (Boersma, 2002; De Jong & Wempe, 2009) and three-dimensional video sensing (Fujiwara, 2016; Iqbal & Riek, 2016; Schmidt et al., 2014; Won et al., 2014). Won et al. (2014) tracked and recorded moments of body synchrony utilizing Kinect® sensors with computer vision algorithms to record moments of synchrony and correlated them with the qualitative aspects of the dyadic exchanges. The results of the study indicated a direct relationship between the moment of body synchrony and dyadic creativity leading to higher levels of collaboration.

Kinect® sensors were used to test MM processes in the current study, detecting synchrony and differentiating between 2 groups for MM delivery effectiveness. The differentiation was necessary to test the effectiveness of the processes against homophilous perceptions. PHM was the metric of prosociality congruent with group acceptance and leadership socialization (Antheunis et al., 2012; McCroskey et al., 2006; Wright, 2012). Thus, the effective delivery of MM processes could quantitatively be measured against natural tendencies and tested for creating or enhancing homophilous perceptions.

Gaps in the Literature

The literature review revealed significant gaps in several areas. Past research addressed the problems stemming from the Leadership Succession Crisis and identified some of the deficiencies in current organizations confronting the problem (Balser & Carmin, 2009; Cairns, 2011; Chung & Luo, 2013; Lund & Thomas, 2012). Suggestions

for confronting the problem did not provide plausible quantifiable outcomes for socialization initiatives. Bradt's (2010) assessment regarding onboarding as a tranformational leadership function placed social bonds as an antecedent to successful outcomes. The ability to create social bonds had been associated with the qualitative phenomenon of rapport, which made the outcomes subject to bias and personal interpretation (Campbell et al., 2003; Cohen & Kassis-Henderson, 2012; Ho, 2014; Fatima & Razzaque, 2014; Lakens & Stel, 2011; Miles et al., 2009; Vacharkulksemsuk & Fredrickson, 2012). The literature revealed a variety of interpretations for what constituted rapport (Bartkowiak, 2012; Peterson & Limbu, 2009; Spencer-Oatey, 2005; White et al., 2012). The best definition for rapport presented by Tickle-Degnen & Rosenthal (1990) may have further obfuscated the meaning. Associating the phenomenon to two components of positive communication, *mutual attention* and *positivity*, could be considered redundant. The third component, *coordination* provided the basis for further investigation.

The literature review also revealed that rapport-building techniques were based on the measure of rapport as it was associated with trust, empathy, politeness, or effective communication (Cohen & Kassis-Henderson, 2012; Ho, 2014; Vacharkulksemsuk & Fredrickson, 2012; White et al., 2012). In the context of leadership socialization, however, the literature implied *trust* as a significant factor (Bahns, Pickett, & Crandall, 2011; Campbell et al., 2003; Celani & Singh, 2011; Chung & Luo, 2013; Dai et al., 2011; Ellis, et al., 2015; Griepentrog et al., 2012; Kim, Cable, & Kim, 2005; Korte & Lin, 2013; Kroh, 2012; Ndunguru, 2012; Perrot, et al., 2014; Scott et al., 2012; Simosi, 2010).

Developing trust could also be considered an end-product of rapport. However, homophily was considered a foundational group characteristic that bound the group through institutional logics.

The inability to identify homophily as a possible metric for socialization tactics represented a significant gap in the literature. Although any rapport-building tactic could have been used to relate to levels of homophilous perceptions, MM processes seemed to parallel applicable theories in socialization such as the social identity theory (SIT), the similarity-attraction paradigm, the social presence theory, and the mirror neuron theory. Some researchers reported positive results from MM processes claiming increased levels of rapport although quantitative results were unattainable without an effective metric (Bartkowiak, 2012; Bashir & Ghani, 2012; Wood J. , 2006). Homophily represented a viable alternative for measuring socialization success.

Conclusion

The Leadership Succession Crisis, as millions of Baby Boomers reach retirement age, was considered a social problem (Cairns, 2011; Groves, 2010; Lund & Thomas, 2012; Reester Jr., 2008). The problem of replacing experienced leaders was rooted in a new leader's ability to establish social bonds with the exiting membership. Onboarding exacerbated the change event by introducing new leaders to existing memberships (Bradt, 2010; Dai et al., 2011; Fursman, 2014; Ndunguru, 2012; Watkins, 2013). Furthermore, the change event is expected to impact every industry with limited qualified replacements available from the following generation. Onboarding strategy success was affected by a new leader's ability or inability to quickly establish social bonds coupled with the

ongoing challenges of managing the complexities of the organization. The *laissez faire* approach to socialization strategies was no longer viable in a volatile global economy.

Quickly establishing social bonds with members of an organization and externals was a transformational ability in high demand. However, with a limited pool of candidates available during the Leadership Succession Crisis the probabilities for attaining socially intelligent transformational leaders were small (Cairns, 2011; Groves, 2010; Lund & Thomas, 2012). For this reason, MM coaching was tested as a possible alternative tool in onboarding strategies for simulating the effects of transformational communication (Ayub, Manaf, & Hamzah, 2014; Men L. , 2014; Men & Stacks, 2013). The concept of mirroring could be considered a neural stimulation of synchronic tendencies emanating social signals of commonality.

I proposed homophily as a viable metric for testing MM outcomes in leadership socialization applications due to its salience in group cohesion and convergence. Dependent variables such as rapport and empathy in past studies were not viable as quantitative states (Imel, et al., 2014; Peterson & Limbu, 2009; Regenbogen, et al., 2012). Empathy encompassed relationships congruent with leader/member association (Englander & Folkesson, 2014). However, empathy did not encompass the prosocial outcomes necessary for leadership socialization and integration. The concept of rapport was qualitative and thus could not be a valid metric for MM effectiveness (Cohen & Kassis-Henderson, 2012; Ho, 2014; Lakens & Stel, 2011). On the other hand, PHM was an appositive metric that was considered the common ingredient to all relationships including leader/member associations (Fu et al., 2012; McCroskey et al., 2006; Streukens

& Andreassen, 2013; Wang & Zhu, 2014; Yavaş & Yücel, 2014). PHM constituted the dependent variable.

The challenge of ensuring that MM was delivered properly involved video and coding procedures that would have required observation of hundreds of hours of video-recorded dyadic interchanges. The utilization of 3D imaging technology to observe moments of embodied synchrony to compare body and limb angles as in Won et al. (2014) reduced the chances for reaching spurious conclusions. The matched ROS or the articulation rate was determined using Praat 6.0.28; specialized software created by Paul E. Boersma and David Weenink (2002) of the Institute of Phonetics Sciences of the University of Amsterdam, designed for speech analyses and processing. The specialized Praat script, designed to detect syllable nuclei to measure articulation rate, created the data necessary to determine ROS matching (De Jong & Wempe, 2009).

With technological advancements in imaging and signal processing, the hypothesis of increased levels of homophily through MM processes could establish an explanation of how human relationships are maintained physiologically (Betti & Aglioti, 2016; Budell et al., 2015; Cacioppo, et al., 2014; Gordon, Tranel, & Duff, 2014). The outcomes of this research determined applicability in leadership socialization. Nevertheless, testing MM delivery required differentiation from natural tendencies to avoid arriving at spurious conclusions.

The research plan and the details that ensured the protection of human research subjects during all phases of the experiment are covered in the following chapter. The detailed processes such as video motion technology monitoring for embodiment

synchrony (Pterneas, 2017; Won et al., 2014) and signal processing using Praat algorithms for ROS (Boersma & Weenink, 2017) will be covered as well. Since PHM levels may be affected by other covariates such as *age*, *gender*, *ethnicity*, *height*, *glasses*, *hobbies*, and *professions* an analysis of covariance (ANCOVA) was utilized to test the relationship and the hypotheses.

Chapter 3: Methodology

The methodology used to investigate the relationship between MM and PHM is detailed in this chapter. MM was considered the main independent treatment variable and PHM the dependent variable (Antheunis et al., 2012; McCroskey et al., 1975; McCroskey et al., 2006). Homophily, the tendency to associate disproportionately with similar others, was the dependent variable. However, other variables were expected to affect homophilous perceptions. Physical, conspicuous characteristics shared between interlocutors such as age, gender, ethnicity, height, and corrective lenses were characteristics expected to affect PHM levels. Thus, it was necessary to conduct an analysis of covariation (ANCOVA) to isolate MM effects.

Human interaction observations were necessary to test the hypotheses in this work. However, tracking synchronization using human observers would have required hundreds of hours of analysis and increased chances for error and bias. Technological advancements made it possible to record and measure moments of embodiment synchrony in real time using Kinect® sensors (Hachaj, Ogiela, & Koptyra, 2015; Hepach, Vaish, & Tomasello, 2015; Won et al., 2014) in combination with Microsoft® Visual Studio® and Vitruvius® for joint angle calculation (Pterneas, 2017). The Microsoft® Kinect® sensor version 2 will be discussed in the instrumentation section of this chapter as a necessary tool for differentiating MM from natural tendencies.

Signal processing and algorithmic calculations of audio signals were analyzed using Praat 6.0.28 (Boersma P. G., 2002; De Jong & Wempe, 2009). Praat 6.0.28 software was used to detect syllable nuclei, considered peaks in signals often associated

with vowel sounds. The analysis involved listening to segments of recorded conversation for ROS measurements. ROS was also known as the *articulation rate*, referring to how fast a speaker produced syllable nuclei within a specific timeframe. ROS was compared between dyadic partners to assess vocal tempo matching.

Purpose of the Study

The purpose of this quantitative quasi-experimental study was to test MM with PHM as the metric of effectiveness. MM was a dyadic communication enhancement tool used in this study as the coached intervening independent variable. The underlying purpose was possibly alleviating socialization problems during the leadership succession crisis. As discussed in the literature review, MM processes involved the use of verbal and nonverbal communication to cognitively synchronize VAK signals (Gonzales, Hancock, & Pennebaker, 2010; Jacob, 2013; Lang, 2012). A leader or candidate, coached in MM (CC), differentiated by a candidate uncoached in the techniques (UC), were observed to ascertain whether synchronic instances correlated with augmented levels of PHM. Natural synchronic tendencies were observed in the UC in attempting to establish rapport with research participants. It was not known whether the CC could produce increased synchronic instances when compared to natural tendencies. The differentiation was necessary to test MM processes against PHM levels and thereby determine whether the outcome increased social acceptance. Each participant filled out the attitude homophily scale presented in McCroskey et al. (2006) to measure homophilous perceptions produced within a time-frame. PHM was thus considered the dependent variable. The hypothesis that *matched* and *mirrored* signals exchanged between dyadic terminals

affected homophilous perceptions established a measureable outcome for the process. The particular applicability of MM processes in leadership socialization was based on the literature regarding the anatomy of group cohesion and homophily.

Restatement of the Problem

The general problem, referred to in Chapter 1, was that an estimated 50% of U.S. companies were likely unprepared for leadership succession and socialization, perpetuating crisis conditions without an intervening effort (Bolton, 2017; Cairns, 2011; Lund & Thomas, 2012). Coaching and mentoring as intervening efforts were not sufficiently directed towards particular aspects of leadership integration and socialization (Bond & Naughton, 2011; Cox et al., 2014). Additionally, studies have shown that onboarding strategies resulted in adverse effects upon an existing group structure including identity threats due to uncertainty and a general resistance to change (Balser & Carmin, 2009; Eubanks, Brown, & Ybema, 2012; Bond & Seneque, 2012) When a new leader was introduced into an existing group, communication breaks were more likely to occur leading to costly turnovers (Arogundade, 2011; Calota, Pirvulescu, & Criotoru, 2015; Gao, 2014). It was evident that onboarding required transformational leadership skills to successfully maneuver through the process (Bradt, 2010; Gotsis & Grimani, 2016; Vasilaki, 2011). Without a socialization plan that strengthened the social aspects of the process, however, onboarding would become costly and ineffective. Past researchers attributed onboarding success to rapport-building skills (Campbell et al., 2003; Cohen & Kassis-Henderson, 2012; Miles et al., 2009; White et al., 2012). However, none of the

outcomes that tested rapport fully reflected contextual aspects of leadership socialization and were likely subjective.

The specific problem was that studies that tested rapport-building techniques did not use outcomes reflective of the relationship development necessary for leadership socialization (Mayfield & Mayfield, 2017; Ruben & Gigliotti, 2016) generating biased results and erroneous inferences due to the subjective nature of rapport (Cohen & Kassis-Henderson, 2012; Ruben & Gigliotti, 2017; White et al., 2012). Rapport was considered a qualitative state and therefore, quantitatively testing techniques aimed at increasing the phenomena became a challenge of finding an appositive metric. Metrics such as trust, good communication, politeness, and coordination were considered indicators of rapport but did not provide proper applicability in new leader socialization (Fatima & Razzaque, 2014; Ho, 2014; White et al., 2012). Without quantifiable evidence of the effectiveness of socializing efforts, leadership integration would be hit-and-miss. According to Dai et al. (2011) rapport-building techniques needed to be effective within the critical first 18 months to avoid derailment of the onboarding process. The outcomes derived from using the qualitative aspects of rapport did not provide the quantifiable evidence critical for timely implementation. Additionally, rapport as a metric for social integration success did not represent the necessary elements of leadership integration in which perceived commonality was affected at various levels including institutional logics.

As covered in the literature review, MM was a method by which conversational and interactional styles were cognitively synchronized by one interlocutor (Vázquez-Montilla et al., 2000). The process involved empathic listening of conversational

tendencies (Cox et al.,, 2014; Miles, 2015). For example, the tendency to look directly into another's eyes during conversation or looking away and then making eye contact at varying intervals were communication signals noted and mirrored during the MM process. The CC was concerned with maintaining embodiment synchrony and ROS matching through variations of physical body motion and vocal pace fluctuations. If the dyadic partner sat with arms crossed, the CC did not immediately mirror the partner, but waited a few seconds before casually making the same movement. The goal was to match ROS throughout the conversation and maintain extended periods of embodiment synchrony beyond the five-second timeframe resulting in a simulation of the social present as described in Tschacher et al. (2014). Embodiment and ROS synchrony comparisons between CC and UC required mitigation to reduce confounds. The UC was sampled from a general population selecting an individual who had homophilous characteristics and background to the CC. CC and UC were thus matched as closely as possible with similar visible qualities including age, gender, height, ethnicity, and glasses, all considered covariates of homophilous perceptions.

Recorded verbal exchanges were measured in one minute intervals calculating a match based on the mean articulation rate between interlocutors. If the test participant spoke slower and tended to emphasize pronunciation, the CC matched the tendency while continuing to mirror embodiments. The tendency to speak very slowly and methodically was characteristic of kinesthetic communication while the tendency to speak very rapidly was considered visual communication. ROS mismatching was expected to produce

heterophilous rather than homophilous perceptions. Thus a combination of mirrored embodiments and matched ROS were hypothesized to covary with elevated PHM levels.

Primary Research Questions and Hypotheses

I cover the research questions for this study referred to in Chapter 1 in greater detail here. Utilizing homophily as the metric for measuring socialization efforts, such as MM, provided quantifiable evidence of its effectiveness or ineffectiveness. The first part of the study was guided by the first research question (RQ1) seeking a relationship between MM and elevated PHM levels. The second research question (RQ2) referred to whether elevated PHM levels predicted candidate choices. The corresponding hypotheses represented the tentative rejection answers to the research questions and thus formed a prediction of future outcomes in similar testing.

RQ1: To what extent, if any, is there a relationship between the application of MM and elevated PHM levels?

$H_0$1: There is no significant relationship between the application of MM and elevated PHM levels.

H_a1: There is a significant relationship between the application of MM and elevated PHM levels.

RQ2: To what extent, if any, is there a relationship between elevated PHM and candidate choices?

$H_0$2: There is no significant relationship between elevated PHM and positive candidate choices.

H_a2: There is a significant relationship between elevated PHM and positive candidate choices.

It was hypothesized that the effective delivery of MM processes in dyadic interchanges correlated with increased PHM levels. By rejecting the first null hypothesis ($H_0 1$), MM would be shown as an effective way of increasing PHM levels. By rejecting the alternate hypothesis ($H_a 2$), MM would be shown not to be an effective way of increasing PHM levels. PHM, however, was assumed to covary with other independent variables such as age, gender, ethnicity, height, glasses, hobbies and professions. To avoid arriving at spurious conclusions, the data was analyzed using an ANCOVA to isolate the effects of MM processes on PHM. ANCOVA was used to reduce within-group error variance by adding covariates to explain differences, thereby reducing confounds. Details of the ANCOVA are covered in the Data Analysis section of this chapter.

Research Design

Determining the relationship between an independent and a dependent variable in social sciences was not conducive to a classic experimental design due to the nature of human relationships and problems with internal validity. Quasi-experimental designs were created to minimize the problem of internal validity in correlative sociological studies. The quasi-experimental contrasted groups design was an appositive fit to the current study since randomization of assignment to specific groups was not possible. The pilot study was used to test the feasibility of contrasted categorical groups, faculty/staff and students at MWSU. Groups in the main study were divided by Workforce Solutions

employees and the general public. A posttest only design provided the data needed to test the hypotheses.

Sample Types

The sampling strategy involved conducting a pilot study, analyzing MM in a university population to ascertain the effect size, and a main study to test the process in an organizational population and general public. The pilot study was conducted at MWSU in Wichita Falls, Texas, utilizing faculty/staff and students as contrasted groups. Each group was contrasted based on the function or role each had in the university. The test group was composed of faculty or staff members of varying ages, genders, and ethnicity. The control group was composed of MWSU students also of varying ages, genders, and ethnicity. Faculty and student were randomly scheduled dependent upon availability in convenience sampling. Faculty members engaged in social conversation with the CC and students conversed with another research participant as the UC. The main study had been proposed for a local business. However, due to changes in management, the permission was withdrawn. The alternative was to conduct the main study at Workforce Solutions North Texas, a State-funded organization, with samples categorized between employees or clients and general public as contrasting groups. Both groups were scheduled based on availability. The change maintained the parameters of the experiment without altering its fundamental structure.

The characteristics of each sampling group were gathered using a general demographic questionnaire (GDQ) to identify possible covariates. The questionnaire revealed variables that may have affected homophilous perceptions based on age, gender,

height, ethnicity, education, religion, background, and glasses. The original proposal had been designed to omit the GDQ for the main study and opt for identifying conspicuous characteristics. However, sampling the general public required the GDQ for more accurate covariate identification.

Data Collection Methods and Frequency

A measure of confederacy was necessary to accurately test the effects of MM processes in social conversation. Premature disclosure of MM processes during test sessions was a threat to the validity of the outcomes. Pilot and main study participants were under the impression that the experiment was based on social conversation and its effects on commonality without being told of MM processes in the exchange. A debriefing statement (Appendix E) following all sessions contained: the nature of MM processes; a brief explanation of the testing rationale; the need for confidentiality, and; information regarding the scheduled release of research findings available to all participants.

Pilot study methods and frequencies. Pilot study participants were scheduled throughout the day in 15 minute blocks using convenience sampling. The control group was scheduled in the first block engaging in conversation with the UC. The test group, made up of faculty and/or staff, in a later block, engaged in conversation with the CC. Students and faculty or staff filled out the GDQ before entering the conversation room alone and sitting with the UC or CC engaging in social conversation. The UC, necessarily unfamiliar with MM processes, engaged in normal conversation with student participants relying on natural tendencies to establish rapport. The CC conducted MM techniques

from first encounter to the end of the conversation. To reduce confounds, the CC and UC were deliberately matched in attire, ethnicity, gender, height, weight, and glasses to match visual characteristics and strengthen the validity of the findings by minimizing confounds.

As shown in Figure 1, the MWSU population was sampled using faculty or staff and students forming the test group and control group. The grouping shown in Figure 1 did not reflect the actual structure of the pilot study. The control group was scheduled for testing first, followed by the test group. Each participant was scheduled approximately 15 minutes apart to allow time for completing the GDQ, engaging in social conversation for ten minutes, and assessing the candidate based on the attitude homophily scale. Two minutes were allotted for the demographic questionnaire, ten minutes for the conversation session, and five minutes for the homophily scale assessment. Thus, as one participant was testing on the homophily scale, another was filling out the demographic questionnaire. Participants were scheduled throughout the day. All participants were handed a debriefing statement following each session and were asked not to discuss the test with others scheduled for future testing to ensure internal validity.

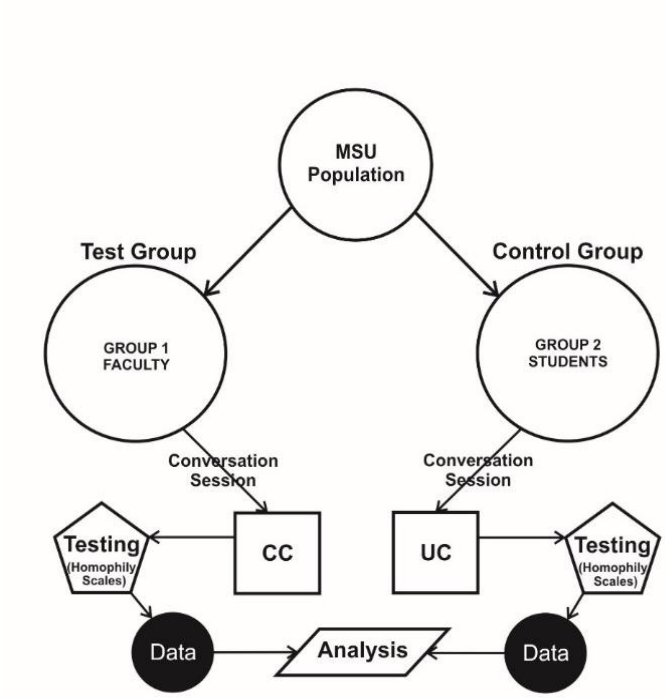


Figure 1. Pilot Study Research Design Illustration. This figure illustrates the contrasted groups design in the pilot study. CC represents a coached candidate and UC an uncoached candidate.

Main study methods and frequencies. Figure 2 illustrates the main study design with a participating organization. The population consisted of employees at Workforce Solutions North Texas and the general public using convenience sampling, creating two contrasted groups. The participants were recruited at the front entrance using posted flyers (Appendix G). The original proposal had presented a local business as the participating organization. However, the organization underwent a change in management. Additionally, the results of the pilot study indicated a larger sample requirement than what could have been available at the previous organization. Workforce Solutions director and deputy director allowed employees and the general public to participate in the study as long as no private information was gathered from the

participants. As in the pilot study, participants were not made aware of MM processes prior to the sessions. However, participants were debriefed immediately following the testing with the debriefing document.

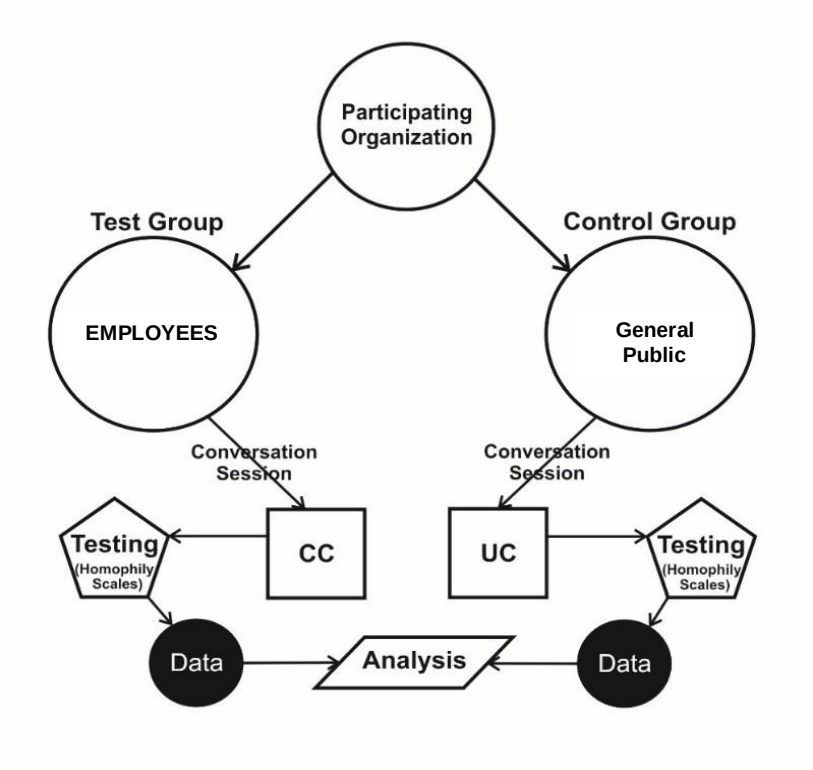


Figure 2. Main Study Research Design Illustration. This figure illustrates the contrasted groups design in the main study. As in the pilot study, CC represents the coached candidate and UC the uncoached candidate.

Participants were scheduled every 15 minutes that included 10 minutes of social conversation and 5 minutes to respond to the attitude homophily scale with the added question of *choice*. The test group was composed of Workforce Solutions employees and the control group was composed of general population participants. All participants were scheduled based on availability through convenience sampling. Following the conversation session, test participants were asked to assess the candidate on the attitude

homophily scale (McCroskey et al.,2006). The Likert-type homophily scale was composed of 15 bipolar items that rated commonality.

Data Analyses Type

Considering that homophily could co-vary with other independent variables, partialing out the MM effect required an analysis of covariance (ANCOVA) also known as multiple regression. ANCOVA was necessary when a dependent variable was assumed to co-vary with various other independent variables that were not part of the experimental test. The independent variables were noted and partialed out to isolate the effects of the test variable, reducing within-group error variance. When assessing MM effects upon attitude PHM, it was necessary to compare the amount of variability in the data that could be explained against any unexplained variability. In this case, the covariates of gender, age, ethnicity, height, and corrective lens similarities were assumed to explain some of the unexplained variability allowing for a more accurate measure of the variance attributable to MM processes. The partialing out of the covariates reduced possible confounds to minimize Type I errors from the outcomes. The pilot study also served to identify covariates that may or may not have fulfilled ANCOVA assumptions depending on the variability of the sample in addition to sampling strategy estimations.

Target Population and Participant Selection

The sampling size analysis was conducted under the assumption that the commonality shared amongst group members in an organization, *homophilized* the group to varying degrees. Sampling for the pilot study was based on a sample size analysis with a statistical power range at .95 (95%). This range provided a higher likelihood that the

size of the samples selected provided a statistical probability of detecting a real effect. Additionally, this study utilized the conventional measure for alpha at .05 to increase the opportunities for rejecting the null hypotheses. The pilot study effect size was set at .704 as determined in Pishghadam et al., (2011) in communication studies testing mirroring methods between students and teachers. Using the t-test for two independent samples, as shown in Chapter 1, a total sample size of 16 was shown to be adequate in the pilot study (Cohen, 1992). Sampling for the main study was determined by calculating the effect size examined in the pilot study. The pilot study effect was smaller at .507, attributing about 50% of the effect to MM processes. However, the size of the effect required a larger sample for the main study.

Pilot Study Recruiting Procedures

MWSU samples were comprised of two contrasted groups recruited for the study that included faculty or staff and students. The total MWSU student population in 2016 was approximately 6,064 with self-reported ethnic backgrounds described as: 0.6% American Indian or Alaskan Native; 2.9% Asian; 16.3% Hispanic; 13.6% African-American; 9.6% Nonresident Alien; 53.1% White; 3.3% of two or more races; and 0.5% Unknown; (MWSU, 2016). Full-time faculty totaled approximately 245 with a total of 1,250 staff that included temporary workers. Representativeness of the sample to the population in this study was not necessary since the measure of homophily, as hypothesized to be enhanced after exposure to MM processes, was on an individual basis regardless of background. Additionally, faculty and/or employees in the test group were

assessed based on the application of MM processes as opposed to natural tendencies in communication.

IRB approval (06-29-17-0164098) for the study conducted on the MWSU campus was confirmed prior to any recruiting activities. Students were recruited from the general population using flyers (Appendix D) at the MWSU Clark Student Center and the Moffett Library asking for volunteers and offering a $10 Starbucks® gift card to each student participating in the study. Exhibit D in the Appendix shows a sample of the flyer used at the university. Flyers contained contact information and a specific date for testing. It was necessary to align testing dates with UC availability.

Faculty and/or staff were recruited from Administration, the Prothro-Yeager College of Humanities and Social Sciences, the Dillard College of Business, and the College of Science and Mathematics. The strategy involved emailing all faculty and staff using the MWSU directory followed by a campus visit. The email described the study without reference to MM processes and asked for participation. Since PHM had not been used as a metric in other studies, the goal was to increase sampling to a total of 16 faculty or staff comprising the test group with the same amount of students in the control group. A mixture of genders, ethnicity, and ages comprised each group with a higher age cluster in the faculty sample. Since the experiment required a measure of confederacy, faculty and students were told a generalized statement of its structure to temporarily conceal MM to avoid biased responses.

Faculty or staff and student participants were sent a debriefing statement by email after all sessions were finished to avoid premature MM disclosure. The debriefing

statement revealed the MM processes, admonished confidentiality, and provided an estimated dissemination date for the results of the study. Additionally, the debriefing statement urged all participants to keep the proceedings of the experiment confidential until field research had been finished to protect internal validity. Every possible measure was taken to protect the privacy of each participant by generalizing the sample with demographic descriptors rather than personal names. Personal information was only used during scheduling.

The pilot study effect size was a significant consideration for the main study as it provided the data needed to calculate a proper sample strategy. The reasoning was that PHM had not been used as a metric in past research. The estimates of effect size produced the value of partial eta squared (partial η^2). Partial η^2 was calculated by dividing the sum of squares of the main effect (SS_{MM}) by the sum of SS_{MM} and the residual sum of squares ($SS_{Resdidual}$). The calculation of partial η^2 explained the proportion of variance that MM processes produced that was not explained by other covariates. The F tested the MM effect based on pairwise comparisons of covariates. A confidence interval of 95% indicated MM producing a significant effect shown as partial eta squared (η2). A proper sampling strategy for the main study was ascertained by using the effect size or partial η2. Partial η2 for MM effects was calculated at .507, attributing to 50% of the variance and making the sample size necessarily larger for the main study.

The sample size for the main study was reflected by the calculation in Table 1 using GPower 3.1® as was used for the pilot study. Partial η2 at .507 was used for the power analysis rather than .70 estimated from Pishghadam et al., (2011). As mentioned in

Chapter 1, I used a one-tail biserial t-test to determine sample size, as the specific prediction of the null hypotheses was measured one way. For example, the test group was expected to score higher than the control group. The opposite was not of interest in this study. Additionally, a one-way biserial had more statistical power than a two-tailed test at the same alpha level.

Table 1

*G*Power 3.1 Sample Size Calculations*

t tests - Correlation: Point biserial model		
Analysis:	A priori: Compute required sample size	
Input:	Tail(s)	= One
	Effect size |ρ|	= 0.507
	α err prob	= 0.05
	Power (1-β err prob)	= 0.95
Output:	Noncentrality parameter δ	= 3.3789739
	Critical t	= 1.6955188
	Df	= 31
	Total sample size	= 34
Actual power = 0.9514418		

Note. Main study calculations for sample size using the results from the pilot study. It was determined that one-tailed biserial had a stronger statistical alpha than a two-tailed. A total sample size of 34 was required according this calculation.

According to the analysis, with an effect size of .507, the total sample size calculated was 34 to observe a real effect in the main study. Thus, with this analysis the main study required a minimum of 34 participants randomized into 2 contrasted groups.

Main Study Recruitment Strategy

The recruitment strategy for the main study was similar to the strategy used in the pilot study. Main study recruitment required the cooperation of the Workforce Solutions North Texas director and deputy director. As mentioned earlier in the chapter, the proposal for this study had originally outlined a mock program for possible new candidate recruitment at a local business. However, due to leadership change at the proposed test site combined with the necessity for a larger sample size, a change in venue was necessary. With the director's approval, a flyer announcing the study were displayed in the front entrance of the main Workforce Solutions building in Wichita Falls, Texas inviting participants from the general public to participate in the study. As in the pilot study, participants were enticed to participate by offering a $10 Starbucks® gift card as reimbursement for contributing time and opinion to the study. The sign-up sheet was designed with exact time-slots in 15 minute increments. Every participant was handed an appointment card (Appendix F) with date and exact time for the session; containing contact information for the researcher.

A sign-up table was placed at the facility front entrance a week prior to the study to ensure the proper sample size. The total sample size requirement of 34 for the main study was larger than the pilot study. Thus, 3 days were designated for completion of the main study with 2 days of sessions and 1 day for any additional walk-ins from either group. Workforce Solutions Assistant Director sent out an organization-wide email informing employees of the study. The sign-up sheets were split between 2 days thereby scheduling 17 participants on Monday and 19 participants on Tuesday. The test group

composed of Workforce Solutions employees and clients was scheduled for Monday. The control group with general public participants was scheduled for Tuesday. Appointments were spaced 15 minutes apart throughout the day. The 3 days were not sufficient to yield the amount of participants required for acquiring the number of participants necessary. A total of 24 participants volunteered for the study from the front entrance table. Public and employee participants who signed up were handed appointment cards showing the exact time of their session with contact information in case the participant wanted to cancel.

Sessions were continued at the researcher's private residence with general public participants. The UC, represented by another participant, generated the amount of data necessary for the control group. The CC, represented by the researcher produced the data for the test group. The change in venue did not violate the fundamental structure of the study. All sessions were set up identically and all conversations were conducted in complete isolation.

Procedures

The main study sampled general public and employees at Workforce Solutions North Texas using convenience sampling with the effect size from the pilot study. It was focused on socialization for candidate selection upon employees and a general population forming 2 contrasted groups. Participants from each group met with either the CC or UC in social conversation. Following the conversation session participants answered the attitude homophily scale queries to determine PHM levels with the additional question of *choice*. The data gathered from the study was analyzed using an analysis of covariance

(ANCOVA) to isolate MM effects from other expected covariates to reject or fail to reject the null hypotheses.

A total of 34 research participants participated in the main study including sessions conducted at the researcher's residence. I informed participants at Workforce Solutions that the sessions were not job interviews. All conversations were kept social with little references to work. Employees and general public participants were scheduled throughout the day for one-on-one sessions with the CC or the UC. Sessions for the test group were conducted between 8:30 am and 3:00 pm on Monday, thereby testing 12 research participants during that time frame, and 12 on Tuesday. The last day produced one more research participant for the test group. The entire main study sessions took three days to complete. All research participants received a debriefing statement (Appendix E) at the end of the study divulging the true nature of the experiment and informing them of the anticipated release of the results of the study.

Pilot study testing environment. The Moffett Library at MWSU provided private study rooms for students and faculty. When reserving the rooms, privacy was a significant concern as the sessions needed to be free from outside observation. The study rooms had windows that were blocked from outside view. Two facing chairs were spaced approximately 1.5 meters from each interlocutor in one of the study rooms. Kinect® sensors were set up behind and to the right of the participant and the UC or CC. A second study room was reserved across the hall from the testing room which served as a computer monitoring area (CMA). The researcher monitored each conversation from the CMA. A third room, adjacent to the CMA served as the PHM testing area. Research

participants filled out the general demographic questionnaire (GDQ) in the PHM testing area and moved on to the MM session. The CC or the UC were seated in the test room as each participant entered the room and sat. The aim was to create a comfortable environment for casual conversation. The pilot study was necessary to ascertain MM effect size for a proper main study sampling strategy.

Main study testing environment. Workforce Solutions North Texas provided 2 adjacent cubicles in a common area. One of the cubicles was used as the computer monitoring area (CMA); the other cubicle was set up with Kinect® sensors as shown in Figure 3. Kinect® sensors were set up on opposite sides of each dyadic partner at an approximate distance of two meters from each. Participants were assured that no video images or vocal recordings were to be made public or shared with any third parties. Participants were informed that the Kinect® sensors were a way of recording and assessing candidate conversation habits. The sensors did not seem to be an impediment to the experiment.

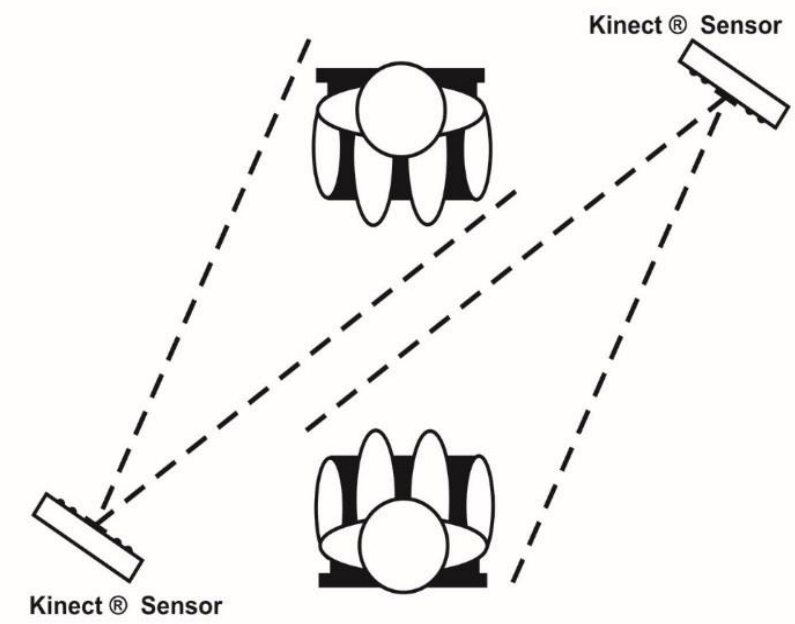


Figure 3. Kinect sensor set up. Kinect® sensors were configured similar to Won et al. (2014) who used similar sensors to observe synchrony in dyadic collaborations.

Main study testing consisted of two groups at Workforce Solutions North Texas in Wichita Falls, Texas. The groups were recruited from employees and the general public in an attempt to maintain categorical homophily. MM confederacy was necessary during the sessions to avoid tainting the data and to maintain applicability. Participants believed the study involved observing leadership communication. Control group participants composed of general public volunteers met in social conversation with the UC. Participants in the test group were composed of Workforce Solutions employees who sat in social conversation with the CC. Privacy cubicles provided privacy from outside observation. Immediately after each session test participants answered the Likert-type questions in the Attitude Homophily Scale to determine the level of homophilous perceptions produced from each session. An additional assessment regarding coworker

acceptance with the organization was added to the homophily scale rating each candidate based on whether the candidate was acceptable as a coworker. The data was analyzed using an analysis of covariance (ANCOVA) to isolate the effects of MM processes from other expected covariates to either reject or fail to reject the null hypothesis. The second null hypothesis was tested similarly regarding candidate choices.

Participants were greeted in the waiting area outside the two cubicles and asked to fill out the general demographic questionnaire (GDQ). Upon completion of the GDQ, research participants entered the testing area and engaged in social conversation with either the CC or UC. General public participants, considered the control group, conversed with the UC and Workforce Solutions employees, the test group, with the CC. The conversation sessions were timed to last approximately 10 minutes. At the end of the 10 minute mark, participants exited the session and were asked to immediately answer the attitude homophily scale queries. Upon completion of the homophily scale queries, participants were handed a debriefing statement revealing the true nature of the experiment and the need for confidentiality.

Residence participants were contacted by face-to-face recruiting by chance encounters resulting in random selections. All participants were scheduled based on availability through convenience sampling. Upon arrival, participants filled out the general demographic questionnaire (GDQ) prior to the session. Session participants were left along to conduct the conversations. After each session, participants filled out the homophily scale questions.

Protection of Participants

The procedures for obtaining informed consent and for protecting the rights and well-being of participants were conducted in accordance with IRB rules regarding protection and privacy. All participants were asked to sign an adult consent form describing the procedures, the nature of the study, the risks and benefits, remuneration, privacy, and contact information. The UC was asked to sign a distinct consent form that differentiated the roles from other research participants. Although some measure of confederacy was required during the experiment, all participants were informed completely regarding MM processes immediately following all sessions with a debriefing statement. The UC would not be made aware of the MM processes until all sessions were completed.

The psychological risks involved in participating in this study did not exceed what one would experience in daily life. No material or topics that would be considered sensitive, offensive, threatening or degrading were used. Relationship risks were minimal since neither the CC nor the UC were personally familiar with any test participants recruited either in the pilot study or the main study. Nevertheless, third party involvement through test participant affiliation was controlled to protect the privacy of all participants. No conflict of interest existed between the researcher and any test participants and no particular outcomes were desired from the study that may or may not benefit the researcher or third parties associated with the research. The recruitment of MWSU participants and the use of campus facilities were approved by local IRB protocols conditional upon Walden University IRB approval.

Data Collection Procedures

Data collection resulted in printed and digital formats. The general demographic questionnaire (GDQ) consisting of 18 queries and the PHM scale, consisting of 15 queries, resulted in printed data. Kinect® sensors resulted in digital data in the form of csv spreadsheet files and audio wave files. Kinect® sensors data collection was automated using Vitruvius® to record joint angles per frame and transferred to csv spreadsheet files. An array of microphones that sensed directional audible signals captured audio signals. The microphone array in Kinect sensors were used simultaneously with recording studio software, Sony ACID Pro 6.0®, to record audio signals for further analysis in Praat® 6.0.28, specialized software for calculating articulation rate, also known as ROS. Kinect® sensor version 2 will be discussed in greater detail in the instrumentation section of this chapter. Cubicles provided necessary privacy for the sessions and the computer monitoring area. Testing sessions including the GDQ, the homophily scale and the conversation session took approximately 15 minutes. Beginning with the control group, participants were scheduled in 15 minute blocks.

General demographic questionnaire. Prior to entering a conversation session, each participant was asked to fill out the general demographic questionnaire (GDQ). Each questionnaire was labeled with a participant code rather than names to protect privacy. The GDQ was used to identify covariates for the final analysis and to discern individual characteristics of each participant to take into account the covariates such as age, gender, ethnicity, height, weight, background, religiosity, political views, and corrective lenses. The design was intended to help identify physical perceptions of

similarity and was focused on visually identifiable characteristics in addition to geographic upbringing, political views, or religious affiliations that could have come up during social conversation. Since conversational content in the pilot study did not include or was not common between interlocutors, the covariates of background, political views, and religious affiliation were excluded as possible covariates. *Age* was excluded as a covariate in the pilot study since the UC and the respective participants were of distinct generations. Thus, it was removed as a possible covariate since the structure violated a critical assumption in ANCOVA. *Weight* was similarly removed as a possible covariate since the perception of weight was affected by *height*. However, *height* was kept as a possible covariate. The covariates were screened from the analysis using an analysis of covariance (ANCOVA).

Homophily scale. Homophilous perceptions PHM were measured using the McCroskey et al. (1975) attitude homophily scale (Appendix C), with improved measures from McCroskey et al. (2006). Express written permission was obtained from Dr. Lynda McCroskey, the attitude homophily scale copyright holder, who was notified of the intended use of the assessment instrument in this study. Professional courtesy was extended to the copyright holder by providing a copy of the results of the study. In accordance with U.S. Code 17, USC 107, the attitude homophily scale was not used for commercial gain. Additionally, no special qualifications were required to administer and interpret the results of the assessment.

The attitude homophily scale, composed of 15 self-assessment queries, 8 of which were of reverse polarity, resulted in measureable levels of PHM. The scale described in

McCroskey et al. (2006) had been a reliable instrument in various other relationship studies dealing with communication context and behavior (Mull, Moon, & Lee, 2015; Nowak, 2013; Yang, Erives, & Kang, 2015) McCroskey et al. (2006) tested scale using oblique factor analysis to produce improved reliability. Fewer items were confirmed to reduce internal reliability, thus inclusion of the entire scale was deemed necessary. The validity of the new scale continued to undergo substantiation as it was utilized in the present study and will likely be tested in future human relationship studies. The Likert-type scale structure was used for scoring homophilous perceptions by degrees using gradient responses in the form of: Strongly Agree; Generally Agree; Indifferent, Generally Disagree, Strongly Disagree. The responses were analyzed using IBM® SPSS 21® by means of the univariate analysis with the inclusion of covariates and correcting with a Bonferroni correction. ANCOVA was used to partial out the covariates that may have affected homophilous perceptions in conjunction with MM processes. ANCOVA will be discussed in greater detail in the data analysis section of this chapter.

Coached and Uncoached Candidates

Two homophilous candidates, the researcher and a similar research participant, represented the coached and uncoached candidates. The researcher as CC delivered MM processes in pilot study sessions. The UC relied on self-developed, learned and inherent social skills, thus unfamiliar with MM processes, to attempt to establish rapport with individual participants. MM involved embodiment mirroring and speech rate matching using verbal and nonverbal dyadic exchanges with various participants. The outcome sought was a natural adjustment of vocal pace to match ROS. Digital recording software

was used to capture vocal data for calculating ROS synchrony analyzed through Praat® 6.0.28; software developed for clinical linguistic research (Boersma P. G., 2002). Natural synchronization occurring during conversation was compared to cognitive synchrony during MM processes. It was assumed that natural synchronic movement occurred on a gradient, thus resulting in latency of its manifestation. Distinctions in instances of synchrony were noted from the first 5 minutes of CC sessions and the last 5 minutes of UC sessions to account for latency. The differentiation would indicate whether the natural process of mirroring was enhanced through cognitive mirroring used in MM processes.

Data Analysis

This section includes all the procedures for data analysis including: types of data, organization of raw data, data processing, analyses, and storage and protection of data. The intention was to present a detailed description of the steps that were undertaken in the analysis process including calculations of synchrony and PHM. The procedures were described in a step-by-step manner to make the procedures duplicable in future studies. Testing MM in other populations may strengthen the validity of the outcomes and the applicability in various socialization strategies. Three types of data were observed: demographic data (covariates), embodiment synchrony data, ROS data, and PHM data.

Types of Data

Embodiment synchrony scores. The study was composed of synchrony measures used in testing the hypothesis regarding a possible relationship between cognitive and natural mirroring with levels of increased homophilous perceptions

produced in the receiver. As mentioned earlier, embodiment synchrony scores were calculated from Kinect® sensor data in the form of skeletal angle comparison between dyadic pairs. Kinect® imaging and skeletal node tracking produced 20 joints per standing skeletal image; 10 joints per seated position. Utilizing 10 joints in the seated position, the software tracked 4 separate joint angles per frame. The data from both sensors were synchronized using computer time stamping to make consistency comparisons in a series of frames. The first 5 minutes (300 s) of each CC session were analyzed for embodiment data consisting of frames for time-stamped joint angles. The last 5 minutes of UC sessions were analyzed in a similar fashion to account for latency in natural mirroring.

The joint angles produced in the Kinect® skeletal environment were detected and calculated using Vitruvius® (Pterneas, 2017), developmental software in Microsoft® Visual Studio® format that was designed specifically for use in conjunction with Kinect® sensors. Vitruvius® was designed to detect angles made between joints, recording each frame calculated over time segments. The goal for the CC was to produce 5-second intervals of angle synchrony. Kinect® sensors were capable of producing 15 frames per second dependent upon hardware compatibility. Because of hardware differences however, synchrony observations for scoring required data normalization between computers used in the Kinect® sensor environment. Normalization occurred by matching the number of frames per second between spreadsheet workbooks by removing excess frames in one of the 2 files and matching the number of frames per second recorded. This strategy allowed for synchrony comparisons between Excel® workbooks using DiffEngineX®, stand-alone software designed for spreadsheet comparisons.

Kinect® sensor video/audio technology was used to capture audio signals and 3D skeletal tracking for estimating embodiment and ROS synchrony. As shown in Figure 4, the sensors were equipped with cameras, microphones, infrared depth tracking, and an accelerometer for 3D position tracking (Microsoft, 2015a). The instrument had been used in various software development applications including the gaming environment (Microsoft, 2015b). Kinect® sensors were used to track three dimensional body positions using an RGB, 1280 x 960 resolution camera, making color imaging possible; while the infrared (IR) emitter and depth sensor received data that was converted to depth information and distance between objects and joint angles. The detection of skeletal joint angles using depth sensors were what made body synchrony measureable using this instrument (Won et al., 2014). Vitruvius®, software developed using Microsoft® Visual Studio® platform in conjunction with Kinect® sensors, facilitated joint angle synchrony measurements (Pterneas, 2017). Data joint-angle estimation using Kinect® sensors were used to ensure effective MM delivery and natural tendencies by recording moments of body synchrony. The directional microphone array recorded audio signals for ROS synchrony estimations.

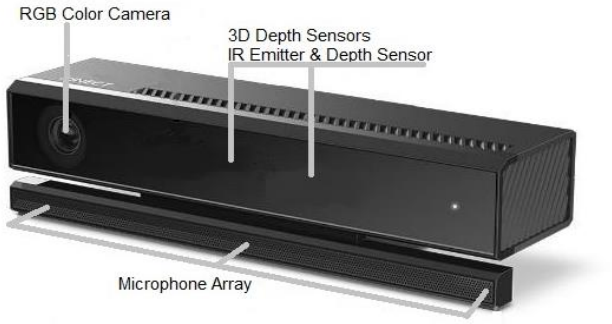


Figure 4. Kinect® for Windows Version 2 sensor components. Kinect® sensors are equipped with and RGB color camera, 3D sensors, and directional microphones.

The Kinect® sensor array of microphones was used in conjunction with Sony® ACID Pro 6.0®, recording studio software, to record audio signals between interlocutors to ascertain ROS matching. Recording was formatted for 16 kHz with a 16-bit mono pulse code modulation (PCM). A PCM signal contained sequences of digital audio samples (bits) that were designed to recreate the original analog sound. A higher bit rate indicated an increase in digital audio samples improving the audio quality by limiting the signal-to-noise ratio. 16-bit modulation was sufficient in this application. Audio signals were processed through Praat® 6.0.28, specialized software used in linguistics that will be used in this study to determine articulation rate or ROS.

As shown in Figure 5, Kinect® sensors generated nodal skeletal figures superimposed over color images, estimating body positions and joint angles based on each separate node. The image shows an example of the arc angles formed in the Vitruvius® environment using Kinect® sensors. With the Kinect® sensors, 20 joint nodes were detected in a standing position and 10 nodes in a seated position although 20 nodes were detectable in Vitruvius®, only the joint angles for the upper torso area were

tracked in right and left elbows and right and left shoulders. For example, the angle that formed between the wrist, elbow, and shoulder resulted in the arc calculations used to compare the angles formed in the elbow. However, due to the Kinect® sensor diagonal set up, the right elbow joint angle showed some inconsistencies due to limited line-of-sight. Thus, synchronization of 3 of the 4 joint-angles was considered embodiment synchrony. Each frame was recorded as joint angle data on a csv spreadsheet file with a column for computer time-stamping and columns for each of the 4 joint angle calculations. The frames that showed synchrony were measured against moments of non-synchronous motion or position in frequency calculations. The frequency in which moments of synchrony were recorded was the element necessary to calculate MM delivery effectiveness and to thereby differentiate between CC and UC sessions.

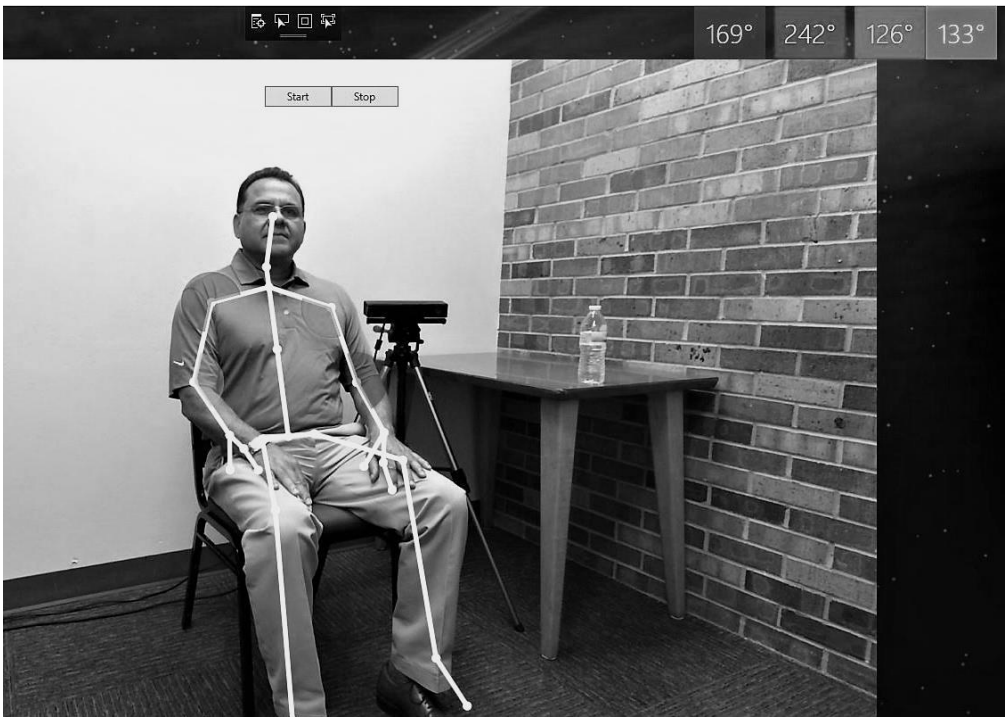


Figure 5. Kinect® and Vitruvius® joint angle image. Kinect® skeletal mode detected distinct joint nodal configurations based on whether the person was standing or sitting. The arcs were differentiated by 4 different colors with joint angle calculations appearing on the upper right-hand corner of the screen. The data was exported into spreadsheet format for synchrony calculations. The photo of the UC was used with permission and a signed Release form.

Fewer frames per second were detected inconsistently using the Hewlett Packard® desktop PC. As shown earlier, the csv spreadsheet files contained time-stamped data on one column, and joint-angle data on the last 4 columns. Synchrony scores were measured as frame correlations between CC or UC and the test participants producing 4 angles per seated position. When the research participant and the CC or UC maintained approximate joint angle synchrony within 10 degrees in 3 of the 4 joint angles, a synchrony score of 1 was accrued. Synchrony consistency in matching frames represented the 5 seconds necessary to produce the *social present* as described in

Tschacher and Ramseyer (2014). Synchrony scores differentiated MM processes from natural tendencies.

Table 2 shows the csv spreadsheet used for calculating embodiment mirroring. Each frame was captured as data in csv format with separated computer time-stamping and joint angle measures per frame. The spreadsheet resulted in a column with recorded time stamping for each frame accounting for: year-month-date-hour-minute-second-millisecond. Joint angles formed in each frame were on separate columns. The resultant spreadsheet data simplified the measured frequency of synchrony between interlocutors in CC or UC sessions to test the hypotheses. The data was then compared between spreadsheets produced by each interlocutor per session using specialized software, DiffEngineX®, to avoid human error in data comparisons. Additionally, Kinect® sensors produced approximately 15 frames per second, making the task more cumbersome.

Table 2

Recorded Upper-Torso Movement in Spreadsheet Format

Time	ElbowRight	ShoulderLeft	ShoulderRight	ElbowLeft
2017-07-13-08-49-32-541	175	235	180	131
2017-07-13-08-49-32-606	174	234	180	130
2017-07-13-08-49-32-673	162	233	176	129
2017-07-13-08-49-32-739	128	232	155	128
2017-07-13-08-49-32-806	120	236	154	131
2017-07-13-08-49-32-874	191	238	156	130
2017-07-13-08-49-32-939	257	237	151	130
2017-07-13-08-49-33-018	270	244	139	134
2017-07-13-08-49-33-082	259	246	135	125

Note. Spreadsheet csv files were generated for each interlocutor to allow for computer time-stamped accuracy for calculating synchrony scores. Two Excel® worksheets were compared for synchrony measures within 10 degrees over or under.

Comparing two worksheets visually would have taken hundreds of hours of close observation with increased chances for error. DiffEngineX® was necessary to speed up the process exponentially with fewer chances for error. The stand-alone software allowed for customization of Worksheet comparisons using value ranges within each cell. Cells with differing values greater than 10 degrees were highlighted, leaving synchrony measures un-highlighted. Time-stamping contained similar data in both spreadsheets. Only data referring to joint angles were compared and highlighted after data normalization as shown in Tables 2 and 3. Joint angles within 15 degrees over or under were left un-highlighted to indicate embodiment synchronization. The pilot study revealed that varying body shapes affected the formation of measured joint angles in the Kinect® environment. Mirroring of perceptible joint angles differed more in the Kinect® environment and were thus given greater latitude for scoring. Joint angle measurements within 10 degrees had been considered synchronized in the proposal. However, it was necessary to increase the scoring latitude to 15 degrees to account for the difference in body shapes. Gender differences accounted for a greater variance in body shapes for joint angle calculation.

If synchrony was maintained for 5 seconds on 3 or more joint angles, a score of 1 would be assessed to that candidate. Every additional contiguous second scored an additional 0.2 points. For every 5 second block of synchrony an additional score of 1 was added to the total. Synchrony scores were used to differentiate between the test group and the control group. Split second differences in joint angles were discarded as imperceptible changes and possible computer malfunctions when the angle appeared to

twitch in an isolated millisecond. Synchrony scores were thus based on CC sessions indicated increased instances of synchrony and thus considered the effective delivery of embodiment MM processes. The first five minutes of CC synchrony was compared with the last five minutes of UC synchrony. Comparing the scores between the CC and UC indicated whether MM processes resulted in greater frequencies of embodiment synchrony. Differentiating CC from UC was a significant consideration in validly testing MM effects upon PHM.

Table 3

Worksheet Cells Highlighted for Differences

Time yyy_MM_dd_HH_mm_ss	ElbowLeft	ShoulderLeft	ElbowRight	ShoulderRight
2017_07_14_1600_34_2.0030	138	287	84	45
2017_07_14_1600_34_2.0031	138	287	84	45
2017_07_14_1600_34_2.0032	139	287	82	53
2017_07_14_1600_34_2.0033	139	287	82	55
2017_07_14_1600_34_2.0034	138	287	83	46
2017_07_14_1600_34_2.0035	138	287	84	45
2017_07_14_1600_34_2.0036	138	287	84	45
2017_07_14_1600_34_2.0037	139	288	82	53

Time yyy_MM_dd_HH_mm_ss	ElbowLeft	ShoulderLeft	ElbowRight	ShoulderRight
2017_07_14_1600_34_2.0030	138	287	84	45
2017_07_14_1600_34_2.0031	138	287	84	45
2017_07_14_1600_34_2.0032	139	299	82	53
2017_07_14_1600_34_2.0033	139	300	82	44
2017_07_14_1600_34_2.0034	138	300	83	43
2017_07_14_1600_34_2.0035	152	300	82	45
2017_07_14_1600_34_2.0036	152	299	82	45
2017_07_14_1600_34_2.0037	153	288	64	45

Note. Excel® comparisons using DiffEngineX® highlighted the differences simplifying estimated differences between CC or UC and research participants. The worksheets were used to calculate synchrony scores to differentiate between contrasted groups.

ROS synchrony scores. ROS referred to articulation rate. Audio signals were captured using the Microsoft® Kinect® sensor microphone array to calculate ROS synchrony, based on syllables per second using Praat® 6.0.28 and a specialized script for detecting syllable nuclei (Boersma P. G., 2002; De Jong & Wempe, 2009). Since vowel sounds per second correlated with syllables per second, researchers used the data to calculate articulation rate in other studies (Frauendorfer, Mast, Nguyen, & Gatica-Perez, 2014; Fujiwara & Daibo, 2016; Pfau & Ruske, 1998). A 5% deviation from a baseline was shown to have reached the noticeable difference in rate (Basu, 2002; Quené, 2007, as cited in Frauendorfer et al., 2014).

ROS estimation based on *articulation rate* referred to how fast a speaker produced phonemes within a specific timeframe (Frauendorfer et al., 2014; Fujiwara & Daibo, 2016; Pfau & Ruske, 1998). The *articulation rate* represented the metric for determining ROS synchrony. Articulation rate fluctuated during normal conversation. Thus, matching articulation rate was based on calculating the syllable nuclei per second mean in one minute blocks. A score of 1 was calculated if the articulation rate was within 5% of each interlocutor.

Figure 6 shows syllable nuclei detection in Praat® software environment. Dips in the signal of at least 2 dB from the current peak in unfiltered signals signified the nucleus of the syllable. The Praat® environment produced a three-tier window showing a two-channel, Mel-Frequency scale in Tier 1; a spectrograph in Tier 2, and; syllable nuclei calculations in Tier 3. To view all three tiers, it was necessary to zoom to within 10 second blocks. Tier 3 was designed to automatically calculate syllable nuclei. However,

volume affected the intensity of the recorded signals and lower-volume voiced sections were interpreted as silence. When voiced sections were too low to be detected by the syllable nuclei feature, Tier 2 was used to estimate syllables per second by counting the voiced indicators in the spectrograph. Syllable nuclei indicators were discernible as dark, thick lines in conjunction with noticeable peaks in Tier 1. As the conversation progressed each vocal burst was highlighted for each interlocutor. Figure 6 indicated time-frames highlighted for one interlocutor starting at 103.84 seconds and ending at 107.39 seconds. Part of the conversation was loud enough to produce syllabi per second indicators in Tier 3. However, a voiced section volume was too low to detect syllable nuclei. Thus the syllable nuclei was calculated in addition to Tier 2 data that detected them as thick, dark lines. The volume of the furthest interlocutor showed up as silence. Tier 2 data, in conjunction with Tier 1 data was sufficient to calculate the syallble nuclei. The number of nuclei per second constituted the articulation rate or ROS. The calculations were thus used to ascertain whether the coached or uncoached candidate spoke at a matched ROS with the research participant, staying within 5% over or under in accordance with Fraundorfer, et al. (2014).

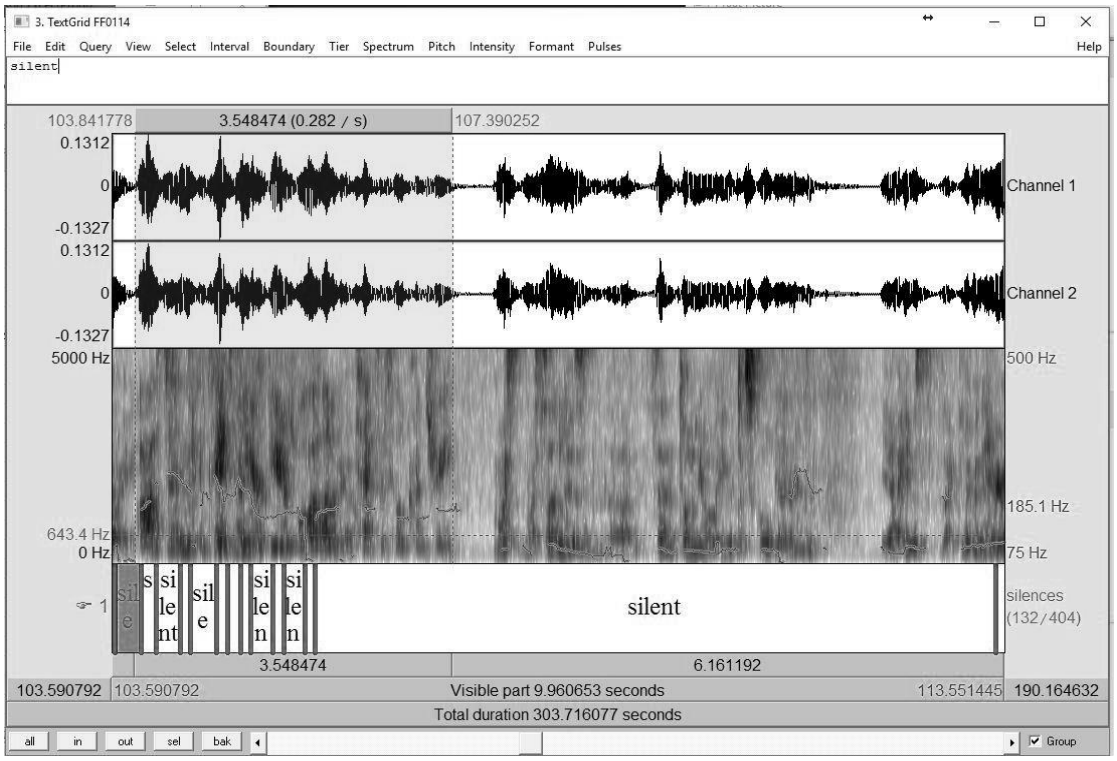


Figure 6: Praat® syllable nuclei frequency per second. Praat® generated a Text/Grid for each session separating signals into 3 tiers. The top tier contained a Mel-Frequency scale; the middle tier contained a spectrograph, and; the bottom tier indicated syllable nuclei. Some low-volume voiced signals were detected as silence making it necessary to use the spectrograph to calculate syllable nuclei per second.

ROS was calculated between interlocutors for synchrony scores. Score calculations were transferred to Excel® files to calculate syllable nuclei per second. Table 4 is an example of the calculations used as the conversation progressed. Vocal bursts by both interlocutors were highlighted to measure syllable nuclei per second. The table identified participants by codes rather than personal names to protect privacy. The candidate calculations were indicated by either CC or UC. The *Start* and *End* columns indicated a conversational burst starting at a specific time during the conversation. The calculated total syllables from the Praat® software environment were entered into the

"Total Syl" column. Referring to the first line in Table 4, the conversational burst began at 64.26 seconds into the conversation. The burst lasted approximately 4 seconds ending at 68.25 seconds. Thus 68.25 – 64.6 /14 = 3.50877 calculating the ROS. Means were compared within an approximate one-minute frame.

Table 4

ROS Calculations and Scoring

Time			ROS	
Start	End	Total Syl	FF0209	CC
64.26	68.25	14		3.50877
73.35	75.76	9	3.7344398	
81.57	84.24	9		3.37079
85.34	91.6	16		2.55591
93.47	96.41	10		3.40136
96.68	98.24	7		4.48718
99.36	105.75	23	3.599374	
107.75	114.14	21	3.286385	
114.68	118.08	12	3.5294118	
		Mean Score:	3.53740261	3.4648

Note. The calculations in Excel® accounted for vocal bursts separated between interlocutors within a specific time-frame. ROS attributed to participants were coded, indicating female (F) number 9 (09) in the test group (02), during the pilot study (F). Mean syllables per second were calculated and compared between participant and CC or UC. Syllable nuclei per second calculated within 5% of each interlocutor scored 1 point.

Perceived homophily. Synchrony scores determined MM effectiveness differentiating cognitive synchrony from natural tendencies. MM score variances were compared with attitude homophily or PHM variances. The objective was to determine whether a relationship existed between higher MM scores and elevated PHM levels, and whether a CC could produce greater instances of synchrony than a UC differentiated by MM processes. The attitude homophily scale, produced statistical data using a Likert-

type design. Numerical scoring assigned to each response provided summation data that determined levels of homophilous perceptions. The scores were structured as follows: Strongly Agree, 2; Generally Agree, 1; Neutral, 0; Generally Disagree, -1, and; Strongly Disagree, -2. The design of the scoring system was expected to show differences in scores that was used to analyze the correlation more effectively. Reversed polarity items were scored inversely. Higher summated scores indicated increased levels of homophily. Nevertheless, when testing the attitude homophily scale for reliability, it was necessary to convert all scoring into whole numbers for SPSS processing.

Organizing Raw Data

Raw data were grouped per participant to ensure score validity. Participants were coded for protection of privacy by assigning numbers and letters to identify gender, testing environment, and group categorization. For example: FF0108 indicated female (F) number 08 in the pilot study (F), control group (01); MP0203 would indicate male (M) number 3 in the main study (P), test group (02). General demographic data were associated with each coded participant and represented the independent covariates such as gender, age, ethnicity, height, weight, and corrective lenses. All data were stored in SPSS, creating a database of participants and the corresponding demographic data associated with each one.

Embodiment data files contained recorded joint angles in specific time-frames and saved as csv spreadsheet files. Audio signals were captured as digital wave files, conducive to Praat® analysis (Boersma & Weenink, 2017). All data were analyzed separately to ascertain embodiment and ROS synchrony scores. Embodiment and ROS

synchrony scores were then summated to produce an overall MM score. MM scores were entered into SPSS, attributing the scores to individual participants and the corresponding demographic data. However, MM scores were scaled data. It was necessary to convert MM scores to nominal data by grouping score ranges into levels. Data nominalization made it possible to use an ANCOVA to analyze the relationship with nominal covariates. Scores thus differentiated MM processes from natural tendencies. Synchrony scores represented the main independent variable.

Data produced from the attitude homophily scale produced summated PHM scores indicating levels of homophilous perceptions after a particular session. PHM data was gathered by written, Likert-type questionnaire marked with the individual coded test participant. Scores for each query were tallied and handwritten on each respective line. Scaled scores were manually entered into SPSS and attributed to each dyadic session. PHM scores were considered the dependent scaled variable compared with MM scores, a fixed nominal independent variable, and a number of nominal independent covariates.

All data, to include demographic covariates, synchrony scores, and PHM scores for each participant were processed through SPSS. The ethical handling of the data was a significant concern to protect the privacy of test participants. All data collected in SPSS was secured using password protection. All physical data such as the GDQ and homophily scales were kept in a locked filing cabinet. GDQ demographic descriptors were not sufficient to reveal the identity of any research participant and were thus not at risk to privacy breaches. Data shared with any third parties for any reason required signed

confidentiality agreements (Appendix H) to prevent participant identity disclosure indirectly or unintentionally.

Analysis Preparation

An analysis of covariance (ANCOVA) was used to compare variance between PHM and MM scores taking into account the covariates for both groups. Covariates were nominal and were identified as age, gender, ethnicity, height, glasses, hobbies, and professions. Covariates were considered if the CC or UC shared the same age range with the research participant. The covariates were scored based on whether the CC or UC shared the same categorical characteristics. Since all covariate effects depended upon homophilous perceptions produced by the CC or UC, error variance was dependent upon similarities shared in the dyadic pair.

SPSS coding indicated homophilous covariates as either shared or not between interlocutors. The number (0) in any covariate indicated that the covariate was not shared. When interlocutors shared a common covariate the number (1) was used. Thus, *gender* homophily was either Male, *yes* (1) or Female, *no* (0); *age* homophily was either *yes* (1) or *no* (0); *ethnic* homophily was either Hispanic - *yes* (1) or non-Hispanic - *no* (0) *height* homophily was either *yes* (1) or *no* (0), and; *glasses* was either noticeable corrective lenses (1), or no noticeable corrective lenses (0).

As shown previously, covariates were considered salient only when the candidate and the research participant shared conspicuous demographic characteristics. The primary independent variable (MM Scores) was necessarily nominalized by creating synchrony ranges to properly carry out an ANCOVA. Scaled MM had 6 scoring ranges: 0 to 2 = 0;

2.1 to 10.0 = 1; 10.1 to 20.0 = 2; 20.1 to 30.0 = 3; 30.1 to 40 = 4; 40.1 to 50 = 5, and; 50.1 to 60 = 6. The variance of synchrony ranges were compared with the variance of scaled PHM scores to determine if a relationship existed between the two, accounting for the covariates of age, gender, ethnicity, height, corrective lenses, hobbies, and professions.

The pilot study was a necessary exercise to properly test the hypothesis and to ensure that the main study could produce meaningful outcomes with the proper sampling strategy. In this case, ANCOVA assumptions were similar to an analysis of variance (ANOVA) such that similarity of variances and independent observations were necessary to have a robust *F* statistic. PHM, the dependent variable was necessarily a scaled measure indicating the level of homophilous perceptions generated from each dyadic conversation session.

Conclusion

The test to ascertain a relationship between MM processes and PHM levels was expected to provide quantitative evidence of effectiveness or ineffectiveness in leadership socialization onboarding strategies at a critical time. Technological advancements made it possible to observe embodiment synchrony in dyadic conversations using 3D interactive imaging thereby differentiating between cognitive mirroring and natural tendencies. Rejecting or failing to reject the null hypotheses indicated whether the processes were effective in leadership coaching for socialization by creating or increasing homophilous perceptions.

The following chapters show the outcome and interpretations of the data using the statistical analyses described in this chapter. An analysis of covariance (ANCOVA) provided the framework for determining whether a relationship between MM and enhanced homophilous perceptions, taking into account all other covariates to isolate the main effect. The outcomes and interpretations of the data were expected to provide evidence of the effectiveness or ineffectiveness of MM processes and the viability of PHM as a metric for rapport-like behavior.

Chapter 4: Findings

Investigating the relationship between MM processes and PHM provided a new way of testing rapport-building tactics. A CC engaged in social conversation using MM processes with research participants and was differentiated with a UC relying on natural tendency synchronization. Following the exposure to either natural tendencies or cognitive mirroring, research participants answered the queries in the attitude homophily scale from both groups to ascertain whether total synchrony scores, whether produced by natural tendencies or MM processes affected PHM levels. The CC was expected to create more instances of synchronization using MM processes than the UC using natural tendencies. The outcomes of the processes in social transition were hypothesized to affect candidate preferences. Thus, the research questions guided the research through the various aspects of the experiment.

Research Questions and Hypotheses

RQ1: To what extent, if any, is there a relationship between the application of MM and elevated PHM levels?

$H_0$1: There is no significant relationship between the application of MM and elevated PHM levels.

H_a1: There is a significant relationship between the application of MM and elevated PHM levels.

RQ2: To what extent, if any, is there a relationship between elevated PHM and candidate choices?

$H_0$2: There is no significant relationship between elevated PHM and positive candidate choices.

H_a2: There is a significant relationship between elevated PHM and positive candidate choices.

Research Tools

To properly test the null hypotheses, it was necessary to ensure the proper use of data collection instruments. Proper use of research tools in this study was a significant concern due to the complexity of MM differentiation and the reliability of the testing instruments. The proper use of Kinect® sensors in conjunction with Vitruvius® software in Microsoft Visual Studio® for joint angle calculations required alteration of C# code to ensure proper formatting for recording to csv files. Vangos Pterneas, Vitruvius® designer, assisted personally in the alteration of the code. The recording and analysis of embodiments using 3D video signals and angle calculations differentiated natural synchronic tendencies from cognitive synchronic processes. Audio signals, recorded through the Kinect® microphone array, were saved as digital wave files and processed through Praat® 6.0.28 for articulation rate calculations or ROS. The instrumentation allowed for quantitative differentiation between MM and natural tendencies.

Proper use of the attitude homophily scale was also a concern. The scale was used with strict adherence to McCroskey et al. (2006) by utilizing the entire scale to ensure reliability. The reliability of the attitude homophily scale was further tested in this study using the Spearman-Brown prophesy formula by splitting the scale into two halves and testing both with the reliability of the coefficient alpha (Eisinga, Grotenhuis, & Pelzer,

2013). Nevertheless, Cronbach's alpha was also utilized to compare past reliability measures. Thus, the use of all research tools including hardware and software in this study was a significant concern that required close attention to standards provided by manufacturers and copyright holders to ensure the reliability of the outcomes.

Microsoft® Kinect® Sensors and Vitruvius®

To function properly in the testing environment, Kinect® sensors required particular hardware computational frameworks. Operating 2 Kinect sensors simultaneously required the use of two separate computer systems with time synchronization. The following operating system and architectures were supported in SDK Kinect® sensor environment: Windows 8® or higher operating system; 64 bit (x64) processor; 4 GB memory (or more); i7® 3.1 GHz (or higher); built-in USB 3.0 host controller (Intel® or Renesas® chipset). Additionally, the software required a DX11 capable graphics adapter. The two computers used for this study were a Dell® Latitude E6430, with an i7 processor and up to 3.6 GHz, built-in USB 3.0 and 2.0, with Nvidia® 5200M video card and a DX12 graphics adapter. The other computer was a Hewlett-Packard® 23-p110 with an AMD® A8-6410 APU processor with AMD Radeon® R5 Graphics. Both computers were sufficient hardware to support the software used with Kinect® sensors and Microsoft Visual Studio® with Vitruvius®. However, the Hewlett-Packard® did not function optimally, recording inconsistent number of frames per second. Data normalization was thus necessary to make the synchronic comparisons.

Kinect® sensors generated 3D stick figures superimposed on color images to estimate embodiment synchronization through joint angle calculations using Vitruvius®

for Microsoft Visual Studio®. Vitruvius® software generated arc controls between joints in 3D to ascertain time signals of synchronization. The sensors were designed to produce 15 to 30 frames per second. However, the difference in computers resulted in uneven frames per second on the Hewlett-Packard®. Data were the process of matching frames per second generated on both csv worksheets. By matching time-stamping and frames produced within the time-frames, the data were sufficiently matched to make proper comparisons. The csv files produced in the Dell® computer generated more frames per second consistently than the Hewlett-Packard®. Thus, the data generated in Dell® were matched with the inconsistent frames per-second produced in the Hewlett-Packard®. Rows of data were removed so that the transition between seconds occurred with equal number of frames. Comparisons could then be made using DiffEngineX® software. The assumption was that millisecond alteration of frames would not affect perceived body positions between interlocutors.

Praat 6.0.28® and Signal Processing

Praat 6.0.28®, phonetic software for clinical speech processing was used for vocal signal analyses (Boersma, 2002). The software was a flexible tool that could be used to conduct spectrographic analysis, articulatory calculation, pitch analyses, and general analyses. Praat® software developers, De Jong and Wempe (2009), created a specific script to measure articulation rate, further simplifying the process in this study. The specialized Praat® script was used to extract the intensity of signals with the minimum pitch set at 30 Hz using auto correlation. Vocal signals were recorded as digital wave files using Sony® Acid Pro 6.0®, audio studio software, to record articulation rate

produced from both the CC or UC and the research participants. Acid Pro 6.0® was stand-alone software for audio studio sound recording. The recorded signals were then processed through Praat®. Signal processing in Praat 6.0.28® was more simplified than the use of complex calculations including the Hidden Markov model using the Mel-frequency cepstrum coefficients (MFCC) to calculate vowel sounds per second (Boersma, 2002; De Jong & Wempe, 2009; Frauendorfer et al., 2014). Praat® was used to locate syllable nuclei to calculate ROS. Audio signals were then measured within 1 minute time frames. If the candidate was able to maintain ROS synchrony in one minute increments within 5% of the mean, a score of 1 was assigned. Scoring 5 points would indicate a perfect score for the session. ROS synchrony scores were added to embodiment scores to produce a total MM synchrony score.

Scores tallied and attributed to the respective participant and CC or UC, as shown in Table 3 of Chapter 3, were added to embodiment synchrony scores to produce a total MM effect. As with video data, audio data were taken from the first 5 minutes of conversation for the CC and the last 5 minutes of conversation for the UC to account for latency in ROS synchrony development in natural tendencies. Once analyzed, all audio and video data remained in password protected folders. However, all folders were compressed into one password protected folder to await disposal at a future date.

General Demographic Questionnaire

Participants filled out a GDQ prior to testing to identify covariates when conducting the analyses. The GDQ served to discern individual characteristics of each participant in the pilot study to take into account covariates such as age, gender, ethnicity,

height, and whether the participant wore glasses. The GDQ was designed to identify conspicuous and inconspicuous characteristics that could be perceived as similarities during conversation sessions between the CC or UC and the research participants. Covariates that were not sufficiently distributed to show a real effect were discarded from the analyses. For example, the GDQ included queries regarding possible conversational topics such as religion, politics, and other contextual data. None of the conversations alluded to any of the additional topics in the pilot study. However, the main study revealed additional covariates not included in the GDQ, hobbies and professions. Thus, the perception was limited to the conspicuous characteristics of gender, ethnicity, height, noticeable corrective lenses (glasses), hobbies and professions. The covariate of weight was probably perceived in proportion to height and was thus removed from the list of possible covariates.

GDQ data was assigned to individual coded participants by marking each questionnaire on the upper right-hand corner with the respective codes, omitting names to make it easier to sort and to protect privacy. The data was then transferred to SPSS to compile test participants and covariates for pairing with PHM levels for analysis. When the CC or UC shared common covariates with the participant, the variable was shown as present for that participant with a 1 and not present with 0. For example, “gender” was represented by a 1.00 for male and 0.00 for female since the CC and UC were both male

Attitude Homophily Scale

The attitude homophily scale, a Likert-type scale, produced a measure of PHM through various queries. The 15 bipolar responses were scored based on self-assessed

commonalities with *Strongly Agree*, *Generally Agree*, *Neutral*, *Generally Disagree*, and *Strongly Disagree* as varied responses. Reverse polarity items were scored inversely. For reliability estimates, SPSS scoring required whole numbers. Thus, *Strongly Agree* = 5; *Generally Agree* = 4; *Neutral* = 3; *Generally Disagree* = 2, and; *Strongly Disagree* = 1. If the query was of reverse polarity *Strongly Agree* = 1; *Generally Agree* = 2; *Neutral* = 3; *Generally Disagree* = 4, and; *Strongly Disagree* = 5. However, scoring was analyzed using a different structure: *Strongly Agree* = 2; *Generally Agree* = 1; *Neutral* = 0; *Generally Disagree* = -1 and; *Strongly Disagree* = -2. This strategy reduced the size of the scores and made SPSS analysis more manageable. Participants answered the homophily scale queries immediately following the conversation sessions.

The attitude homophily scale reliability estimates ranged between 0.75 and 0.93 in past studies (McCroskey et al., 2006) The scale was tested for reliability in the pilot study utilizing the Spearman-Brown prophesy formula that involved splitting scaled responses into two halves to assess the expected reliability of the entire scale with the reliability of the coefficient alpha (Eisinga et al., 2013). Cronbach's Alpha was also utilized to ensure reliability of the entire scale to compare estimates in past studies. The attitude homophily scale consisted of 15 items α = .886. The split half method showed Cronbach's alpha at α = .790 and α = .765 respectively. Nevertheless, the correlation between Spearman-Brown coefficient and Cronbach's alpha resulted in α =.888 indicating a high level of consistency and correlating with reliability estimates shown in previous studies.

Response Rate

Pilot Study

The pilot study was a feasibility study protocol used primarily for sample calculations. However, the pilot study also helped to (a) identify any weaknesses in the study, (b) to test the reliability of the study instruments such as the homophily scale and the Kinect® sensors, (c) to test the experimental sessions for proper setting, (d) to structure time allotment and scheduling, and (e) to test the data entry collection processes and appropriateness of statistical tests. Calculations for an appropriate size sample showed a total sample size requirement of 16 participants estimated from Pishghadam et al. (2011), a research team who conducted similar studies. A total of 24 participants responded and participated in the study. The pilot study revealed some challenges in the recruitment strategy. Additionally, hardware issues in the pilot study facilitated instrument use in the main study. Over all, the pilot study was a valuable tool.

Main Study

The original proposal for the main study described the plan of conducting the sessions at a local company to attempt to do a mockup of a recruitment process. However, due to management changes occurring within the community partner, coupled with the necessity of recruiting more participants, the main study was proposed to a larger, State-funded organization, Work Force Solutions North Texas. The sessions were represented in the same fashion as in the pilot study. Participants were told that the study was designed to observe communication habits and that the sensors were used to observe and record the data in numerical format. MM was purposely omitted from any discussion

to avoid tainting the data. The change in the design did not fundamentally alter the study. The new community partner made the participant recruitment more aligned with the strategy used in the pilot study.

The main study was composed of Workforce Solutions North Texas employees or clients and a general population entering the facility or recruited through social media. Social media, such as Facebook® and LinkedIn®, were used to contact general public respondents. Response rate for the main study resulted in the recruitment of 12 employees or clients and 12 general population participants. The third day produced one other participant totaling 25 participants altogether. It was necessary to continue sessions at the researcher's private home with general population participants. A total of 5 control group participants and 5 test group participants were completed. Sample calculations had shown a total sample size of 34 as an appropriate number in order to observe a real effect.

Employees and clients were assigned to the test group while general population participants were assigned to the control group, thus comprising two contrasted groups. As mentioned earlier, recruiting for the main study was similar to student recruiting at MWSU. All sampling and scheduling was accomplished with convenience sampling dependent upon availability. A flyer (Appendix G) was posted at the entrance to Workforce Solutions North Texas in Wichita Falls to notify the general public and employees of the study. Two separate sign-up sheets were utilized to schedule individual sessions with interested respondents.

Demographic Data

Pilot Study

Control group. The demographic structure of the pilot study consisted of control group participants ages ranging from 19 to 39; with 38% White Caucasian, 38% African-American,16% Hispanic or Latino, and 16% Mixed Races; with 31% male and 69% female, and; the UC, at age 55 was considered outside the range of commonality with the control group. Thus, disparate ages between the UC and the control group test participants eliminated age homophily as a possible covariate. Since the UC and CC were Hispanic or Latino, ethnic homophily as a possible covariate was used in the analyses. Covariates thus included gender, height, ethnicity, and whether the participant wore glasses. Other demographic characteristics that could have influenced homophilous perceptions such as attire did not appear to influence viewpoints due to other mitigating characteristics such as skin tone and age differences. Contextual interchanges that included religious affiliation and political views were not a part of the exchanges between the participant and the UC or CC and were thus excluded as possible covariates.

Test group. Test group participants made up of faculty and staff were of ages ranging from 32 to 71; 79% were White Caucasian, 14% African-American, 7% Japanese; with 43% male and 57% female. The CC at age 57 generated age homophily as a possible covariate in some participants. However, differentiation was not possible between the control group and the test group. Hispanic or Latino was used as possible covariates for both the CC and the UC analysis.

Main Study

Control group. As shown in Table 5, the demographic structure of the main study consisted of control group participants, ages ranging from 19 to 63; with 65% White Caucasian, 5% African-American, 25% Hispanic or Latino, and 5% Native American; with 52% male and 48% female. The UC, at age 55, with a 5'6" height, shared commonality with some research participants. The UC was Hispanic or Latino, and thus ethnic homophily was used as a possible covariate in the analyses. Covariates expected to affect PHM levels thus included gender, height, ethnicity, glasses, hobbies, and profession. Hobbies and professions were added to account for conversation content in which interlocutors shared common interests and work environments. Other demographic characteristics that could have influenced homophilous perceptions such as attire did not appear to influence viewpoints due to other mitigating characteristics such as skin tone and age differences. Contextual interchanges that included religious affiliation and political views were not a part of the exchanges between the participant and the UC or CC and were thus excluded as possible covariates. However, the additional covariates of hobbies and professions were included in the main study to account for perceptions created from conversational content.

Table 5

Control Group Participant Demographics

CONTROL GROUP					
P-Code	**Ages**	**Ethnicity**	**Height**	**Gender**	**Glasses**
FP0201	33	W/C	5'3"	F	Y
MP0202	23	W/C	5'0"	M	N
FP0203	55	W/C	5'7"	F	Y
MP0204	42	A/A	5'10"	M	N
FP0205	63	H	5'4"	F	Y
FP0206	44	W/C	5'0"	F	Y
MP0207	22	H	5'11"	M	Y
MP0208	51	W/C	5'11"	M	N
FP0209	36	W/C	5'7"	F	N
MP0210	36	H	5'8"	M	Y
FP0211	38	N/A	5'5"	F	N
MP0212	52	W/C	5'10"	M	N
FP0213	40	W/C	5'7"	F	N
MP0214	63	W/C	6'1"	M	Y
FP0215	32	H	5'1"	F	Y
MP0216	25	W/C	6'0"	M	Y
MP0217	19	W/C	5'11"	M	Y

Note. P-codes anonymized participants. Ethnic codes included: W/C – White Caucasian; H – Hispanic; A/A – African American, and; N/A – Native American

Test group. As shown in Table 6, the demographic structure consisted of test group participant ages ranging from 21 to 69; with 65% White Caucasian, 3.3% African-American, 25% Hispanic or Latino, 3.3% Native American and 3.3% Japanese; with 24% male and 76% female. The CC at age 57 shared a common age range with 3 of the participants; a common height range with 9 participants; a common ethnicity with 4 participants and; glasses with 10 participants. The commonalities indicated that the particular covariate would be included in the analysis.

Table 6

Test Group Participant Demographics

TEST GROUP					
P-Code	**Ages**	**Ethnicity**	**Height**	**Gender**	**Glasses**
FP0101	48	W/C	5'6"	F	N
FP0102	69	A/A	5'10"	F	N
FP0103	48	W/C	5'4"	F	N
FP0104	54	H	5'2"	F	Y
FP0105	55	W/C	5'2"	F	Y
MP0106	19	H	5'10"	M	N
FP0107	56	W/C	5'7"	F	Y
FP0108	58	W/C	5'4"	F	Y
FP0109	50	W/C	5'5"	F	Y
FP0110	53	W/C	5"5"	F	Y
FP0111	62	A/A	5'1"	F	Y
FP0112	32	W/C	5'5"	F	N
FP0113	55	H	5'5"	F	N
MP0114	68	H	5'2"	F	Y
MP0115	21	W/C	5'8"	M	N
MP0116	46	W/C	5'7"	M	Y
MP0117	70	J	5'5"	M	Y

Note: P-codes anonymized participants; Ethnic codes included W/C – White Caucasian; H – Hispanic; A/A – African American; J – Japanese.

Analysis

I used an ANCOVA to compare the means between groups producing a total variance score. The total variance score was composed of the entire effect difference between both groups and PHM that included all covariates. Since covariates were expected to be PHM predictors as well, individual dyadic sessions were entered as multiple covariates using the univariate procedures in the General Linear Model (GLM) in SPSS. Univariate analysis allowed for multiple covariates to be entered into the statistical equation to isolate the effects of the primary independent variable, MM

represented a fixed factor. The control condition created with the UC was based on synchrony ranges which were expected to differentiate with the CC in the test group using MM processes. A simple contrast would not have been sufficient to explain covariate error rate. Additionally, SPSS did not allow for post hoc tests when covariates were introduced. However, a confidence interval adjustment using a Bonferroni correction still compared main effects by adjusting group means and partialing out covariates. A Sidak correction was similar to the Bonferroni correction but less conservative to prevent a loss of power of the corrected values. With a multitude of possible covariates, the Bonferroni correction was the better choice in reducing the chances for making Type I errors.

Assumptions under ANCOVA were necessarily assessed for the covariates and the independent variable. A linear relationship was observed between the covariates by visual inspection of scatterplots fulfilling the linearity assumption in ANCOVA. The assumption of homogeneity of regression slopes was fulfilled as the interaction terms were not statistically significant for each of the covariates: Age - $F(1,30) = .048$, $p = .828$; Ethnicity – $F(1,30) = .017$, $p = .897$; Gender – $F(1,30,) = 2.53$, $p = .122$; Glasses – $F(1,30) = .429$, $p = .517$; Height – $F(1,30) = .283$, $p = .599$; Hobbies – $F(1,30) = 1.261$, $p = .270$; Profession – $F(1,30) = 1.109$, $p = .301$, and; MM – $F(1,30) = .259$, $p = .615$. Standardized residuals were normally distributed, as assessed by Shapiro-Wilk test ($p > .05$).

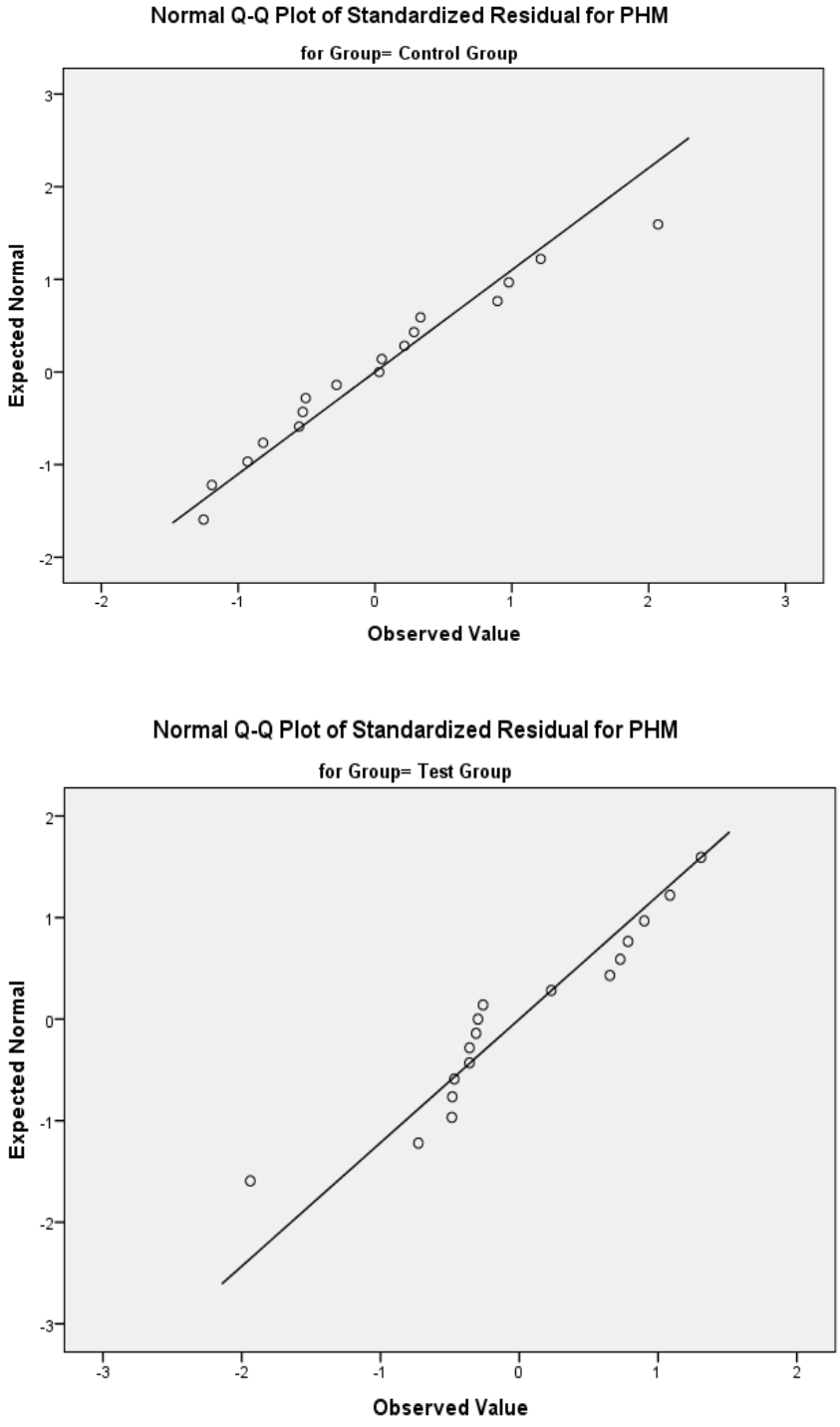


Figure 7. Shapiro-Wilk Test Scatterplots. The Shapiro Wilk test was verified by examining these scatterplots for normally distributed standardized residuals.

As shown in Figure 8, there was homoscedasticity, as assessed by visual inspection of the standardized residuals plotted against the predicted values. Homogeneity of variances was assessed by the Levene's test of homogeneity of variance (p = .123) indicating homogeneity. Finally, no outliers existed in the data, as assessed by no cases with standardized residuals greater than ±3 standard deviations.

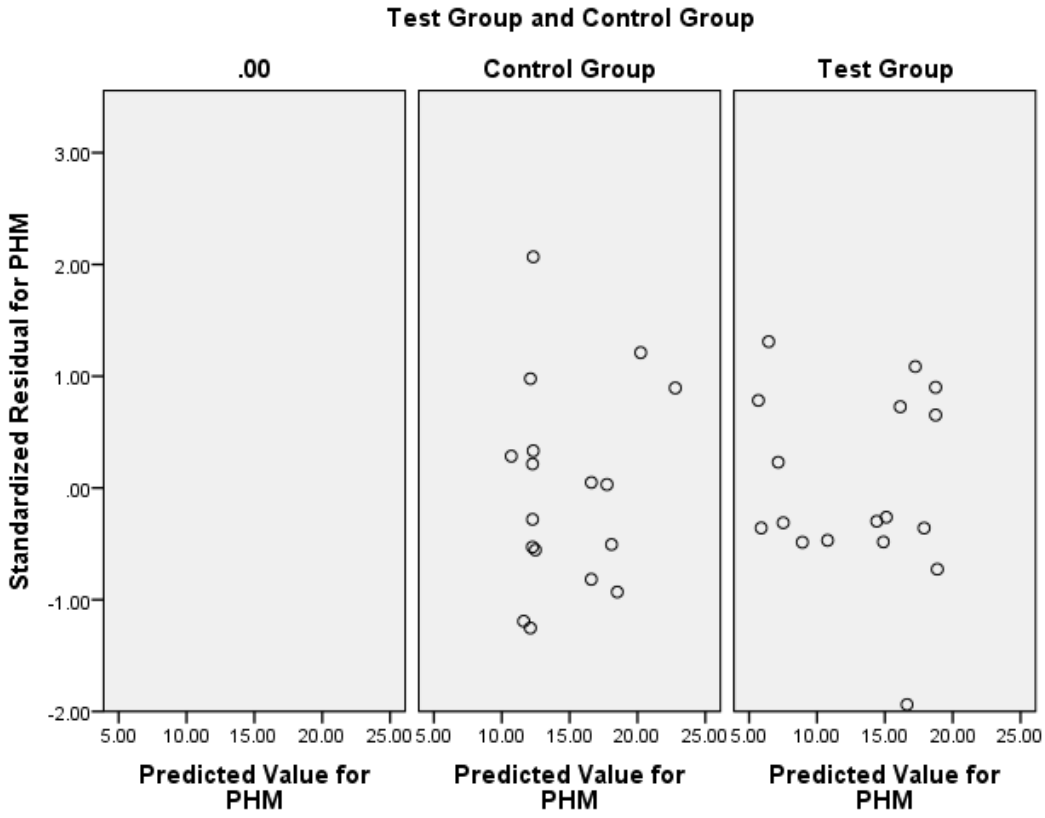


Figure 8. Residuals plotted for homoscedasticity. Homoscedasticity can be determined by visually inspecting the scatterplot above. a) The points will exhibit no pattern and approximately constantly spread across the predicted values, and b) the spread of points should be similar in the y-axis for all categories of the independent variable.

Tables 8 and 9 display the results of the scoring per participant in the test group and the control group. PHM was measured as a scaled response while all independent variables except for MM were measured as nominal. MM was measured as an ordinal

variable. MM ranges scaled between 0 and 6 indicating scores ranging from 0 to 60. By visual inspection, the tables also showed that the CC, represented by the researcher, acquired higher MM scores than the UC, relying on natural tendencies and accounting for latency. Additionally, Tables 7 and 8 displayed the method by which covariates were considered part of the statistical calculation by showing an indication of 1 when the interlocutors shared that particular covariate and 0 when it was not.

Table 7

Test Group Analysis Table

	Test Group									
P-Code	**PHM**	**Choice**	**MM**	**Gender**	**Height**	**Age**	**Ethnicity**	**Glasses**	**Profession**	**Hobbies**
FP0101	26	2	3	0	1	0	0	0	0	0
FP0102	13	2	1	0	0	0	0	0	1	0
FP0103	17	2	3	0	1	0	0	0	0	0
FP0104	26	2	2	0	0	1	1	1	0	0
FP0105	12	1	2	0	0	1	0	1	0	0
MP0106	1	1	5	1	0	0	1	0	0	1
FP0107	11	2	1	0	1	1	0	1	0	0
FP0108	13	1	1	0	0	1	0	1	0	0
FP0109	5	2	3	0	0	0	0	1	0	0
FP0110	3	1	5	0	1	0	0	1	0	0
FP0111	5	2	1	0	0	0	0	1	0	0
FP0112	9	1	2	0	1	0	0	0	0	0
FP0113	24	2	2	0	0	1	1	1	0	0
MP0114	22	2	6	0	0	0	1	0	0	0
MP0115	7	1	3	1	0	0	1	0	0	0
MP0116	12	1	5	1	1	0	0	1	0	0
MP0117	15	1	3	1	1	0	0	1	0	0

Note. P-Codes anonymized participants; PHM indicated the only scaled response in the analysis. All other covariates were measured nominally except for MM scoring, which was considered an ordinal variable between 0 and 6 to indicate score ranging between 0 and 60; GDQ and conversational content, such as *hobbies* and *profession*, were nominal responses reflecting 0 if the characteristic was not shared between interlocutors and 1 if it was.

Table 8

Control Group Analysis Table

Control Group										
P-Code	PHM	Choice	MM	Gender	Height	Age	Ethnicity	Glasses	Profession	Hobbies
FP0201	8	1	1	0	0	0	0	1	0	0
MP0202	20	2	0	1	0	0	0	0	0	0
FP0203	8	1	1	0	1	1	0	1	0	0
MP0204	30	2	0	1	0	0	0	0	1	0
FP0205	29	2	0	0	0	1	1	1	0	0
FP0206	11	1	0	0	0	0	0	1	0	0
MP0207	13	2	2	1	0	0	1	1	0	0
MP0208	17	2	1	1	0	1	0	0	0	0
FP0209	2	0	0	0	1	0	0	0	0	0
MP0210	14	2	0	1	1	0	1	1	0	0
FP0211	10	1	1	0	1	0	0	0	0	0
MP0212	14	2	1	1	0	1	0	0	0	0
FP0213	30	2	1	0	1	0	0	0	0	0
FP0214	15	2	0	0	0	0	0	1	0	1
MP0215	18	1	2	1	0	0	0	1	0	0
FP0216	2	1	1	0	0	0	0	0	0	0
MP0217	10	1	1	1	0	0	0	1	0	0

Note. P-Codes anonymized participants; PHM indicated the only scaled response in the analysis. All other covariates were measure using a nominal measure except for MM scoring, which was considered a nominal variable between 0 and 6 to indicate score ranging between 0 and 60; GDQ and conversational content were nominal responses reflecting 0 if the characteristic was not shared between interlocutors and 1 if it was.

Unadjusted means are presented, unless otherwise stated. PHM levels were produced in the test group and control group at varying levels of MM scores. The control group scoring MM = 0 to 2, $N = 7$, ($M = 17.29$, $SD = 9.96$) with the test group not scoring in this range; control group scoring MM = 2.1 to 10.0, $N = 8$, ($M = 12.38$, $SD = 8.38$) with test group in the same scoring range, $N = 4$, ($M = 10.5$, $SD = 3.79$); control group scoring MM = 10.1 to 20.0, $N = 2$, ($M = 15.5$, $SD = 3.54$) with test group in the same scoring range, $N = 4$, ($M = 17.75$, $SD = 8.50$); test group scoring MM = 20.1 to 30.0, $N = 5$, ($M = 14.00$, $SD = 8.43$) with the control group not scoring in this range; test group

scoring MM = 40.1 to 50.0, $N = 3$, ($M = 5.33$, $SD = 5.86$) with the control group not scoring in this range, and; test group scoring MM = 50.1 to 60, $N = 1$, ($M = 22$, $SD = 0$) with the control group not scoring in this range. The assumption of normality for the standardized residuals was a necessary statistical significance test carried out as a one-way ANCOVA.

Findings

An ANCOVA was run to determine the effects of MM processes on PHM with a control group based on natural synchronic tendencies, adjusting for age, gender, ethnicity, height, glasses, hobbies, and professions. The independent variable, *choices,* was excluded from the analysis as it would test the second hypothesis ($H_0 2$) as a fixed covariate. After adjusting for all the covariates, there was not a statistically significant difference in PHM levels as produced by MM levels between the groups, $F(1,18) = 1.422$, $p = .249$, partial $\eta 2 = .073$, failing to reject the first null hypothesis ($H_0 1$) and rejecting the alternate hypothesis ($H_a 1$). ANCOVA was rerun to test the 2nd hypothesis ($H_0 2$) regarding candidate choice effects upon PHM using choice as the fixed factor excluding MM from the analysis. The results indicated a significant relationship between candidate choices and PHM, $F(2,22) = 7.440$, $p = .003$, thus resulting in rejection of the second null hypothesis ($H_0 2$) and a failure to reject the alternate second null hypothesis ($H_a 2$). However, both groups produced similar levels of choice points.

The first research question (RQ1)—To what extent, if any, is there a relationship between the application of MM processes and elevated PHM levels? RQ2—queried a relationship between the application of MM processes and PHM levels. RQ1 was

designed to determine whether an MM coached candidate could produce higher PHM levels than an uncoached candidate relying on natural tendencies. Failing to reject the first null hypothesis did not necessarily mean that MM processes did not affect homophilous perceptions (PHM). There are various factors that may have contributed to the outcome. One factor was that the CC and the UC, although matched for conspicuous characteristics, were not matched for personality and mannerisms which probably affected PHM levels as well. This was one of the limitations of the study accepted for generalizability. The strategy was meant to account for applicability in leadership socialization.

The second research question (RQ2)—To what extent, if any, is there a relationship between elevated PHM levels and positive candidate choices?—queried whether a relationship existed between levels of acceptance as a coworker and PHM levels. The rejection of the second null hypothesis indicated that PHM levels correlated with acceptance. However, acceptance levels were evenly distributed between CC and UC indicating that, although choice affected PHM levels, the differentiation between the groups was not significant. Since PHM levels were similar between CC and UC, RQ2 simply indicated a relationship between homophilous perceptions and coworker acceptance; a relationship confirmed in other studies (Lozares et al., 2014; McPherson et al., 2001; Smith et al., 2014). Thus, the rejection of the second null hypothesis was of no consequence due to a lack of differentiation between the groups. If PHM levels had varied between groups it is possible that the outcomes would have shown a difference in this category as well. Nevertheless, further research was required to ascertain the

difference between higher and lower PHM levels and *choices* as differentiated between groups.

Summary

I hypothesized that MM processes and elevated PHM levels had a relationship in face-to-face social conversation. The CC, engaging in social conversation used MM processes with research participants while a UC relied on natural tendencies. Following the conversation sessions, research participants from both groups shared their perception of the candidate using the attitude homophily scale to ascertain whether total synchrony scores, whether produced by natural tendencies or MM processes affected PHM levels. An ANCOVA was used to determine the relationship. A quantitative strategy using PHM as a metric for differentiating the groups was a new approach to socialization and was of an exploratory nature. The tools used to gather the data posed some challenges.

The tools required to differentiate an MM coached candidate from a normal candidate were high technology instruments that continue to be in development, Kinect® sensors (Won et al., 2014), in conjunction with Vitruvius® software, are new to academia as differentiating tools in social exchanges. The technology presented additional challenges due to differences in computer hardware. The need for using two separate computers possibly created synchronization issues on differentiation. Developmental research may improve Kinect® sensors in the future to allow for the operation of two sensors on one computer.

The attitude homophily scale was tested for reliability in this study as it had been tested in other studies (McCroskey et al., 2006). The scale was shown to have high

reliability with Cronbach's $\alpha = .888$ which confirmed previous measures. However, the final item added to the scale was designed to determine coworker choice. The item was not tested for reliability and thus represented a weakness to the study.

The first null hypothesis was accepted indicating that PHM levels did not show statistically significant differences between groups. This meant that, MM processes in this study were not significant in determining PHM levels. Using two candidates, with a host of differing qualitative characteristics, weakened the study. Qualitative characteristics such as personality and various mannerisms could not be used as covariates in this study. Although the second null hypothesis was rejected, the data had no bearing on MM differentiation in that both candidates received similar scores. In retrospect, generalizability concerns should not have outweighed the testing of the hypotheses. The hypotheses would have been better tested using one CC for both groups; the CC would cognitively mirror in one group and refrain from mirroring in another group. Additionally, a low partial $\eta 2 = .073$ indicated that the sample size should be much larger for any future identical study. Suggestions for future studies will be covered in the following chapter.

Chapter 5: Discussion, Conclusions, and Recommendations

Overview

The purpose of this study was to test MM, a dyadic communication enhancement tool as a coached intervening independent variable for leadership socialization strategies. The attitude homophily scale, producing the PHM, was a necessary instrument for testing MM effectiveness. MM scores produced by either UC or CC were analyzed for a relationship with PHM levels, taking into account all available covariates. Since homophily was the tendency for people to associate disproportionately with others who were perceived to be similar in some way (Alstott et al., 2014; Fu et al., 2012; McCroskey et al., 2006; Smith et al., 2014; Wang & Zhu, 2014), the measure was synonymized with the concept of rapport. The qualitative nature of rapport did not allow for effective use in quantitative studies. Additionally, the improved attitude homophily scale and the resultant PHM scores were considered to be a more robust measure for group cohesiveness (Aksoy, 2015; Alstott et al., 2014; Lozares et al., 2014; McCroskey et al., 2006) and a better measure for the relationship that exists between ingroup members and leaders.

Homophilous perceptions encompassed a wider spectrum of commonalities associated with leadership integration such as institutional logics and group cohesion (Cheng-Chen & Tai-Kuang, 2010; Lammers, 2011; Rhodes & Butler, 2010). Since PHM had not been used as a metric for effectiveness, it was necessary to ascertain the effect size in a pilot study with two contrasted groups of students and faculty at MWSU. Once the effect size was determined, a main study with an appropriate sampling strategy tested

two groups at Workforce Solutions North Texas. MM processes involved verbal and nonverbal cognitive matching of VAK signals (Gonzalez & Chakraborty, 2012; Lang, 2012; Leopold, 2012). As a stand-alone process, MM had shown marked improvements in communication and attraction in past studies (Lang, 2012; Peterson & Limbu, 2009). This study filled a gap in leadership socialization studies by providing a metric for testing onboarding strategies aimed at increasing homophilous perceptions.

An MM CC was expected to produce greater instances of synchrony than a UC and that the resultant increase would augment PHM levels. Since the UC relied on natural tendencies to converse with research participants in a control group, synchrony was expected to occur later in the conversation. Thus, to account for latency in synchrony development, the last 5 minutes of conversation sessions were scored in the control group and the first 5 minutes in the test group. Each research participant was asked to assess a candidate using the attitude homophily scale (McCroskey et al., 2006) a Likert-type scale used effectively in measuring homophilous perceptions. PHM as a measure of effectiveness in rapport-building techniques was a new approach to the problem of communication in leadership social integration.

The ability to observe and record moments of joint angle synchrony using Kinect® sensors made quantitatively testing cognitive embodiment mirroring a possibility. Relying on human observations of synchrony would have taken thousands of hours of careful frame-by-frame estimations that would have increased the chances for error and bias. Audio signal analysis of syllables per second would have also taken an inordinate amount of time to assess without Praat® phonetic software. Differentiating

cognitive MM with natural conversational tendencies was the first step in testing rapport-building tactic effectiveness against PHM.

There was no statistically significant difference between the MM group and the natural tendencies group on PHM levels. Although more instances of synchrony were produced in the test group, synchrony scores, whether produced naturally or cognitively, did not covary significantly with PHM levels. Additionally the covariates of age, gender, height, ethnicity, glasses, and hobbies were not statistically significant against PHM levels either. Only professions showed statistical significance. However, each group had only one participant who shared common professions, making the outcome possibly erroneous. All indications show that the sample size may have been too small to return a real effect.

Interpretation of Findings

The purpose for running the one-way ANCOVA was to establish whether a statistically significant group difference existed on PHM levels. The test group was exposed to MM processes and the control group with synchronic natural tendencies adjusted for common covariates. There was not a significant difference after exposure to either a CC or UC. The comparison, however, returned a very low partial η^2, indicating the possibility that the sample estimates for the main study may have been miscalculated. A much larger sample may have been required to observe a real effect.

To understand the results of the ANCOVA it was necessary to examine some of the covariate effects as well. As shown in the previous section, MM processes did not have a significant effect on most of the covariates except for choice, $F = (1,18)$, $p = .001$,

partial η^2 = .449 and *professions*, F = (1, 18), p = .037, η^2 = .220. However, MM was not a factor in influencing choice since both candidates received similar scores. Thus, none of the covariates had a significant effect upon choice. The choice query seemed to have been subject to social response rather than true perception. Additionally, choice was not included as a covariate for MM processes, but as an independent variable tested against PHM levels and all other covariates except MM to test the second null hypothesis. The relationship between PHM levels and MM processes was not established.

Covariates were only used when shared between interlocutors. The statistical significance of professions may have been the result of minimal applicability. Only two participants shared professions with either the UC or CC. A larger sample size may have provided more instances of profession commonality in addition to all covariates, thus providing a more accurate measure. Additionally, it was possible that many participants in the control group, who may have been at Workplace Solutions looking for a job, responded to the query from a job-seeker viewpoint. A similar phenomenon occurred in the pilot study in which many of the students in the control group had not experienced workplace associations and seemed to have responded socially to the query as well. The item may not have been structured properly to elicit a real response.

Limitations of the Study

Various other stimuli besides MM processes were expected to affect PHM levels. The covariates of age, gender, ethnicity, height, glasses, hobbies and professions were were included in the statistical calculations. Most covariates, except for hobbies and professions, were conspicuous and were used to identify the strength of the effect that

MM had upon PHM. However, the covariates did not take into account mannerisms and personality differences between the candidates. Using a CC and a UC was a limitation that weakened the study. Observing human behavior quantitatively using a few proclivities could not account for all subjective behaviors that may have affected PHM levels as well. I accepted the limitation to account for generalizability in a leadership socialization platform using two possible candidates. Additionally, the findings that most covariates had no significant effect on PHM indicated the possibility that the sample size was not sufficiently large enough to return a real effect.

Social Change Implications

PHM as a metric for rapport-like behavior was a new approach to assessing communication enhancement for leadership socialization efforts. Past researchers struggled with finding an appositive metric for rapport, a concept that had been more aligned with qualitative studies (Fatima & Razzaque, 2014; Horan & Houser, 2012; Kidwell & Hasford, 2014; Shen, 2010; Vallano & Compo, 2015). Research efforts yielded questionable metrics for the phenomenon. As a possible metric, homophily was more aligned with leadership socialization and integration. Although the quasi-experiment resulted in no significant relationship between MM and PHM levels, the consideration of homophily as a possible metric for rapport-like behavior provided opportunities for future testing of communication tactics.

PHM as a metric for rapport can open the door to future research in leadership communication and worker retention in moments of crises. A recent article in Forbes magazine showed a significant increase in employee turnover in 2017 with 26% of

workers voluntarily quitting their jobs to find greener pastures (McGrath, Gensler, & Sharf, 2017). Retaining human resources has become a significant consideration for corporations around the globe as the competitive field pushes human resources management to enhance employee retention. Viewing retention strategies under the homophily lens may help improve program effectiveness.

With the leadership succession crisis underway, unprepared organizations will struggle with employee retention as well. Organizational members who had established social bonds with the retiring leader often quit the organization when the new leader was unable to establish social bonds early (Ayub et al., 2014; Bolton, 2017; Chung & Luo, 2013; Rothausen et al., 2015). PHM-tested, rapport-building tactics may help make leadership transition more effective in onboarding strategies.

Organizational and leadership development efforts can be enhanced through ongoing activities that are aimed at creating homophilous perceptions rather than establishing rapport. The ingroups and outgroups that naturally formed according to the LMX theory (Chan & Mak, 2012; Kangas, 2013; Kelley & Bisel, 2014) were probably based on membership ingroup homophilous perceptions and outgroup heterophilous perceptions of the leader and vice versa. Understanding outcomes based on homophilous perceptions can help organizational development efforts at creating commonality in the work environment.

Organizational change initiatives are common activities in a global economy. Global competition compels companies to stay on the cutting edge of technology and product development resulting in a work environment in flux. However, membership

resistance to change continued to be a challenge to organizations (Agote et al., 2016; Băeşu & Bejinaru, 2013; Bareil, 2013; Bolton, 2017; Bordia et al., 2011; Choi, 2011; Huy et al., 2014; Kansal & Chandani, 2014). The ability to enhance or change homophilous perceptions cognitively could be synonymous with the ability to gain support for any initiatives including change. The commonality shared within groups was associated with what was considered the binding agent of that group (Flashman & Gambetta, 2014; Lee et al., 2016; Smith et al., 2014; Wang & Zhu, 2014). Change initiatives through leadership "sensemaking" and "sensegiving" can be aimed at enhancing homophilous perception to create a common drive.

Homophily pervades our daily lives, whether positively or negatively, depending on viewpoint. However, identifying homophily as a group binding agent also qualified it as a social metric for relationship enhancement. When a group came together with a common purpose; a homophilous perception, the action was also known as social mobilization (Alstott et al., 2014; Golub & Jackson, 2012; Wang & Zhu, 2014), or social unity (Stout, 2014) that established a collective voice and impetus. Leadership communication tactics aimed at enhancing homophilous perceptions can possibly provide the necessary tools for leading real social change within organizations and possibly societal efforts at averting planetary sustainability crisis.

Recommendations for Action

A significant relationship between PHM levels and MM processes was not established. However, the quantitative environment posed many challenges due to the inherent complexities of identifying and observing embodiment and vocal synchrony in

dyadic communication. It was apparent that the structure of the test could have been improved in various ways. The newness of utilizing a quantitative approach to social interaction required development and improvements in the test structure. As such, communication researchers should seek ways of altering the structure of the experiment that may help to identify the true MM effect. Altering the experiment may remove confounds that may have existed when using two candidates.

The outcomes of the study should be of interest to organizational and leadership development (OD) professionals struggling with onboarding strategies. The retiring Baby Boomers will likely leave an experience or leadership void if the organization is unprepared for the change event. Onboarding leaders filling the void will likely be challenged with socialization issues as existing members form distinct perceptions and judgments. Viewing socialization under the homophily lens may help OD professionals understand socialization problems with greater clarity. The usefulness of switching attention directs strategic action towards improving homophilous perceptions rather than determining whether indications of rapport were evident. Dissemination to OD professionals can be accomplished through a published article in the Journal of Change Management, the Journal of Applied Behavioral Science, the Human Resource Management Journal, Advances in Developing Human Resources, Human Resource Development International, Organizational Dynamics, and the Journal of Business Research.

Current onboarded leaders seeking to form social connections with the existing membership can benefit from this study by seeking ways of enhancing homophilous

perceptions rather than attempting to establish rapport. Although further research into MM processes and its relationship to PHM levels is necessary, switching the attention from rapport to homophily may greatly improve a leader's ability to gain acceptance and legitimacy from the existing membership. Dissemination of this study to this field can be accomplished through a published article in the Journal of Leadership Education, The Leadership Quarterly, the International Journal for Transformative Research, and the Journal of Management Development.

Recommendations for Future Research

As mentioned previously, improvements to the study testing the relationship between MM and PHM levels can help researchers develop cognitive perception alteration further. Although indications showed no significant relationship between the two variables, it was evident that an alteration of sample calculations was necessary. The structure of the quasi-experiment could undergo changes such as using a pre-test and a post-test in a time-series analysis with the same candidate. A pre-test designed for one candidate mismatching ROS while mismirroring embodiments, and a post-test with the same candidate switching to cognitive mirroring. This method could reveal a truer MM effect. However, the alternative would be in a controlled environment and thus possibly affecting generalizability. Nevertheless, the new structure could produce data that test the null hypotheses more accurately regarding the relationship between MM and PHM.

Researchers seeking to test MM processes using Kinect® sensors in future studies should understand that minimum computational capabilities were not enough to accurately compare joint-angle mirroring. Exact hardware matching was necessary to

ensure more accurate synchronization measures. Matching computer hardware would ensure proper measurement of joint-angle matching due to performance and time-synchronization. Additionally, data normalization takes many hours of spreadsheet alterations, making the observations prone to error. Since two computers were necessary for Kinect® sensor operation, each sensor utilized separate signals including audio. Thus, in analyzing ROS, one interlocutor was always louder than another. The difference affected Praat® software syllable nuclei detection. One signal was consistently registering as silence, making ROS estimations by counting syllables visual rather than by utilizing the syllable nuclei detector in the software. Future studies may opt to use a sensitive center microphone to record audio signals.

MM researchers in the future should also consider an alternate statistical tool to determine clinical relevance rather than statistical significance. The findings of no statistical significance in social interaction does not account for clinical relevance given that an intervening treatment variable was used between groups. Although clinical relevance was more often used in healthcare studies, the methodology may be applicable. Distribution-based methods for approximating clinical relevance may apply, such as repeated measures for effect size. Effect size refers to the strength of the relationship between the dependent and the independent variables. Cohen's *d*, was a popular measure that could be used. The process involved taking the difference between the means of two groups and dividing that difference by the pooled standard deviation. The pooled standard deviation formula is shown in Figure 9. Cohen's *d* ranged from minus to plus infinity, the effect sizes operationalized as small, medium, or large effects. Clinical

relevance, however, would be a different way of approaching social data explored in future studies.

$$\sqrt{\frac{(SD_1^2 + SD_2^2)}{2}}$$

Figure 9. Pooled standard deviation. Cohen's *d* calculation requires calculating the pooled standard deviation.

Concluding Statement

For years communication researchers have sought to find an appositive metric for rapport in an effort to quantify human relationships and to engage in empirical studies that confirm effectiveness (Acosta, 2011; Fatima & Razzaque, 2014; Hyun & Kim, 2014; Vallano & Compo, 2015). However, the concept of rapport seemed to encompass a host of indicators due to its qualitative characteristics. Researchers often replaced rapport with trust (Fatima & Razzaque, 2014; Ho, Kuo, & Lin, 2012; Scott et al., 2012; van der Werf & Buckley, 2014). Although the comparison had some merit, trust was often developed from perceptions of status or experience and not necessarily from face-to-face communication.

Synonymizing rapport with other parallel perceptions such as *empathy* provided additional challenges. When the perception of one person was aligned with another emotionally, the level of understanding increased, thereby promoting prosociality (Belzung, 2014; Chiao, 2011; Smith, 2017). However, the perception of empathy, like rapport, had been fodder for debate as to its substance and purpose (Belzung, 2014; Preston & Hofelich, 2012; Smith, 2017). Measuring empathy was as much a challenge as

measuring rapport. Nevertheless, *empathy* was grounded with the concept of homophily in that empathic signals likely created commonality perceptions in both parties. I proposed homophily, rather than *empathy* or rapport, as the binding agent required for onboarding socialization and integration. The measuring instrument for homophily, the attitude homophily scale and its resultant PHM were created and improved for reliability in a past study (McCroskey et al., 2006). The scale was used with expressed permission from the copyright holder, Lynda McCroskey.

Investigation into the relationship between the communication tactic, MM and PHM was essentially exploratory. Any communication tactic or rapport-building strategy could have been tested using PHM as a metric. However, MM closely paralleled theories aligned with homophily, such as the social identity theory; the social presence theory; the behavioral integration theory, and; the similarity-attraction paradigm. The mirror neuron theory may have had some applicability but will require further research.

Although MM and PHM levels were not shown to have a significant relationship, the investigation into the relationship using alternate methodologies and experimental structures was advised. Many studies have shown indications of rapport with synchronic movement between interlocutors (Fujiwara & Daibo, 2016; Imel, et al., 2014; Kim, 2015; Lakens & Stel, 2011; Llobera, et al., 2016; Miles et al., 2009; Ramseyer & Tschacher, 2011). Thus, research outcomes merit further investigation into the relationship. However, statistical non-significance alone does not account for clinical relevance in any study with a treatment variable using human subjects (Cuijpers, Turner, & Koole, 2014; Ohl & Schelly, 2017). Clinical relevance is usually applied in healthcare research.

However, MM as an intervening treatment variable in social interaction could be considered to produce clinical relevance in future studies. For example, medical researchers are more interested in the size of an effect rather than the statistical significance (Aarts, van den Akker, & Winkens, 2012).

The underlying purpose for considering communication improvements in leadership applications had been the demographic shift known as the Leadership Succession Crisis. With one third of the U.S. population reaching retirement age, companies relying on onboarding strategies for new leader replacements would likely endure socialization challenges. One of the biggest challenges an onboarding leader faced was establishing rapport with the existing membership. Rapport is a concept that continues to be debated as to its substance and origin (Acosta, 2011; Bronstein et al., 2012; Cohen & Kassis-Henderson, 2012; Fatima & Razzaque, 2014; Ho V. , 2014; Hyun & Kim, 2014; Tickle-Degnen & Rosenthal, 1990; Vacharkulksemsuk & Fredrickson, 2012; Vallano & Compo, 2015; White et al., 2012). Onboarding leaders, challenged with the inability to create rapport, may gain more insight to socialization by viewing with a homophily lens rather than a rapport lens.

References

Aaltonen, M. (2016). To whom do prior offenders pose a risk? Victim-offender similarity in police-reported violent crime. *Crime & Delinquency,* 1-24. doi:10.1177/0011128716654713

Aarts, S., van den Akker, M., & Winkens, B. (2012). The insignificance of statistical significance. *European Journal of General Practice, 18*(1), 50-52. Retrieved from http://www.tandfonline.com/loi/igen20

Abrams, D., Palmer, S., Rutland, A., Cameron, L., & Van de Vyver, J. (2014). Evaluations of and reasoning about normative and deviant ingroup and outgroup members: Development of the black sheep effect. *Developmental Psychology, 50*(1), 258-270. doi:10.1037/a0032461

Acosta, J. C. (2011). Achieving rapport with turn-by-turn, user-responsive emotional coloring. *Speech Communication, 53*(9-10), 1137-1148. doi:10.1016/j.specom.2010.11.006

Agness, L. (2011). Using NLP to get on your customers' wavelength. *Manager: British Journal of Administrative Management*(75), 22-23. Retrieved from http://www.instam.org/

Agnihotri, R., & Krush, M. T. (2015). Salesperson empathy, ethical behaviors, and sales performance: The moderating role of trust in one's manager. *Journal of Personal Selling & Sales Management, 35*(2), 164-174. doi:10.1080/08853134.2015.1010541

Agote, L., Aramburu, N., & Lines, R. (2016). Authentic leadership perception, trust in the leader, and followers' emotions in organizational change processes. *Journal of Applied Behavioral Science, 52*(1), 35-63. doi:10.1177/0021886315617531

Aguiar, F., & Parravano, A. (2015). Tolerating the intolerant: Homophily, intolerance, and segregation in social balanced networks. *Journal of Conflict Resolution, 59*(1), 29-50. doi:10.1177/0022002713498708

Ahammada, M., Tarbab, Y., Liuc, Y., & Glaisterd, K. (2016). Knowledge transfer and cross-border acquisition performance: The impact of cultural distance and employee retention. *International Business Review, 251*, 66–75. doi:10.1016/j.ibusrev.2014.06.015

Ahmed, Z., Shields, F., White, R., & Wilbert, J. (2010). Managerial communication: The link between frontline leadership and organizational performance. *Journal of Organizational Culture, Communication and Conflict, 14*(1), 107-120.

Aksoy, O. (2015). Effects of heterogeneity and homophily on cooperation. *Social Psychology Quarterly, 78*(4), 324-344. doi:10.1177/0190272515612403

Al Muhaidib, N. (2011). Different learning styles used by Sudi female english second language learners. *Ekev Academic Review, 15*(46), 435-449. Retrieved from http://www.ekevakademi.org/eng/index.php

Alder, H. (2002). The nature of NLP. In H. Alder, *Handbook of NLP: A Manual for Professional Communicators* (pp. 5-13). Abingdon, Oxon, GBR: Gower Publishing Limited.

Alessandri, G., Kanacri, B., Eisenberg, N., Zuffianò, A., Milioni, M., Vecchione, M., & Caprara, G. (2014). Prosociality during the transition from late adolescense to young adulthood: The role of effortful control and ego-resiliency. *Personality and Social Psychology Bulletin, 40*(11), 1451-1465. doi:10.1177/0146167214549321

Alstott, J., Madnick, S., & Velu, C. (2014). Homophily and the speed of social mobilization: The effect of acquired and ascribed traits. *PLOS ONE, 9*(4), 1-9. doi:10.1371/journal.pone.0095140

Amiot, C., & Aubin, R. (2013). Why and how are you attached to your social group? Investigating different forms of social identification. *British Journal of Social Psychology, 52*(3), 563-586. doi:10.1111/bjso.12004

Anderson, M., & Sun, P. (2015). The downside of transformational leadership when encouraging followers to network. *Leadership Quarterly, 26*(5), 790-801. doi:10.1016/j.leaqua.2015.05.002

Antheunis, M. L., Valkenburg, P. M., & Peter, J. (2012). The quality of online, offline, and mixed-mode friendships among users of social networking site. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *6*(3), 1-15. doi:10.5817/CP2012-3-6

Antheunis, M., Valkenburg, P., & Peter, J. (2010). Getting acquainted through social network sites: Testing a model of online uncertainty reduction and social attraction. *Computers in Human Behavior*, *26*(1), 100-109. doi:10.1016/j.chb.2009.07.005

Arogundade, O. (2011). Mentoring and leadership succession in industries and organizatons. *IFE PscyhologIA, supplement*, 180-186. Retrieved from http://www.ifepsychologia.org/

Aron, A., Melinat, E., Aron, E., Vallone, R., & Bator, R. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin, 23*(4), 363-377. doi:10.1177/0146167297234003

Arora, R. (2003). The great American hiring freeze. *The Gallup Poll Tuesday Briefing*, 1-3. Retrieved from http://www.gallup.com

Ashforth, B., Schinoff, B., & Rogers, K. (2016). "I identify with her," "I identify with him": Unpacking the dynamics of personal identification in organizations. *Academy of Management Review, 41*(1), 28-60. doi:10.5465/amr.2014.0033

Atouba, Y., & Shumate, M. (2015). International nonprofit collaboration: Examining the role of homophily. *Nonprofit and Voluntary Sector Quarterly, 44*(3), 587-608. doi:10.1177/0899764014524991

Avanzino, L., Lagravinese, G., Bisio, A., Perasso, L., Ruggeri, P., & Bove, M. (2015). Action observation: Mirroring across our spontaneous movement tempo. *Scientific Reports, 5*, 1-9. doi:10.1038/srep10325

Ayub, S. H., Manaf, N. A., & Hamzah, M. R. (2014). Leadership: Communicating strategically in the 21st century. *Procedia - Social and Behavioral Science, 155*, 502-506. doi:10.1016/j.sbspro.2014.10.330

Bacha, E., & Walker, S. (2013). The relationship between transformational leadership and followers' perceptions of fairness. *Journal of Business Ethics, 116*(3), 667-680. doi:10.1007/s10551-012-1507-z

Băeşu, C., & Bejinaru, R. (2013). Leadership approaches regarding the organizational change. *USV Annals of Economics & Public Administration, 13*(2), 146-152. Retrieved from http://www.seap.usv.ro

Bahns, A., Pickett, K., & Crandall, C. (2011). Social ecology of similarity: Big schools, small schools and social relationships. *Group Processes & Intergroup Relations, 15*(1), 119-131. doi:10.1177/1368430211410751

Baimel, A., Severson, R., Baron, A., & Birch, S. (2015). Enhancing "theory of mind" through behavioral synchrony. *Frontiers in Psychology, 6*, 1-6. doi:10.3389/fpsyg.2015.00870

Bakar, H. A., & McCann, R. M. (2015). An examination of leader-member dyadic politeness of exchange and servant leadership on group member performance. *International Journal of Business Communication*, 1-25. doi:10.1177/2329488415597517

Baker, C., & Omilion-Hodges, L. (2013). The effect of leader-member exchange differentiation within work units on coworker exchange and organizational citizenship behaviors. *Communication Research Reports, 30*(4), 313-322. doi:10.1080/08824096.2013.837387

Baldi, G., Brüggemann-Borck, I., & Schlaak, T. (2014). The effect of the business cycle on apprenticeship training: Evidence from Germany. *Journal of Labor Research, 35*(4), 412-422. doi:10.1007/s12122-014-9192-6

Ballinger, G., Lehman, D., & Schoorman, F. (2010). Leader-member exchange and turnover before and after succession events. *Organizational Behavior and Human Decision Processes, 113*(1), 25-36. doi:10.1016/j.obhdp.2010.04.003

Balser, D., & Carmin, J. (2009). Leadership succession and the emergence of an organizational identity threat. *Nonprofit Management & Leadership, 20*(2), 185-201. doi:10.1002/nml.248

Bama, I., & Barna, O. (2012). The art of teaching communication skills in the contemporary school. *Procedia - Social and Behavioral Sciences, 51*, 273-277. doi:10.1016/j.sbspro.2012.08.158

Bandler, R., & Grinder, J. (1982). *Reframing.* Moab, UT: Real People Press.

Bareil, C. (2013). Two paradigms about resistance to change. *Organizational Development Journal, 31*(3), 59-71. Retrieved from http://www.odinstitute.org

Barker, V., Dozier, D., Weiss, A., & Borden, D. (2015). Harnessing peer potency: Predicting positive outcomes from social capital afffinity and online engagement with participatory websites. *New Media & Society, 17*(10), 1603-1623. doi:10.1177/1461444814530291

Barnett, G. A., & Benefield, G. A. (2015). Predicting international Facebook ties through cultural homophily and other factors. *New Media & Society*, 1-23. doi:10.1177/1461444815604421

Barrett, B. (2016). Chameleon effect of virtual enterprises in challenging economic times and repositioning economic pursuits. *International Conference on Management, Leadership & Governance* (pp. 35-41). Kidmore End: Academic Conferences International Limited. Retrieved from http://www.academic-conferences.org

Barros, E., & Mion, C. (2010). Internal and external reality. *International Journal of Psychoanalysis, 91*, 1264-1267. doi:10.11/j.1745-8315.2010.00294.x

Bartkowiak, J. (2012). NLP in qualitative research. *International Journal Of Market Research*, *54*(4), 451-453. doi:10.2501/IJMR-54-4-451-453

Barton, M., & Bunderson, J. (2014). Assessing member expertise in groups: An expertise dependence perspective. *Organizational Psychology Review, 4*(3), 228-257. doi:10.1177/2041386613508975

Baruh, L., & Cemalcilar, Z. (2015). Rubbernecking effect of intimate information on Twitter: When getting attention works against interpersonal attraction. *Cyberpsychology, Behavior, and Social Networking, 18*(9), 506-513. doi:10.1089/cyber.2015.0099

Bashir, A., & Ghani, M. (2012). Effective communication and neurolinguistic programming. *Pakistan Journal Of Commerce & Social Sciences, 6*(1), 216-222. Retrieved from http://www.jespk.net

Battilana, J., & Dorado, S. (2010). Building sustainable hybrid organizations: The case of commercial microfinance organizatons. *Academy of Management Journal, 53*(6), 1419-1440. doi:10.5465/AMJ.2010.57318391

Bauer, F., Matzler, K., & Wolf, S. (2016). M&A and innovation: The role of integration and cultural differences—A central European targets perspective. *International Business Review, 25*(1), 76–86. doi:10.1016/j.ibusrev.2014.07.010

Bautista, C., & Hope, D. (2015). Fear of negative evaluation, social anxiety and response to positive and negative online social cues. *Cognitive Therapy and Research, 39*(5), 658-668. doi:10.1007/s10608-015-9687-3

Beeri, I. (2012). Turnaround management strategies in public systems: The impact on group-level organizational citizenship behavior. *International Reveiw of Administrative Sciences, 78*(1), 158-179. doi:10.1177/0020852311430284

Behsarov, M. (2014). The relational ecology of identification: How organizational identification emerges when individuals hold divergent values. *Academy of Management Journal, 57*(5), 1485-1512. doi:10.5465/amj.2011.0761

Bell, R., & Daly, J. (1984). The affinity-seeking function of communication. *Caommunication Monographs, 51*(2), 91-114. Retrieved from http://www.tandf.co.uk/journals/titles/03637751.asp

Belz, M., Pyritz, L., & Boos, M. (2013). Spontaneous flocking in human groups. *Behavioural Processes, 92*, 6-14. doi:10.1016/j.beproc.2012.09.004

Belzung, C. (2014). Empathy. *Journal for Perspectives of Economic Political and Social Integration, 19*(1-2), 177-191. doi:10.2478/v10241-012-0016-4

Beneito-Montagut, R. (2015). Encounters on the Social Web: Everyday life and emotions online. *Sociological Perspectives, 58*(4), 537-553. doi:10.1177/0731121415569284

Bente, G., Baptis, O., & Leuschner, H. (2012). To buy or not to buy: Influence of seller photos and reputation on buyer trust and purchase behavior. *International Journal of Human-Computer Studies, 70*(1), 1-13. doi:10.1016/j.ijhcs.2011.08.005

Berten, H., & Van Rossen, R. (2015). Homophily in adolescence: Is similiarity in status characteristics associated with similarity in anti-school behavior. *YOUNG, 23*(1), 76-96. doi:10.1177/1103308814557400

Besharov, M., & Smith, W. (2014). Multiple institutional logics in organizations: Explaining their varied nature and implications. *Academy of Management Review, 39*(3), 364-381. doi:10.5465/amr.2011.0431

Betti, V., & Aglioti, S. M. (2016). Dynamic construction of the nueral networks underpinning empathy for pain. *Neuroscience & Biobehavioral Reviews, 63*, 191-206. doi:10.1016/j.neubiorev.2016.02.009

Bishop, J., K, D., Goldsby, M., & Cropanzano, R. (2005). A construct validity study of commitment and perceived support variables: A multifoci approach across different team environments. *Group & Organization Management, 30*(2), 153-180. Retrieved from http://www.sagepub.com/journals/Journal200823

Björnberg, A., & Nicholson, N. (2012). Emotional ownership: The next generation's relationship with the family firm. *Family Business Review, 25*(4), 374-390. doi:10.1177/0894486511432471

Block, D. (2010). Engaging with human sociality: Thoughts on communication and embodiment. *Applied Linguistics Review, 2010*, 45-66. doi:10.1515/9783110222654.45

Bloom, N., Genakos, C., Sadun, R., & Van Reenen, J. (2012). Management practices across firms and countries. *Academy of Management Perspectives, 26*(1), 12-33. doi:10.5465/amp.2011.0077

Bodie, G., Gearhart, G., Denham, J., & Vickery, A. (2013). The temporal stability and situational contingency of active-empathic listening. *Western Journal of Communication, 77*(2), 113-138. doi:10.1080/10570314.2012.656216

Boehme, S., Miltner, W., & Straube, T. (2015). Neural correlates of self-focused attention in social anxiety. *Social Cognitive & Affective Neuroscience, 10*(6), 856-862. doi:10.1093/scan/nsu128

Boersma, P. G. (2002). Praat, a system for doing phonetics by computer. *Glot International, 5*(9/10), 341-345. Retrieved from http://hdl.handle.net/11245/1.200596

Boersma, P., & Weenink, D. (2017, May 5). *Praat: Doing phonetics by computer [Computer program]*. Retrieved from Downloading Praat for Windows: http://www.fon.hum.uva.nl/praat/download_win.html

Bokyung, L. (2015). EFL learners' perspectives on ELT materials evaluation relative to learning styles. *RELC Journal, 46*(2), 147-163. doi:10.1177/0033688214564177

Bolton, R. (2017). Post-succession leadership: Factors affecting new leader ability to impact change. *ProQuest Dissertations Publishing*(10275772), 1-212. doi:www.proquest.com

Bond, A. S., & Naughton, N. (2011). The role of coaching in managing leadership transitions. *International Coaching Psychology Review, 6*(2), 165-179. Retrieved from http://www.sgcp.org.uk/publications

Bond, C., & Seneque, M. (2012). Exploring organizational identity in the context of transformational change: A South African case study. *Journal of Change Management, 12*(1), 12-30. doi:10.1080/14697017.2011.652373

Bonner, S., Hesfor, J., Van Der Stede, W., & Young, S. (2012). The social structure of communicaiton in major accounting research journals. *Contemporary Accounting Research, 29*(3), 869-909. doi:10.1111/j.1911-3846.2011.01134.x

Bordia, P., Restubog, L., Jimmieson, N., & Irmer, B. (2011). Haunted by the past: Effects of poor change management history on employee attitudes and turnover. *Group & Organizational Management, XX*(X), 1-32. doi:10.1177/1059601110392990

Borman, E., Cragan, J., & Shields, D. (2016). Three decades of developing, grounding, and using symbolic convergence theory (SCT). *Annals of the International Communication Association, 25*(1), 271-313. doi:10.1080/23808985.2001.11679006

Boswell, W., Shipp, A., Payne, S., & Culberton, S. (2009). Changes in newcomer job satisfaction over time: Examining the pattern of honeymoons and hangovers. *Journal of Applied Psychology, 94*(4), 844-858. doi:10.1037/a0014975

Boswell, W., Zimmerman, R., & Swider, B. (2012). Employee job search: Toward an undersatnding of search context and search objectives. *Journal of Management, 38*(1), 129-163. doi:10.1177/0149206311421829

Botella, C., Riva, G., Gaggioli, A., Wiederhold, B. K., Alcaniz, M., & Baños, R. M. (2012). The present and future of positive technologies. *CyberPsychology, Behavior, & Social Networking, 15*(2), 78-84. doi:10.1089/cyber.2011.0140

Bradt, G. (2010). Onboarding: An act of transformational leadership. *People & Strategy, 3*(22), 4-5. Retrieved from http://www.hrps.org/

Breen, M. (2014). Empirical investigations of the role of implicit prosody in sentence processing. *Language & Linguisitcs Compass, 8*(2), 37-50. doi:10.1111/lnc3.12061

Bronstein, I., Nelson, N., Livnat, Z., & Ben-Ari, R. (2012). Rapport in negotiation: The contribution of the verbal channel. *Journal of Conflict Resolution, 56*(6), 1089-1115. doi:10.1177/0022002712448913

Brown, A., Colville, I., & Pye, A. (2015). Making sense of sensemaking in organization studies. *Organization Studies, 36*(2), 265-277. doi:10.1177/0170840614559259

Brymer, R., Molloy, J., & Gilbert, B. (2014). Human capital pipelines: Competitive implications of repeated interorganizational hiring. *Journal of Management, 40*(2), 483-508. doi:10.1177/0149206313516797

Buchan, N., & Grimalda, G. (2011). Reducing social distance: The role of globalization in global public goods provision. In S. Thye, & E. Lawler, *Advances in Group Processes* (First ed., pp. 147-187). Bingley, UK: Emerald Group Publishing Limited.

Budd, J., & Velasquez, D. (2014). Phenomenology and organizational communication. *New Library World, 115*(7/8), 394-404. doi:10.1108/13563281311294146

Budell, L., Jackson, P., & Rainville, P. (2010). Brain responses to facial expressions of pain: Emotional or motor mirroring? *NeuroImage, 53*(1), 355-363. doi:10.1016/j.neuroimage.2010.05.037

Budell, L., Kunz, M., Jackson, P., & Rainville, P. (2015). Mirroring pain in the brain: Emotional expression versus motor imitation. *PLoS One, 10*(2), 1-20. doi:10.1371/journal.pone.0107526

Buoziute-Rafanaviciene, S., Sarapovas, T., & Barsauskas, P. (2011). Executive socialization in small, medium, and large organizations. *Engineering Economics*, 434-442.

Burton, R., & Fischer, H. (2015). The succession crisis in European agriculture. *Sociologia Ruralis, 55*(2), 155-166. doi:10.1111/soru.12080

Bylund, C., Peterson, E., & Cameron, K. (2012). A practitioner's guide to interpersonal communication theory: An overview and exploration of selected theories. *Patient Education and Counseling, 87*(3), 261-267. doi:10.1016/j.pec.2011.10.006

Cacioppo, S., Zhou, H., Monteleone, G., Majka, E., Quinn, K., Ball, A., . . . Cacioppo, J. (2014). You are in sync with me: Neural correlates of interpersonal synchrony with a partner. *Neuroscience, 277*, 842-858. doi:10.1016/j.neuroscience.2014.07.051

Caillier, J. (2016). Do transformational leaders affect turnover intentions and extra-role behaviors through mission valence? *American Review of Public Administration, 46*(2), 226-242. doi:10.1177/0275074014551751

Cairns, T. (2011). Who's up next? Most companies fail to plan for leadership succession. *Employment Relations Today, Summer*(2011), 27-34. doi:10.1002/ert.20341

Caldwell, C., & Hibbert, S. (2002). The influence of music tempo and musical preference on restaurant patrons' behavior. *Psychology & Marketing, 19*(11), 895-917. Retrieved from http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1520-6793

Calota, G., Pirvulescu, B., & Criotoru, I. (2015). The importance of the management communication process. *Internal Auditing & Risk Management, 10*(1), 77-83. Retrieved from http://www.univath.ro/

Calvo-Sotelo, J. (2014). Sonic affinity. *Psychology of Music*, 1-19. doi:10.1177/0305735614557855

Campbell, K., White, C., & Johnson, D. (2003). Leader-member relations as a function of rapport management. *Journal of Business Communication, 40*(3), 170-194. Retrieved from http://www.bcq.theabc.org

Campos-Castillo, C., & Hitlin, S. (2013). Copresence: Revisiting a building block for social interaction theories. *Sociological Theory, 31*(2), 168-192. doi:10.1177/0735275113489811

Caprara, G., Alessandri, G., & Eisenberg, N. (2012). Prosociality: The contribution of traits, values, and self-efficacy beliefs. *Journal of Personality and Social Psychology, 102*(6), 1289-1303. doi:10.1037/a0025626

Caprara, G., Alessandri, G., Eisenberg, N., Kupfer, A., Steca, P., Caprara, M., . . . Abela, J. (2012). The positivity scale. *Psychological Assessment, 24*(3), 701-712. doi:10.1037/a0026681

Caramazza, A., Anzelotti, S., Strnad, L., & Lingnau, A. (2014). Embodied cognition and mirror neurons: A critical assessment. *Annual Review of Neuroscience, 37,* 1-15. doi:10.1146/annurev-neuro-071013-013950

Carlson, T., Simmons, R., Kriegeskorte, N., & Slevc, L. (2014). The emergence of semantic meaning in the ventral temporal pathway. *Journal of Cognitive Neuroscience, 26*(1), 120-131. doi:10.1162/jocn_a_00458

Carman, J., Leland, S., & Wilson, A. (2010). Crisis in leadership or failure to plan? *Nonprofit Management & Leadership, 21*(1), 93-111. doi:10.1002/nml.20014

Carmeli, A., Tishler, A., & Edmondson, A. (2011). CEO relational leadership and strategic decision quality in top management teams: The role of team trust and learning from failure. *Strategic Organization, 10*(1), 31-54. doi:10.1177/1476127011434797

Carrington, W. (2013). Brain drain revisited. *Harvard International Review, 35*(1), 31-35. Retrieved from http://www.hir.harvard.edu/

Carter, M., Mossholder, K., Feild, H., & Armenakis, A. (2014). Transformational leadership, interactional justice, and organizational citizenship behavior: The effects of racial and gender dissimilarity between supervisors and subordinates. *Group & Organization Management, 39*(6), 691-719. doi:10.1177/1059601114551605

Casimir, G., Lee, K., & Loon, M. (2012). Knowledge sharing: Influences of trust, commitment and cost. *Journal of Knowledge Management, 16*(5), 740-753. doi:10.1108/13673271211262781

Castelli, L., Carraro, L., Pavan, G., Murelli, E., & Carraro, A. (2012). The power of the unsaid: The influence of nonverbal cues on implicit attitudes. *Journal of Applied Social Psychology, 42*(6), 1376-1393. doi:10.1111/j.1559-1816.2012.00903.x

Castilla, E. (2011). Brining managers back in: Managerial influences on workplace inequality. *American Sociological Review, 76*(5), 667-694. doi:10.1177/0003122411420814

Cavagna, A., Cimarelli, A., Giardina, I., Parisi, G., Santagati, R., Stefanini, F., & Tavarone, R. (2010). From empirical data to inter-individual interactions: Unveiling the rules of collective animal behavior. *Mathematical Models and Methods in Applied Science, 20,* 1491-1510. doi:10.1142/S0218202510004660

Celani, A., & Singh, P. (2011). Signaling theory and applicant attraction outcomes. *Personnel Review, 40*(2), 222-238. doi:10.1108/00483481111106093

Centola, D. (2015). The social origins of networks and diffusion. *American Journal of Sociology, 120*(5), 1295-1338. Retrieved from http://www.journals.uchicago.edu/

Černe, M., Dimovski, V., Marič, M., Penger, S., & Škerlavaj, M. (2014). Congruence of leader self-perceptions and follower perceptions of authentic leadership: Understanding what authentic leadership is and how it enhances employees' job satisfaction. *Australian Journal of Management, 39*(3), 453-471. doi:10.1177/0312896213503665

Cha, J., Kim, Y., Lee, J.-Y., & Bachrach, D. G. (2015). Transformational leadership and inter-team collaboration: Exploring the mediating role of teamwork quality and

moderating role of team size. *Group & Organization Management, 40*(6), 715-743. doi:10.1177/1059601114568244

Chan, S. (2014). Paternalistic leadership and employee voice: Does information sharing matter? *Human Relations, 67*(6), 667-693. doi:10.1177/0018726713503022

Chan, S., & Mak, W. (2012). Benevolent leadership and follower performance: The mediating role of leader-member exchange (LMX). *Asia Pacific Journal of Management, 29*(2), 285-301. doi:10.1007/s10490-011-9275-3

Chaney, D., & Martin, D. (2016). The role of shared values in understanding loyaly over time: A longitudinal study on music festivals. *Journal of Travel Research*, 1-14. doi:10.1177/0047287516643411

Chapman, D., Uggerslev, K., Carroll, S., Piasentin, K., & Jones, D. (2005). Applicant attraction to organizations and job choice: A meta-analytic review of the correlates of recruiting outcomes. *Journal of Applied Psychology, 90*(5), 928-944. doi:10.1037/0021-9010.90.5.928

Chen, X., Eberly, M., Chiang, T., Farh, J., & Cheng, B. (2011). Affective trust in Chinese leaders: Linking paternalistic leadership to employee performance. *Journal of Management, 40*(3), 796-819. doi:10.1177/0149206311410604

Cheng-Chen, L., & Tai-Kuang, P. (2010). From organizational citizenship behaviour to team performance: The mediation of group cohesion and collective efficacy. *Management & Organization Review, 6*(1), 55-75. doi:10.1111/j.1740-8784.2009.00172.x

Cheung, W. J., & Jackson, A. B. (2012). Chief executive officer departures and market uncertainty. *Australian Journal of Management, 38*(2), 279-310. doi:10.1177/0312896212450040

Chhetri, P. (2014). The role of cognitive and affective trust in the relationship between organizational justice and organizational citizenship behavior: A conceptual framework. *Business: Theory & Practice, 15*(2), 170-178. doi:10.3846/btp.2014.17

Chiaburu, D., & Harrison, D. (2008). Do peers make the place? Conceptual synthesis and meta-analysis of coworker effects on perceptions, attitudes, OCBs, and performance. *Journal of Applied Psychology, 93*(5), 1082-1103. doi:10.1037/0021-9010.93.5.1082

Chiao, J. (2011). Towards a cultural neuroscience of empathy and prosociality. *Emotion Review, 3*(1), 111-112. doi:10.1177/1754073910384159

Choi, M. (2011). Employees' attitudes toward organizational change: A literature review. *Human Resource Management, 50*(4), 479-500. doi:10.1002/hrm.20434

Christensen, P., Fusaroli, R., & Tylén, K. (2016). Environmental constraints shaping constituent order in emerging communication systems: Structural iconicity, interactive alignment and conventionalization. *Cognition, 146,* 67-80. doi:10.1016/j.cognition.2015.09.004

Chu, S.-C., & Kim, Y. (2011). Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites. *International Journal of*

Advertising, 30(1), 47-75. Retrieved from http://www.tandfonline.com.ezp.waldenulibrary.org/

Chung, C., & Luo, X. (2013). Leadership succession and firm performance in an emerging economy: Successor origin, relational embeddedness, and legitimacy. *Strategic Management Journal, 34*(2013), 338-357. doi:10.1002/smj.2011

Cienki, A. (2013). Image schemas and mimetic schemas in cognitive linguistics and gesture studies. *Review of Cognitive Liguistics, 11*(2), 417-432. doi:10.1075/rcl.11.2.13cie

Cohen, L., & Kassis-Henderson, J. (2012). Language use in establishing rapport and building relationships: Implications for international teams and management education. *Revue Management et Avenir*(55), 185-207. Retrieved from http://www.managementetavenir.net/

Cole, S., Riccio, M., & Balcetis, E. (2014). Focused and fired up: Narrowed attention produces perceived proximity and increases goal-relevant action. *Motivation & Emotion, 38*(6), 815-822. doi:10.1007/s11031-014-9432-3

Coleman, N., & Williams, P. (2013). Feeling like my self: Emotion profiles and social identity. *Journal of Consumer Research, 40*(2), 203-222. doi:10.1086/669483

Collet, F., & Philippe, D. (2014). From hot cakes to cold feet: A contingent perspective on the relationship between market uncertainty and status homophily in the formation of alliances. *Journal of Management Studies, 51*(3), 406-432. doi:10.1111/joms.12051

Collins, A., Lawrence, S., Troth, A., & Jordan, P. (2013). Group affective tone: A review and future research directions. *Journal of Organizational Behavior, 34*, S43-S62. doi:10.1002/job.1887

Colquitt, J., Baer, M., Long, D., & Halvorsen-Ganepola, M. (2014). Scale indicators of social exchange relationships: A comparison of relative content validity. *Journal of Applied Psychology, 99*(4), 599-618. doi:10.1037/a0036374

Colwell, G. (2013). An underrated leadership skill. *Nursing Standard, 27*(47), 63-63. Retrieved from http://www.nursing-standard.co.uk/

Connelly, B., Certo, S., Ireland, D., & Reutzel, C. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67. doi:10.1177/0149206310388419

Conner, D. (2014). The effects of career ploateaued workers on in-group members' perceptions of P-O fit. *Employee Relations, 36*(2), 198-212. doi:10.1108/ER-01-2013-0001

Contillo, N. (2014). Winning the war on talent through apprenticeship programs. *Employment Relations Today, 41*(3), 21-24. doi:10.1002/ert.21460

Copeland, D. (2011). Mirror mirror. *Emerge Life Sciences, 11*(1), 26-31. doi:10.1057/jmm.2010.22

Cox, E., Bachkirova, T., & Clutterbuck, D. (2014). Theroetical traditions and coaching genres: Mapping the territory. *Advances in Developing Human Resources, 16*(2), 139-160. doi:10.1177/1523422313520194

Croes, E. A., Antheunis, M. L., Schouten, A. P., & Krahmer, E. J. (2016). Teasing apart the effect of visibility and physical co-presence to examine the effect of CMC on interpersonal attraction. *Computers in Human Behavior, 55*, 468-476. doi:10.1016/j.chb.2015.09.037

Cropanzano, R., Rehar, C., & Chen, P. (2002). Using social exchange theory to distinguish procedural from interactional justice. *Group & Organization Management, 27*(3), 324-351. Retrieved from http://www.sagepub.com/journals/Journal200823

Cuffari, E., Di Paolo, E., & De Jaegher, H. (2015). From participatory sense-making to language: There and back again. *Phenomenology and the Cognitive Sciences, 14*(4), 1089-1125. doi:10.1007/s11097-014-9404-9

Cuijpers, P., Turner, E., & Koole, S. (2014). What is the threshold for a clinically relevant effect? The case of major depressive disorders. *Depression and Anxiety, 3*(5), 374-378. doi:10.1002/da.22249

Cummings, L. (2013). Clinical linguistics: A primer. *International Journal of Language Studies, 7*(2), 1-30. doi:http://www.ijls.net/

Currie, G., & Spyridonidis, D. (2016). Interpretation of multiple institutional logics on the ground: Actors' position, their agency and situational constraints in professionalized contexts. *Organization Studies, 37*(1), 77-97. doi:10.1177/0170840615604503

Dai, G., DeMeuse, K., & Gaeddert, D. (2011). Onboarding externally hired executives: Avoiding derailment - accelerating contribution. *Journal of Management &*

Organization, 17(2), 165-178. Retrieved from http://search.proquest.com.ezp.waldenulibrary.org/docview/857921469?accountid=14872

Davidsen, A. S., & Fosgerau, C. F. (2015). Grasping the process of implicit mentalization. *Theory & Psychology, 25*(4), 434-454. doi:10.1177/0959354315580605

Daw, J., Margolis, R., & Verdery, A. (2015). Siblings, friends, course-mates, club-mates: How adolescent health behavior homophily varies by race, class, gender, and health status. *Social Science & Medicine, 125*, 32-39. doi:10.1016/j.socscimed.2014.02.047

De Jong, N., & Wempe, T. (2009). Praat script to detect syllable nuclei and measure speech rate automatically. *Behavior Research Methods, 41*(2), 385-390. doi:10.3758/BRM.41.2.385

Decety, J. (2010). To what extent is the experience of empathy mediated by shared neural ciruits? *Emotion Review, 2*(3), 204-207. doi:10.1177/1754073910361981

Decety, J. (2011). Dissecting the neural mechanisms mediating empathy. *Emotion Review, 3*(1), 92-108. doi:10.1177/1754073910374662

DeKrey, S., & Portugal, E. (2014). Strategic sensemaking: challenges faced by a new leader of an SME. *Procedia: Social and Behavioral Sciences*, 56-65. doi:10.1016/j.sbspro.2014.09.007

Delcourt, C., Gremler, D., van Riel, A., & van Birgelen, M. (2013). Effects of perceived employee emotional competence on customer satisfaction and loyalty. *Journal of Service Management, 24*(1), 5-24. doi:10.1108/09564231311304161

Demerouti, E., Bakker, A., Nachreiner, F., & Schaufeli, W. (2001). The job demands: Resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512. doi:10.1037//0021-9010.86.3.499

der Schalk, J., Fischer, A., Dossje, B., Wiboldus, D., Hawk, S., Rotteveel, M., & Hess, U. (2011). Convergent and divergent responses to emotional displays of ingroup and outgroup. *American Psychological Association, 11*(2), 286-298. doi:10.1037/a0022582.

Devendorf, S. A., & Highhouse, S. (2008). Applicant-employee similarity and attraction to an employer. *Journal of Occupational & Organizational Psychology, 81*(4), 607-617. Retrieved from http://www.wiley.com.ezp.waldenulibrary.org/WileyCDA/

Dewaele, J.-M. (2012). Multilingualism, empathy and multicompetence. *International Journal of Multilingualism, 9*(4), 352-366. doi:10.1080/14790718.2012.714380

Dixon, P., Parr, G., Yarbrough, D., & Rathael, M. (1986). Neurolinguistic programming as a persuasive communication technique. *Journal of Social Psychology, 126*(4), 545-546. Retrieved from http://www.taylorandfrancisgroup.com/

Docquier, F., & Rapoport, H. (2012). Globalization, brain drain, and development. *Journal of Economic Literature, 50*(3), 681-730. doi:10.1257/jel.50.3.681

Dokko, G., Kane, A., & Tortoriello, M. (2014). One of us or one of my friends: How social identity and tie strength shape the creative generativity of boundary-spanning ties. *Organization Studies, 35*(5), 703-726. doi:10.1177/0170840613508397

Driskell, T., Blickensderfer, E., & Salas, E. (2012). Is three a crowd? Examining rapport in investigative interviews. *Group Dynamics: Theory, Research, and Practice, 17*(1), 1-13. doi:10.1037/a0029686

Duffy, K., & Chartrand, T. (2015). The extravert advantage: How and when extraverts build rapport with other people. *Psychological Science, 26*(11), 1795-1802. doi:10.1177/0956797615600890

Dunbar, N., Jensen, M., Tower, D., & Burgoon, J. (2014). Synchronization of nonverbal behaviors in detecting mediated and non-mediated deception. *Journal of Nonverbal Behavior, 38*(3), 355-376. doi:10.1007/s10919-014-0179-z

Đurišić-Bojanović, M. (2016). The interplay between cognitive styles and organisational change. *Journal for Est European Management Studies, 21*(1), 35-59. doi:10.1688/JEEMS-2016-Durisic-Bojanovic

Ebrahim, A., Battilanna, J., & Mair, J. (2014). The governance of social enterprises: Mission drift and accountability challenges in hybrid organizations. *Research in Organizational Behavior, 34*, 81-100. doi:10.1016/j.riob.2014.09.001

Echterhoff, G., Higgins, E., & Levine, J. (2009). Shared reality: Experiencing commonality with others' inner states about the world. *Perspectives on Psychological Science, 4*(5), 496-521. doi:10.1111/j.1745-6924.2009.01161.x

Effelsberg, D., & Solga, M. (2015). Transformational leaders' in-group versus out-group orientation: Testing the link between leaders' organizational identification, their willingness to engage in unethical pro-organizational behavior, and follower-perceived transformational leadership. *Journal of Business Ethics, 126*(4), 581-590. doi:10.1007/s10551-013-1972-z

Egan, K., Harcourt, D., Rumsey, N., & Collaboration, t. A. (2011). A qualitative study of the experiences of people who identify themselves as having adjusted positively to a visible difference. *Journal of Health Psychology, 16*(5), 739-749. doi:10.1177/1359105310390246

Eisinga, R., Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health, 58*(4), 637-642. Retrieved from http://link.springer.com/journal/38

Elfenbein, H. (2014). The many faces of emotional contagion. An affective process theory of affective linkage. *Organizational Psychology Review, 4*(4), 326-362. doi:10.1177/2041386614542889

Ellinger, A., Ellinger, A., Yang, B., & Howton, S. (2002). The relationship between the learning organization concept and firm's financial performance: An empirical assessment. *Human Resource Development Quarterly, 13*(1), 5-21. Retrieved from onlinelibrary.wiley.com/journal/10.1002/(ISSN)1532-1096

Ellis, A., Bauer, T., Mansfield, L., Erodogan, B., Truxillo, D., & Simon, L. (2015). Navigating unchartered waters: Newcomer socialization through the lens of stress theory. *Journal of Management, 41*(1), 203-235. doi:10.1177/0149206314557525

Englander, M., & Folkesson, A. (2014). Evaluating the phenomenological approach to empathy training. *Journal of Humanistic Psychology, 54*(3), 294-313. doi:10.1177/0022167813493351

Epler, D. (2014). The habits of communication. *Strategic Finance, 96*(9), 15-61. Retrieved from http://www.imanet.org/

Eubanks, D., Brown, A., & Ybema, S. (2012). Leadership, identity, and ethics. *Journal of Business Ethics, 107*(1), 1-3. doi:10.1007/s10551-012-1295-5

Eun-Suk, L., Tae-Youn, P., & Bonjin, K. (2015). Identifying organizational identification as a basis for attitudes and behaviors: A meta-analytic review. *Psychological Bulletin, 14*(5), 1049-1080. doi:10.1037/bul0000012

Fadiga, L., Tia, B., & Viaro, R. (2015). Anatomy and physiology of the mirror neuron system. *Brain Mapping, 2,* 411-416. doi:10.1016/B978-0-12-397025-1.00240-2

Fahim, M., & Eslamdoost, S. (2015). Embodiment: A brief overview. *International Journal of Applied Linguistics & English Literature, 4*(1), 73-78. doi:10.7575/aiac.ijalel.v.4n.1p.73

Fareri, D., & Delgado, M. (2014). Social rewards and social networks in the human brain. *The Neuroscientist, 20*(4), 387-402. doi:10.1177/1073858414521869

Farley, S. (2014). Nonverbal reactions to an attractive stranger: The role of mimicry in communicating preferred social distance. *Journal of Nonverbal Behavior, 38*(2), 195-208. doi:10.1007/s10919-014-0174-4

Fatima, J., & Razzaque, M. (2014). Roles of trust on rapport and satisfaction in services. *Asia Pacific Journal of Marketing and Logistics, 26*(4), 566-578. doi:10.1108/APJML-01-2014-0013

Feitosa, J., Salas, E., & Salazar, M. R. (2012). Social identity: Clarifying its dimensions across cultures. *Psihologijske Teme / Psychological Topics, 21*(3), 527-548. Retrieved from http://www.uniri.hr/

Felfe, J., & Schyns, B. (2010). Followers' personality and the perception of transformational leadership: Further evidence for the similarity hypothesis. *British Journal Of Management, 21*(2), 393-410. Retrieved from http://www.wiley.com.ezp.waldenulibrary.org/WileyCDA/

Ferrari, P., Rozzi, S., & Fogassi, L. (2005). Mirror neurons responding to observation of actions made with tools in monkey ventral premotor cortex. *Journal of Cognitive Neuroscience, 17*(2), 212-226. Retrieved from http://mitpress.mit.edu/journal-home.tcl?issn=0898929X

Ferri-Reed, J. (2013, July). Onboarding strategies to supercharge millenial employees. *Journal for Quality & Participation*, 32-33. Retrieved from http://www.asq.org/

Fessler, D., & Holbrook, C. (2014). Marching into battle: Synchronized walking diminishes the conceptualized formidability of an antagonist in men. *Biology Letters, 10*, 1-4. doi:10.1098/rsbl.2014.0592

Feyrer, J. (2011). The U.S. productivity slowdown, the baby boom, and management quality. *Journal of Population Economics, 24*(1), 267-284. doi:10.1007/s00148-009-0294-z

Fisher, K., & Robbins, C. (2015). Embodied leadership: Moving from leader competencies to leaderful practices. *Leadership, 11*(3), 281-299. doi:10.1177/1742715014522680

Flache, A., & Macy, M. (2011). Local convergence and global diversity: From interpersonal to social influence. *Journal of Conflict Resolution, 55*(6), 970-995. doi:10.1177/0022002711414371

Flashman, J., & Gambetta, D. (2014). Thick as thieves: Homophily and trust among deviants. *Rationality and Society, 26*(1), 3-45. doi:10.1177/1043463113512996

Fogarty, K., Augoustinos, M., & Kettler, L. (2013). Re-thinking rapport through the lens of progressivity in investigative interviews into child abuse. *Discourse Studies, 15*(4), 395-420. doi:10.1177/1461445613482429

Förderer, S., & Unkelbach, C. (2011). Beyond evaluative conditioning! Evidence for transfer of non-evaluative attributes. *Social Psychological and Peronality Science, 2*(5), 479-486. doi:10.1177/1948550611398413

Franck, R., & Rainer, I. (2012). Does the leader's ethnicity matter? Ethnic favoritism, education, and health in sub-Saharan Africa. *American Political Science Review, 106-02*, 294-325. doi:10.1017/S0003055412000172

Frauendorfer, D., Mast, M., Nguyen, L., & Gatica-Perez, D. (2014). Nonverbal social sensing in action: Unobtrusive recording and extracting of nonverbal behavior in social interactions illustrated with a research example. *Journal of Nonverbal Behavior, 38,* 231-245. doi:10.1007/s10919-014-0173-5

Fromme, D., & Daniell, J. (1984). Neurolinguistic programming examined: Imagery, sensory mode, and communication. *Journal of Counseling Psychology, 31*(3), 387-390. doi:10.1037/0022-0167.31.3.387

Frymier, A., & Wanzer, M. (2003). Examining differences in perceptions of students' communication with professors: A comparison of students with and without disabilities. *Communication Quarterly, 51*(2), 174-191. Retrieved from http://associationdatabase.com/aws/ECA/pt/sp/p_Home_Page

Fu, F., Nowak, M., Christakis, N., & Fowler, J. (2012). The evolution of homophily. *Scientific Reports, 2*(845), 1-6. doi:10.1038/srep00845

Fujiwara, K. (2016). Triadic synchrony: Application of mulitple wavelet coherence to a small group conversation. *Applied Mathematics, 7*, 1477-1483. doi:10.4236/am.2016.714126

Fujiwara, K., & Daibo, I. (2016). Evaluating interpersonal synchrony: Wavelet transform toward an unstructured conversation. *frontiers in Psychology, 7*(516), 1-9. doi:10.3389/fpsyg.2016.00516

Fulmer, C., & Gelfand, M. (2012). At what level (and in whom) we trust: Trust across multiple organizational levels. *Journal of Management, 38*(4), 1167-1230. doi:10.1177/0149206312439327

Fursman, R. (2014). Onboarding a new hire: Doing it right from the get-go. *Public Management, 96*(6), 12-18. Retrieved from http://icma.org/en/press/pm_magazine/current_issue

Gallagher, S. (2015). Reuse and body-formatted representations in simulation theory. *Cognitive Systems Research, 34-35*, 35-43. doi:10.1016/j.cogsys.2015.07.003

Gallese, V., Gernbacher, M., Heyes, C., Hickok, G., & Iacoboni, M. (2011). Mirror neuron forum. *Perspectives on Psychological Science, 6*(4), 369-407. doi:10.1177/1745691611413392

Gao, M. H. (2014). The six-tier communication gap for multinational corporations after mergers and acquisitions: Lessons learned from the case of Duracell and NANFU. *Global Business Languages, 19*, 85-100. doi:http://www.thepress.purdue.edu/

Garvin, D., Edmondson, A., & Gino, F. (2008). Is yours a learning organization? *Harvard Business Review, 86*(3), 109-116. Retrieved from http://www.hbr.org

Gedajlovic, E., Carney, M., Chrisman, J., & Kellermanns, F. (2012). The adolescence of family firm research: Taking stock and planning for the future. *Journal of Management, 38*(4), 1010-1037. doi:10.1177/0961463X10380023

Gendron, M., Roberson, D., van der Vyver, J. M., & Barrett, L. F. (2014). Cutural relativity in perceiving emotion from vocalizations. *Psychological Science, 25*(4), 911-920. doi:10.1177/0956797613517239

Gerber, E., Henry, A., & Lubell, M. (2013). Political homophily and collaboration in regional planning networks. *American Journal of Political Science, 57*(3), 598-610. doi:10.1111/ajps.12011

Germani, M. P., & Rivas, L. I. (2016). Analysing correlations between generic patterns and prosodic realizations in interviews in English. *International Journal of Language Studies, 10*(2), 103-126. Retrieved from http://www.ijls.net/

Gheorghe, I. (2013). Application of NLP principles and methods in the personnel recruitment and selection process. *Economic Insights - Trends & Challenges, 65*(1), 159-166. Retrieved from http://vechi.upg-ploiesti.ro/

Gibaldi, C. (2014). The changing trends of retirement: Baby boomers are leadering the charge. *Review of Business, 34*(1), 50-57. Retrieved from http://www.stjohns.edu/

Gili Fivela, B., & Bazzanella, C. (2014). The relevance of prosody and context to the interplay between intensity and politeness. An exploratory study on Italian. *Journal of Politeness Research: Language, Behavior, Culture, 10*(1), 97-126. doi:10.1515/pr-2014-0005

Gill, F. (2013). Succession planning and temporality: The influence of the past and the future. *Time & Society, 22*(1), 76-91. doi:10.1177/0961463X10380023

Gioia, D., Price, K., Hamilton, A., & Thomas, J. (2010). Forging an identity: An insider-outsider study of processes involved in the formation of organizational identity. *Administrative Science Quarterly, 55*(1), 1-46. doi:http://www.johnson.cornell.edu/publications/asq/

Godman, M., Nagatsu, M., & Salmela, M. (2014). The social motivation hypothesis for prosocial behavior. *Philosophy of the Social Sciences, 44*(5), 563-587. doi:10.1177/0048393114530841

Goel, S., Mason, W., & Watts, D. (2010). Real and perceived attitude agreement in social networks. *Journal of Personality and Social Psychology, 99*(4), 611-621. doi:10.1037/a0020697

Golub, B., & Jackson, M. (2012). How homophily affects the speed of learning and best-response dynamics. *Quarterly Journal of Economics, 127*(3), 1287-1338. doi:10.1093/qje/qjs02l

Gómez, Á., Dovidio, J., Gaertner, S., Fernández, S., & Vázquez, A. (2013). Responses to endorsement of commonality by ingroup and outgroup members: The roles of group representation and threat. *Personality and Social Psychology, 39*(4), 419-431. doi:10.1177/0146167213475366

Goncharenko, M. (2015). Aspect of Social Discourse Retrospection. *Proceedings of The International Conference on Research Paradigms Transformation in Social Sciences* (pp. 616-620). Tomsk: Procedia - Social and Behavioral Sciences. doi:10.1016/j.sbspro.2014.12.583

Gong, Y. (2012). Shared dialect group identity, leader-member exchange and self-disclosure in vertical dyads: Do members react similarly? *Asian Journal of Social Psychology, 15*(1), 26-36. doi:10.1111/j.1467-839X.2011.01359.x

Gonzales, A., Hancock, J., & Pennebaker, J. (2010). Language style matching as a predictor of social dynamics in small groups. *Communication Research, 37*(1), 3-19. doi:10.1177/0093650209351468

Gonzalez, J., & Chakraborty, S. (2012). Image and similarity: An identity orientation perpsective to organizational identification. *Leadership & Organization Development Journal, 33*(1), 51-65. doi:10.1108/01437731211193115

Gordon, R., Tranel, D., & Duff, M. (2014). The physiological basis of synchronizing conversational rhythms: The role of the ventromedia prefrontal cortex. *Neuropsychology, 28*(4), 624-630. doi:10.1037/neu0000073

Gotsis, G., & Grimani, K. (2016). Diversity as an aspect of effective leadership: Integrating and moving forward. *Leadership & Organization Development Journal, 37*(2), 241-264. doi:10.1108/LODJ-06-2014-0107

Graybill, J., Hudson Carpenter, M., Offord, J., Piorun, M., & Shaffer, G. (2013). Employee onboarding: Identification of best practices in ACRL libraries. *Library Management, 34*(3), 200-218. doi:10.1108/01435121311310897

Griepentrog, B., Harold, C., Holtz, B., Klimoski, R., & Marsh, S. (2012). Integrating social identity and the theory of planned behavior: Predicting withdrawal from an organizaitonal recruitment process. *Personnel Psychology, 65*(4), 723-753. doi:10.1111/peps.12000

Grimley, B. (2012). NLP a promising coaching paradigm. *Coaching Psychologist, 8*(2), 86-91. Retrieved from http://www.sgcp.org.uk.ezp.waldenulibrary.org

Grosu, V. T., Rusu, A. C., & Grosu, E. F. (2013). Neurolinguistic programming techniques in sports training for enhancing performance capacity. *Palestrica of the Third Millenium Civilization & Sport, 14*(3), 212-218. Retrieved from http://www.pm3.ro

Groves, K. (2010). Six steps for confronting the emerging leadership succession crisis. *Garziadio Business Report, 13*(1), 1-7. Retrieved from http://gbr.pepperdine.edu/

Grund, T. U., & Densley, J. A. (2015). Ethnic homophily and triad closure: Mapping internal gang structure using exponential random graph models. *Journal of Contemporary Criminal Justice, 31*(3), 354-370. doi:10.1177/1043986214553377

Gumm, W., Walker, M., & Day, H. (1982). Neurolinguistics programming: Method or myth? *Journal of Counseling Psychology, 29*(3), 327-330. doi:10.1037/0022-0167.29.3.327

Hachaj, T., Ogiela, M. R., & Koptyra, K. (2015). Application of assistive computer visionmethods to Oyama karate techniques recognition. *Symmetry, 7*, 1670-1698. doi:10.3390/sym7041670

Hagemann, B., & Stroope, S. (2013). Developing the next generation of leaders. *Industrial & Commercial Training*, 123-126. Retrieved from http://www.emeraldinsight.com/loi/ict

Hall, N., Millings, A., & Bouças, S. (2012). Adult attachment orientation and implicit behavioral mimcry. *Journal of Nonverbal Behavior, 36*(4), 235-247. doi:10.1007/s10919-012-0136-7

Hamilton, A., Burwash, S., Penman, M., Jacobs, K., Hook, A., Bodell, S., . . . Pattison, M. (2016). Making connections and promoting the profession: Social media use by World Federation of Occupational Therapists member organisations. *Digital Health, 2*, 1-15. doi:10.1177/2055207616653844

Hansbrough, T. (2012). The construction of a transformational leader: Follower attachment and leadership perceptions. *Journal Of Applied Social Psychology, 42*(6), 1533-1549. doi:10.1111/j.1559-1816.2012.00913.x

Hari, R., Himberg, T., Nummensmaa, L., Hämäläinen, M., & Parkkonen, L. (2013). Synchrony of brains and bodies during implicit interpersonal interaction. *Trends in Cognitive Sciences, 17*(3), 105-106. doi:10.1016/j.tics.2013.01.003

Harriss, A. (2013). Language therapy. *Occupational Health, 65*(8), 27-30. Retrieved from http://www.reedbusiness.co.uk/rb2_about/rb2_about_portfolio.asp

Hasson, U., & Frith, C. (2016). Mirroring and beyond: Coupled dynamics as a generalized framework for modelling social interactions. *Philosophical Transactions of the Royal Society B; Biological Sciences*, 1-8. doi:0.1098/rstb.2015.0366

Hawk, S., Fischer, A., & Van Kleef, G. (2012). Face the noice: Embodied responses to nonverbal vocalizations of discrete emotions. *Journal of Personality and Social Psychology, 102*(4), 796-814. doi:10.1037/a0026234

Heatherton, T., & Wagner, D. (2011). Cognitive neuroscience of self-regulation failure. *Trends in Cognitive Sciences, 15*(3), 132-139. doi:10.1016/j.tics.2010.12.005

Hejase, J. (2015). Neuro-linguistic programming (NLP): Awareness and practice in UAE. *European Journal of Business and Social Sciences, 3*(10), 135-137. Retrieved from www.ejbss.com/

Hellbernd, N., & Sammler, D. (2016). Prosody conveys speaker's intentions: Acoustic cues for speech act perception. *Journal of Memory and Language, 88*, 70-86. doi:10.1016/j.jml.2016.01.001

Hendricks, K., & Louw-Potgieter, J. (2012). A theory evaluation of an induction programme. *South Aftrican Journal of Human Resource Management, 10*(3), 1-9. doi:10.4102/ sajhrm.v10i3.421

Hepach, R., Vaish, A., & Tomasello, M. (2015). Novel paradigms to measure variability of behavior in early childhood: Posture, gaze, and pupil dilation. *Frontiers in Psychology, 6*, 858. doi:Hepach, R., Vaish, A., & Tomasello, M. (2015). Novel paradigms to measure variability of behavior in early childhood10.3389/fpsyg.2015.00858

Ho, L.-A., Kuo, T.-H., & Lin, B. (2012). How social identification and trust influence organizational online knowledge sharing. *Internet Research, 22*(1), 4-28. doi:10.1108/10662241211199942

Ho, V. (2014). Managing rapport through evaluation in grounder-A qualitative study. *Journal of Pragmatics, 61*(Jan), 63-77. doi:10.1016/j.pragma.2013.11.019 .

Hodgkinson, G., Sadler-Smith, E., Burke, L., Claxton, G., & Sparrow, P. (2009). Intuition in organizations: Implications for strategic management. *Long Range Planning, 42*(3), 277-297. doi:10.1016/j.lrp.2009.05.003

Hoffman, B., Bynum, B., Piccolo, R., & Sutton, A. (2011). Person-organization value congruence: How transformational leaders influence work group effectiveness. *Academy of Management, 54*(4), 779-796. doi:10.5465/AMJ.2011.64870139

Hoffman, P., & Crutch, S. (2016). Knowing what and where: TMS evidence for the dual neural basis of geographical knowledge. *Cortex, 75*, 151-159. doi:10.1016/j.cortex.2015.11.021

Hogarth, T., & Gambin, L. (2014). Employer investment in apprenticeship in England: An exploration of the sensitivity of employers in the construction sector to the net costs of training. *Construction Management and Economics, 32*(9), 845-856. doi:10.1080/01446193.2014.923577

Hollenbeck, J. R., & Jamieson, B. B. (2015). Human capital, social capital, and social network analysis: Implications for strategic human resource management. *Academy of Management Perspectives, 29*(3), 370-385. doi:10.5465/amp.2014.0140

Holt, J., & Ryan, C. (2012). Using opinion leaders to drive workplace change. *Australian & New Zealand Journal of PUblic Health, 36*(4), 395-395. doi: 10.1111/j.1753-6405.2012.00901.x

Holzhauer, S., Krebs, F., & Ernst, A. (2013). Considering baseline homophily when generating spatial social networks for agent-based modelling. *Computational and Mathematical Organization Theory, 19*(2), 128-150. doi:10.1007/s10588-012-9145-7

Hoque, M., & Picard, R. (2014). Rich nonverbal sensing technology for automated social skills training. *IEEE Xplore: Digital Library, 47*(4), 28-35. doi:10.1109/MC.2014.98

Horan, S., & Houser, M. (2012). Understanding the communicative implications of initial impressions: A logintudinal test of predicted outcome value theory. *Communication Education, 61*(3), 234-252. doi:10.1080/03634523.2012.671950

Huang, J. (2013). The effects of transformational leadership on the distinct aspects development of social identity. *Group Processes & Intergroup Relations, 16*(1), 87-104. doi:10.1177/1368430212454926

Huang, Y., Shen, C., & Contractor, N. (2013). Distance matters: Exploring proximity and homophily in virtual world networks. *Decision Support Systems, 55*(4), 969-977. doi:10.1016/j.dss.2013.01.006

Huber, F. (2012). On the role and interrelationship of spatial, social and cognitive proximity: Personal knowledge relationships of R&D workers in the cambridge information technology cluster. *Regional Studies, 46*(9), 1169-1182. doi:10.1080/00343404.2011.569539

Human, L., & Biesanz, J. (2012). Accuracy and assumed similarity in first impressions of personality: Differing associations at different levels of analysis. *Journal of Research in Personality, 46*(1), 106-110. doi:10.1016/j.jrp.2011.10.002

Hurley, S. (2008). The shared circuits model (SCM): How control, mirroring, and simulation can enable imitation, deliberation, and mindreading. *Behavioral and Brain Sciences, 31,* 1-58. doi:10.1017/S0140525X07003123

Huy, Q., Corley, K., & Kraatz, M. (2014). From support to mutiny: Shifting legitimacy judgments and emotional reactions impacting the implentation of radical change. *Academy of Management Journal, 57*(6), 1650-1680. doi:10.5465/amj.2012.0074

Hysom, S., Webster Jr., M., & Walker, L. (2015). Expectations, status value, and group structure. *Sociological Perspectives, 58*(4), 554-569. doi:10.1177/0731121415571134

Hyun, S., & Kim, I. (2014). Identifying optimal rapport-building behaviors in inducing patrons' emotional attachment in luxury restaurants. *Journal of Hospitality & Tourism Research, 38*(2), 162-198. doi:10.1177/1096348012451458

Imel, Z., Barco, J., Brown, H., Baucom, B., Baer, J., Kircher, J., & Atkins, D. (2014). The association of therapist empathy and synchrony in vocally encoded arousal. *Journal of Counseling Psychology, 61*(1), 146-153. doi:10.1037/a0034943

Inzlicht, M., Gutsell, J. N., & Legault, L. (2012). Mimicry reduces racial prejudice. *Journal of Experimental Social Psychology, 48*(1), 361-365. doi:10.1016/j.jesp.2011.06.007

Iqbal, T., & Riek, L. (2016). A method for automatic detection of psychomotor entrainment. *IEEE Transactions on Affective Computing, 7*(1), 3-16. doi:10.1109/TAFFC.2015.2445335

Jacob, C., Guéguen, N., Martin, A., & Boulbry, G. (2011). Retail salespeople's mimicry of customers: Effects on consumer behavior. *Journal of Retailing and Consumer Services, 18*, 381-388. doi:10.1016/j.jretconser.2010.11.006

Jacob, P. (2013). How from action-mirroring to intention-ascription? *Consciousness and Cognition, 22*(3), 1132-1141. doi:10.1016/j.concog.2013.02.005

Jain, T. (2015). Decoupling corporate social orientations: A cross-national analysis. *Business & Society*, 1-35. doi:10.1177/0007650315610609

Jakymin, A., & Harris, L. (2012). Self-focused attention and social anxiety. *Australian Journal of Psychology, 64*(2), 61-67. doi:10.1111/j.1742-9536.2011.00027.x

Jaros, S. (1997). An assessment of meyer and allen's (1991) three-component model of organizational commitment and turnover intentions. *Journal of Vocational Behavior, 51*(3), 319-337. doi:10.1006/jvbe.1995.1553

Jay, J. (2013). Navigating paradox as a mechanism of change and innovation in hybrid organizations. *Academy of Management Journal, 56*(1), 137-159. Retrieved from http://aom.org/amj/

Jayashree, V. (2012). An empirical analysis of group cohesion and interpersonal skills in the automobile industry. *Annamalai International Journal of Business Studies & Research, 4*(1), 1-13. Retrieved from http://www.annamalaiuniversity.ac.in/

Jian, G., Shi, X., & Dalisay, F. (2014). Leader-member conversational quality: Scale development and validation through three studies. *Management Communication Quarterly, 28*(3), 375-403. doi:10.1177/0893318914533201

Jo, S., & Joo, B.-K. (2011). Knowledge sharing: The influences of learning organization culture, organizational commitment, and organizational citizenship behaviors. *Journal of Leadership & Organizational Studies, 18*(3), 353-364. doi:10.1177/1548051811405208

Joey, L., & Yazdanifard, R. (2015). Can neuro-linguistic programming (NLP) be used as a contemporary and effective skill for an exceptional manager in an organization. *Intrnational Journal of Management, Accounting and Economics, 2*(5), 456-465. Retrieved from http://www.internationaljournalofmanagement.co.uk/

Jung, J. (2014). Political contestation at the top: Politics of outsider succession at U.S. corporations. *Organization Studies, 35*(5), 727-764. doi:10.1177/0170840613508398

Kacmar, K. M., Harris, K. J., Carlson, D. S., & Zivnuska, S. (2009). Surface-level actual similarity vs. deep-level perceived similarity: Predicting leader-member exchange agreement. *Journal of Behaviroal & Applied Management, 10*(3), 315-334. Retrieved from http://www.ibam.com

Kaiser, R., & Curphy, G. (2013). Leadership development: The failure of an industry and the opportunity for consulting psychologists. *Consulting Psychology Journal, 65*(4), 294-302. doi:10.1037/a0035460

Kaiser, R., Lindberg McGinnis, J., & Overfield, D. (2012). The how and the what of leadership. *Consulting Psychology Journal: Practice and Research, 64*(2), 119-135. doi:10.1037/a0029331

Kane, A., & Rink, F. (2016). When and how groups utilize dissenting newcomer knowledge: Newcomers' future prospect condition the effect of language-based identity strategies. *Group Processes & Intergroup Relations, 19*(5), 591-607. doi:10.1177/1368430216638534

Kang, J., & Hyun, S. (2012). Effective communication styles for the customer-oriented service employee: Inducing dedicational behaviors in luxury restaurant patrons. *International Journal of Hospitality Management, 31*(3), 772-785. doi:10.1016/j.ijhm.2011.09.014

Kangas, H. (2013). The development of the LMX relationship after a newly appointed leader enters an organization. *Human Resource Development International, 16*(5), 575-589. doi:10.1080/13678868.2013.825438

Kansal, S., & Chandani, A. (2014). Effective management of change during merger and acquisition. *Procedia Economics and Finance, 11*, 208-217. doi:10.1016/S2212-5671(14)00189-0

Karasek, R. I., & Bryant, P. (2012). Signaling theory: Past, present, and future. *Academy of Strategic Management Journal, 11*(1), 91-. Retrieved from http://www.alliedacademies.org

Karp, N., Segonds-Pichon, A., Gerdin, A., Ramirez-Solis, R., & White, J. (2012). The fallacy of ratio correction to address confounding factors. *Laboratory Animals, 46*(3), 245-252. Retrieved from http://lan.sagepub.com/

Karpiński, M. (2015). New challenges in psycholinguistics: Interactivity and alignment in interpersonal communication. *Lingua Posnaniensis, 56*(1), 97-106. doi:10.2478/linpo-2014-0006

Kashima, Y. (2016). Cultural dynamics. *Current Opinion in Psychology, 8*, 93-97. doi:10.1016/j.copsyc.2015.10.019

Kelley, K., & Bisel, R. (2014). Leaders' narrative sensemaking during LMX role negotiations: Explaining how leaders make sense of who to trust and when. *The Leadership Quarterly, 25*, 433-448. doi:10.1016/j.leaqua.2013.10.011

Kern, M., Lee, S., Aytug, Z., & Brett, J. (2012). Bridging social distance in inter-cultural negotiations: "You" and the bi-cultural negotiator. *International Juornal of Conflict Management, 23*(2), 173-191. doi:10.1108/10444061211218294

Khasawneh, S., Aieman, O., & Abu-Tineh, A. (2012). The relationship between transfromational leadership and organizational commitment: The case for vocational teachers in Jordan. *Educational Management Administration & Leadership, 40*(4), 494-508. doi:10.1177/1741143212438217

Kidwell, B., & Hasford, J. (2014). Emotional ability and nonverbal communication. *Psychology & Marketing, 31*(7), 526-538. doi:10.1002/mar.20714

Kilner, J., & Lemon, R. (2013). What we know currently about mirror neurons. *Current Biology, 23*(23), R1057-R1062. doi:10.1016/j.cub.2013.10.051

Kim, B., Lee, G., & Carlson, K. (2010). An examination of the nature of the relationship between Leader-Member Exchange (LMX) and turnover intent at different organizational levels. *International Journal of Hospitality Management, 29*(4), 591-597. doi:10.1016/j.ijhm.2009.10.025

Kim, E., Rapcsak, S., Andersen, S., & Beeson, P. (2011). Multimodal alexia: Neuropsychological mechanisms and implications for treatment. *Neuropsychologia, 49*(13), 3551-3562. doi:10.1016/j.neuropsychologia.2011.09.007

Kim, Y. (2015). An enhanced trust propagation approach with expertise and homophily-based trust networks. *Knowledge-Based Systems*, 1-9. doi:10.1016/j.knosys.2015.02.023

Kim, Y. Y. (2015). Achieving synchrony: A foundational dimension of intercultural communication competence. *International Journal of Intercultural Relations, 48*, 27-37. doi:10.1016/j.ijintrel.2015.03.016

King, R., Xia, W., Quick, J., & Sethi, V. (2005). Socialization and organizational outcomes of information technology professionals. *Career Development International, 10*(1), 26-51. doi:10.11081362043051057761 9

Kobach, M., & Weaver, A. (2012). Gender and empathy differences in negative reactions to fictionalized and real violent images. *Communication Reports, 25*(2), 51-61. doi:10.1080/08934215.2012.721087

Kobayashi, E., Akers, R., & Sharp, S. (2011). Attitude transference and deviant behavior: A comparative study in Japan and the United States. *Deviant Behavior, 32*(5), 405-440. doi:10.1080/01639621003776002

Kong, A., Law, S.-P., Kwan, C., Lai, C., & Lam, V. (2015). A coding system with independent annotations of gesture forms and functions during verbal communication: Development of a database of speech and Gesture (DoSaGE). *Journal of Nonverbal Behavior, 39*(1), 93-111. doi:10.1007/s10919-014-0200-6

Korte, R. (2010). 'First, get to know them': A relational view of organizational socialization. *Human Resource Development Intenrational, 13*(1), 27-43. doi:10.1080/13678861003588984

Korte, R., & Lin, S. (2013). Getting on board: Organizational socialization and the contribution of social capital. *human relations, 66*(3), 407-428. doi:10.1177/0018726712461927

Korte, R., Brunhaver, S., & Sheppard, S. (2015). (Mis)interpretation of organizational socialization: The expectations and experiences of newcomers and managers. *Human Resource Development Quarterly, 26*(2), 185-208. doi:10.1002/hrdq.21206

Koudenburg, N., Postmes, T., & Gordijn, E. (2016). Beyond content of conversation: The role of conversational form in the emergence and fregulation of social structure. *Personality and Social Psychology*, 1-22. doi:10.1177/1088868315626022

Kozhevnikov, M., Evans, C., & Kosslyn, S. (2014). Cognitive style as environmentally sensitive individual differences in cognition: A modern synthesis and applications in education, business, and management. *Psychological Science in the Public Interest, 15*(1), 3-33. doi:10.1177/1529100614525555

Kreiner, G., Hollensbe, E., Sheep, M., Smith, B., & Kataria, N. (2015). Elasticity and the dialectic tensions of organizational identity: How can we hold together while we are pulling apart? *Academy of Management Journal, 58*(4), 981-1011. doi:10.5465/amj.2012.0462

Kreiner, H., & Eviatar, Z. (2014). The missing link in the embodiment of syntax: Prosody. *Brain and Language, 137*, 91-102. doi:10.1016/j.bandl.2014.08.004

Kroh, L. (2012). Crossing the great (management) divide: The business case for inboarding. *OD Practitioner, 44*(2), 18-22. Retrieved from http://www.odnetwork.org/publications/practitioner/index.php

Kruikemeier, S., van Noort, G., Vliegenthart, R., & de Vreese, C. (2013). Getting closer: The effects of personalized and interactive online political communication.

European Journal of Communication, 28(1), 53-66. doi:10.1177/0267323112464837

Kupper, Z., Ramseyer, F., Hoffmann, H., & Tschacher, W. (2015). Nonverbal synchrony in social interactions of patients with schizophrenia indicates socio-communicative deficits. *PLOS One, 10*(12), 1-18. doi:10.1371/journal.pone.0145882

Kusumasondjaja, S., Shanka, T., & Marchegiani, C. (2012). Credibility of online reviews and intitial trust: The roles of reviewer's identity and review valence. *Journal of Vacation Marketing, 18*(3), 185-195. doi:10.1177/1356766712449365

Lakens, D., & Stel, M. (2011). If they move in sync, they must feel in sync: Movement synchrony leads to attributions of rapport and entitativity. *Social Cognition, 29*(1), 1-14. Retrieved from http://www.guilford.com

Lammers, J. (2011). How institutions communicate: Institutional messages, institutional logics, and organizational communication. *Management Communication Quarterly, 25*(1), 154-182. doi:10.1177/0893318910389280

Lammers, J., Galinsky, A., Gordijn, E., & Otten, S. (2012). Power increases social distance. *Social Psychology and Personality Science, 3*(3), 282-290. doi:10.1177/1948550611418679

Lang, E. (2012). A better patient experience through better communication. *Journal of Radiology Nursing, 31*(4), 114-119. doi:10.1016/j.jradnu.2012.08.001

Lange, T. (2014). Social capital and job satisfaction: The case of Europe in times of economic crisis. *European Journal of Industrial Relations, 2014*(July preprint), 1-16. doi:10.1177/0959680114542907

Lapenta, O. M., & Boggio, P. S. (2014). Motor network activation during human action observation and imagery: Mu rhythm EEG evidence on typical and atypical neurodevelopment. *Research in Autism Spectrum Disorders, 8*(7), 759-766. doi:10.1016/j.rasd.2014.03.019

Lapointe, É., Vandeberghe, C., & Boudrias, J.-S. (2014). Organizational socialization tactics and newcomer adjustment: The mediating role of role clarity and affect-based trust relationships. *Journal of Occupational & Organizational Psychology*, 599-624. doi:10.1111/joop.12065

Launay, J., & Dunbar, R. I. (2015). Does implied community size predict likeability of a similar stranger? *Evolution and Hunam Behavior, 36*(1), 32-37. doi:10.1016/j.jesp.2014.07.015

Lavigne, G., Vallerand, R., & Crevier-Braud, L. (2011). The fundamental need to belong: On the distinction between growth and deficit-reduction orientations. *Personality and Social Psychology Bulletin, 37*(9), 1185-1201. doi:10.1177/0146167211405995

Lazarsfeld, P., & Merton, R. (1954). Friendship as a social process: A substantive and methodological analysis. *Freedom and Control in Modern Society, 18*(1), 18-66.

Leaver, R. B. (2014). After you, who? *International Journal of Urological Nursing, 8*(3), 109-110. Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1749-771X

Ledford, C., Canzona, M., & Cafferty, L. (2015). Clinical communication in context: Applying cognitive role theory in a study of physician non-verbals. *Florid Communication Journal, 43*(1), 29-40. Retrieved from http://www.flcom.org/

Lee, E., & Kramer, R. (2013). Out with old, in with the new? Habitus and social mobility at selective colleges. *Sociology of Education, 86*(1), 18-35. doi:10.1177/0038040712445519

Lee, K., Kim, H., & Piercy, C. (2016). The role of status differentials and homophily in the formation of social support networks of a voluntary organization. *Communication Research*, 1-28. doi:10.1177/0093650216641501

Lee, Y. (2016). From competition to collaboration: Intergovernmental economic development policy networks. *Local Government Studies, 42*(2), 171-188. doi:10.1080/03003930.2015.1096267

Lei, V., & Vesely, F. (2010). In-group versus out-group trust: The impact of income inequality. *Southern Economic Journal, 76*(4), 1049-1063. Retrieved from http://journal.southerneconomic.org/

Leopold, L. (2012). Prewriting tasks for auditory, visual, and kinesthetic. *TESL Canada Journal, 29*(2), 96-102. Retrieved from http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ981503

Leung, M. (2014). Dilettante, Renaissance person? How the order of job experiences affects hiring in an external labor market. *American Sociological Review, 79*(1), 136-158. doi:10.1177/0003122413518638

Levay, C. (2010). Charismatic leadership in resistance to change. *The Leadership Quarterly, 21*(1), 127-143. doi:10.1016/j.leaqua.2009.10.010

Levine, K., Muenchen, R., & Brooks, A. (2010). Measuring transformational and charismatic leadership: Why isn't charisma measured? *Communication Monographs, 77*(4), 576-591. doi:10.1080/03637751.2010.499368

Li, V., Mitchell, R., & Boyle, B. (2016). The divergent effects of transformational leadership on individual and team innovation. *Group & Organization Management, 41*(1), 66-97. doi:10.1177/1059601115573792

Li, Y., Wu, C., Luo, P., & Zhang, W. (2013). Exploring the characteristics of innovation adoption in social networks: Structure, homophily, and strategy. *Entropy, 15*(7), 2662-2678. doi:10.3390/e15072662

Liou, Y., Daly, A., Brown, C., & del Fresno, M. (2015). Foregrounding the role of relationship in reform: A social network perspective on leadership and change. *International Journal of Educational Management, 29*(7), 819-837. doi:10.1108/IJEM-05-2015-0063

Liu, C., & Srivastava, S. (2015). Pulling closer and moving apart: Interaction, identity, and influence in the U.S. Senate, 1973 to 2009. *American Sociological Review, 80*(1), 192-217. doi: 10.1177/0003122414564182

Llobera, J., Charbonnier, C., Chagué, S., Preissmann, D., Antonietti, J.-P., Ansermet, F., & Magistretti, P. (2016). The subjective sensation of synchrony: An experimental study. *PLoS One, 11*(2), 1-18. doi:10.1371/journal.pone.0147008

Loehr, D. P. (2012). Temporal, structural, and pragmatic synchrony between intonation and gesture. *Laboratory Phonology, 3*(1), 71-89. doi:10.1515/lp-2012-0006

Loeper, A., Steiner, J., & Stewart, C. (2014). Influential opinion leaders. *Economic Journal, 124*(581), 1147-1167. doi:10.1111/ecoj.12100

Logan, L. (2013). Status homophily, sexual identity, and lesbian social ties. *Journal of Homosexuality, 10*(10), 1494-1519. doi:10.1080/00918369.2013.819244

Logue, D. M., Clegg, S., & Gray, J. (2016). Social organization, classificatory analogies and institutional logics: Institutional theory revisits Mary Douglas. *Human Relations*, 1-23. doi:10.1177/0018726715614637

Loi, R., Chan, K., & Lam, L. (2014). Leader-member exchange, organizational identification, and job satisfaction: A social identity perspective. *Journal of Occupational and Organizational Psychology, 87*, 42-61. doi:10.1111/joop.12028

Lopez, C., Falconder, C., & Mast, F. (2013). Being moved by the self and others: influence on empathy on self-motion perception. *PLOS one, 8*(1), 1-9. doi:10.1371/journal.pone.0048293

Lozares, C., Verd, J., Cruz, I., & Baranco, O. (2014). Homophily and heterophily in personal networks. From mutual acquaintance to relationship intensity. *Quality and Quantity, 48.5,* 2657-2670. doi:10.1007/s11135-013-9915-4

Lumsden, J., Miles, L., & Macrae, C. (2012). Perceptions of synchrony: Different strokes for different folks? *Perception, 41*(12), 1529-1531. doi:10.1068/p7360

Lund, B. L., & Thomas, R. E. (2012). Advice for tomorrow's leaders: Millennial Leadership during the leadership succession crisis. *Leadership & Organizational Management Journal, 2012*(2), 92-104. Retrieved from http://www.franklinpublishing.net/leadership.html

Lundy, B., & Drouin, M. (2016). From social anxiety to interpersonal connectedness: Relationship building within face-to-face, phone and instant messaging mediums. *Computers in Human Behavior, 54*, 271-277. doi:10.1016/j.chb.2015.08.004

Lusher, D., Kremer, P., & Robins, G. (2014). Cooperative and competitive structures of trust relations in teams. *Small Group Research, 45*(1), 3-36. doi:10.1177/1046496413510362

Ma, E., Qu, H., & Wilson, M. (2016). The affective and dispositional consequences of organizational citizenship behavior: A cross-cultural study. *Journal of Hospitality & Tourism Research, 40*(4), 399-431. doi:10.1177/1096348013503991

Mackinnon, S., Jordan, C., & Wilson, A. (2011). Birds of a feather sit together: Physical similarity predicts seating choice. *Personality and Social Psychology Bulletin, 37*(7), 879-892. doi:10.1177/0146167211402094

Macunovich, D. (2012). Older men: Pushed into retirement in the 1970s and 1980s by the baby boomers? *Monthly Labor Review, 135*(5), 3-18. Retrieved from http://stats.bls.gov/opub/mlr/mlrhome.htm

Maitlis, S., Vogus, T. J., & Lawrence, T. B. (2013). Sensemaking and emotion in organizations. *Organizaitonal Psychology Review, 3*(3), 222-247. doi:10.1177/2041386613489062

Malangwasira, T. (2013). Demographic differences between a leader and followers tend to inhibit leader-follower exchange levels and job satisfaction. *Journal of Organizational Cutlure, Communications & Conflict, 17*(2), 63-106. Retrieved from http://alliedacademies.org/Public/Default.aspx

Malik, T., & Kabiraj, S. (2011). Intra-organizational interpersonal communication and uncertainty reduction in a technology firm. *Intrnational Journal of Business Insights & Transformation, 4*(1), 46-56. Retrieved from http://www.ijbit.org/home

Malouin, F., Richards, C., Jackson, P., & Lafleur, M. (2007). The kinesthetic and visual imagery questionnaire (KVIQ) for assessing motor imagery in persons with physical disabilities; A reliability and construct validity study. *Journal of Neurologic Physical Therapy, 31*(1), 20-29. Retrieved from http://journals.lww.com/jnpt/pages/default.aspx

Mann, J., Stanton, M. A., Patterson, E. M., Bienenstock, E. J., & Singh, L. O. (2012). Social networks reveal cultural behaviour in tool-using dolphins. *Nature Communications, 3*, 1-7. doi:10.1038/ncomms1983

Matos Marques Simoes, P., & Esposito, M. (2014). Improving change management: How communication nature influences resistance to change. *Journal of Management Development, 33*(4), 324-341. doi:10.1108/JMD-05-2012-0058

Matthews, J., & Matlock, T. (2011). Understanding the link between spatial distance and social distance. *Social Psychology, 42*(3), 185-192. doi:10.1027/1864-9335/a000062

Mayfield, J., & Mayfield, M. (2017). Leadership communication: Reflecting, engaging, and innovating. *International of Business Communication, 54*(1), 3-11. doi:10.1177/2329488416675446

Mazur, E., & Richards, L. (2011). Adolescents' and emerging adults' social networking online: Homophily or diversity? *Journal of Applied Developmental Psychology, 32*(14), 180-188. doi:10.1016/j.appdev.2011.03.001

McCroskey, J., & Richmond, V. (1976). The effects of communication apprehension on the perception of peers. *Western Speech Communication, 40*(1), 14-21. Retrieved from http://www.westcomm.org/

McCroskey, J., Richmond, V., & Daly, J. (1975). Perceived homophily measure. *PsycTESTS*, 1. doi:10.1037/t13196-000

McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of the measurement of interpersonal attraction and homophily. *Communication Quarterly, 54*(1), 1-31. doi:10.1080/01463370500270322

McGarry, L. M., & Russo, F. A. (2011). Mirroring in dance/movement therapy: Potential mechanisms behind empathy enhancement. *The Arts in Psychotherapy, 38*(3), 178-184. doi:10.1016/j.aip.2011.04.005

McGrath, M., Gensler, L., & Sharf, S. (2017, December 26). Competition is the new union. *Forbes*(Special Issue), pp. 56-64.

McPherson, M., Smith-Lovin, L., & Cook, J. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*, 415-444. Retrieved from http://www.jstor.org/stable/2678628

Mead, N., & Maner, J. (2012). When me versus you becomes us versus them: How intergroup competition shapes ingroup psychology. *Social and Personality Psychology Compass, 6*(8), 566-574. doi:10.1111/j.1751-9004.2012.00447.x

Melamed, D. (2013). Do magnitudes of difference on status characteristics matter for small group inequalities? *Social Science Research, 42*(1), 217-229. doi:10.1016/j.ssresearch.2012.09.001

Melamed, D., & Savage, S. (2013). Status, numbers and influence. *Social Forces, 91*(3), 1085-1104. Retrieved from http://global.oup.com/

Men, L. (2014). Strategic internal communication: Transformational leadership, communication channels, and employee satisfaction. *Management Communication Quarterly, 28*(2), 264-284. doi:10.1177/0893318914524536

Men, L. R., & Stacks, D. W. (2013). The impact of leadership style and employee empowerment on perceived organizational reputation. *Journal of Communication Management, 17*(2), 171-192. Retrieved from http://www.emeraldinsight.com/journal/jcom

Menenti, L., Pickering, M., & Garrod, S. (2012). Toward a neural basis of interactive alignment in conversation. *Frontiers in Human Neuroscience, 6*(185), 1-9. doi:10.3389/fnhum.2012.00185

Meng, J., Fulk, J., & Yuan, Y. (2015). The roles and interplay of intragroup conflict and team emotion management on information seeking behaviors in team contexts. *Communication Research, 42*(5), 675-700. doi:10.1177/0093650213476294

Mennecke, B., Triplett, J., Hassall, L., & Conde, Z. (2010). Embodied social presence theory. *Hawaii International Conference on System Sciences* (pp. 1-10). Honolulu: IEEE. doi:10.1109/HICSS.2010.179

Mercurio, Z. (2015). Affective commitment as a core essence of organizational commitment: An integrative literature review. *Human Resource Development Review, 4*(4), 389-414. doi:10.1177/1534484315603612

Meyer, J., & Allen, N. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1*(1), 61-89. doi:10.1016/1053-4822(91)90011-Z

Miceli, M., Near, J., Rehg, M., & Van Scotter, J. (2012). Predicting employee reactions to perceived organizational wrongdoing: Demoralization, justice, proactive personality, and whisle-blowing. *Human Relations, 65*(8), 923-954. doi:10.1177/0018726712447004

Michael, J., Sandberg, K., Skewes, J., Wolf, T., Blicher, J. O., & Frith, C. (2014). Continuous theta-burst stimulation demonstrates a causal role of premotor homunculus in action understanding. *Psychological Science, 25*(4), 963-972. doi:10.1177/0956797613520608

Michinov, E., & Michinov, N. (2011). Social comparison orientation moderates the effects of group membership on the similarity-attraction relationship. *The Journal*

Of Social Psychology, 151(6), 754-766. Retrieved from http://www.taylorandfrancisgroup.com/

Micic, G., Lovato, N., Gradisar, M., Ferguson, S. A., Burgess, H. J., & Lack, L. C. (2016). The etiology of delayed sleep phase disorder. *Sleep Medicine Reviews, 27*, 29-38. doi:10.1016/j.smrv.2015.06.004

Mikolajewski, A., Chavarria, J., Moltisanti, A. H., & Taylor, J. (2014). Examining the factor structure and etiology of prosociality. *Psychological Assessment, 26*(4), 1259-1267. doi:10.1037/a0037132

Miles, C. (2015). Ericksonian therapy as a grounding for a theory of persuasive marketing dialogue. *Marketing Theory, 15*(1), 95-111. doi:10.1177/1470593114558534

Miles, L., Nind, L., & Macrae, C. (2009). The rhythm of rapport: Interpersonal synchrony and social perception. *Journal of Experimental Social Psychology, 45*(2009), 585-589. doi:10.1016/j.jesp.2009.02.002

Millward, L., & Haslam, S. (2013). Who are we made to think we are? Contextual variation in organizational, workgroup and career foci of identification. *Journal of Occupational & Organizational Psychology, 86*(1), 50-66. doi:10.1111/j.2044-8325.2012.02065.x

Minei, E. M. (2015). Discursive leadership: Harmonious and discordant framing-to-sensemaking outcomes. *Journal of Creative Communications, 10*(2), 141-160. doi:10.1177/0973258615597382

Minnick, W., Wilhid, S., Diantoniis, R., Goodheart, T., Logan, S., & Moreau, R. (2014). Onboarding OSH professionals. *Professional Safety, 59*(12), 27-33. Retrieved from http://www.asse.org/bprofe1.htm

Montoya, R., & Horton, R. (2013). A meta-analytic investigation of the processes underlying the similarity-attraction effect. *Journal of Social and Personal Relationships, 30*(1), 64-94. doi:10.1177/0265407512452989

Morris, M. A., Meier, S. K., Griffin, J. M., Branda, M. E., & Phelan, S. M. (2016). Prevalence and etiologies of adult communication disabilities in the United States: Results from the 2012 National Health Interview Survey. *Disability and Health Journal, 9*, 140-144. doi:10.1016/j.dhjo.2015.07.004

Mrkvicka, N. (2014). Apprenticeship survey snapshot. *Plans & Trusts, 32*(2), 19-19. Retrieved from http://www.ifebp.org

Mull, I. W., Moon, E., & Lee, S. (2015). An exploratory study of using 3D avatars as online salespeople: The effect of avatar type on credibility, homophily, attractiveness and intention to interact. *Journal of Fashion Marketing and Management, 19*(2), 154-168. doi:10.1108/JFMM-04-2013-0051

Mumenthaler, C., & Sander, D. (2012). Social appraisal influences recognition of emotions. *Journal of Personality & Social Psychology, 102*(6), 1118-1135. doi:10.1037/a0026885

Murphy, E., & Rodríguez-Manzanares, M. (2012). Rapport in distance education. *The International Review of Research in Open and Distributed Learning, 13*(1), 167-190. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/1057

Myers, S., & Huebner, A. (2011). The relationship between students' motives to communicate with their instructors and perceived instructor credibility, attractiveness and homphily. *College Studen Journal, 45*(1), 84-91. Retrieved from http://www.projectinnovation.biz/index.html

Nadirashvili, D. (2013). Basic points of the attitude theory. *Psichologija / Psychology, 48*, 90-101. Retrieved from http://www.vu.lt/

Nagarajan, P., & Jiji, G. (2010). Building excellence through leadership. *Journal Of Marketing & Communication, 6*(1), 50-54. Retrieved from http://www.niilm.com/

Nakai, Y. (2014). In-group favoritism due to friend selection strategies based on fixed tag and within-group reputation. *Rationality and Society, 26*(3), 320-354. doi:10.1177/1043463114523714

Napier, J., & Luguri, J. (2012). Moral mind-sets: Abstract thinking increases a preference for "individualizing" over "binding" moral foundations. *Social Psychological and Personality Science, 4*(6), 754-759. doi:10.1177/1948550612473783

Nasra, M., & Heilbrunn, S. (2016). Transformational leadership and organizational citizenship behavior in the Arab educational system in Israel: The impact of trust and job satisfaction. *Educational Management Administration & Leadership, 44*(3), 380-396. doi:10.1177/1741143214549975

Ndunguru, C. A. (2012). Executive onboarding: How to hit the ground running. *Public Manager, 41*(3), 6-9. Retrieved from http://www.astd.org.ezp.waldenulibrary.org/

Newton, P. (2015). The learning styles myth is thriving in higher education. *Frontiers in Pschology, 6*, 1-5. doi:10.3389/fpsyg.2015.01908

Nicolás, J. (2013). Sociological theory and social reality. *Revista Española de Investigaciones Sociologicas, Jul-Sep*(143), 7-24. doi:10.5477/cis/reis.143.7

Nihal Colakoglu, S., & Gokus, O. (2015). Socialization facets and stages: A conceptual framework. *Journal of Organizational Culture, Communications & Conflict, 19*(2), 1-13. Retrieved from http://alliedacademies.org

Nilsson, J., Svendsen, G., & Svendsen, G. (2012). Are large and complex agricultural cooperatives losing their social capital? *Agribusiness, 28*(2), 187-204. doi:10.1002/agr.21285

Ning Shen, K., Yan Yu, A., & Khalifa, M. (2010). Knowledge contribution in virtual communities: Accounting for multiple dimensions of social presence through social identity. *Behaviour & Information Technology, 29*(4), 337-348. doi:10.1080/01449290903156622

Nolan, P. (2012). *Therapist and Client: A Relational Approach to psychotherapy*. Malden: John Wiley & Sons, Ltd.

Nowak, K. L. (2013). Choosing buddy icons that look like me or represent my personality: Using buddy icons for social presence. *Computers in Human Behavior, 29*(4), 1456-1464. doi:10.1016/j.chb.2013.01.027

Nyenwe, E. A., & Kitabchi, A. E. (2016). The evolution of diabetic ketoacidosis: An update of its etiology, pathogenesis and management. *Metabolism, 65*, 507-521. doi:10.1016/j.metabol.2015.12.007

Ocasio, W., Loewoenstein, J., & Nigam, A. (2015). How streams of communication reproduce and change institutional logics: The role of categories. *Academy of Management Review, 40*(1), 28-48. doi:10.5465/amr.2013.0274

Odendaal, A. (2015). (Mis)matching perceptual learning styles and practicing behavior in tertiary level Western Classical instrumentalists. *Pschology of Music,* 1-16. doi: 10.1177/0305735614567933

Odendaal, A. (2015). (Mis)matching perceptual learning styles in practicing behavior in tertiary level Western Classical instrumentalists. *Psychology of Music*, 1-16. doi:10.1177/0305735614567933

Odora, R., & Naong, M. (2014). Distigmatisation of apprenticeship: A vehicle for entrepreneurship promotion and job creation among further education and training college students. *Journal of Asian and African Studies, 49*(4), 457-472. doi:10.1177/0021909613488745

Ohl, A., & Schelly, D. (2017). Beyond p-values: A case for clinical relevance. *British Journal of Occupational Therapy, 80*(12), 752-755. doi:10.1177/0308022617735048

Olcott, G. (2010). Onboarding: The international dimension. *People & Strategy, 33*(2), 8-9. Retrieved from http://www.hrps.org/

Oren, L., Tziner, A., Sharoni, G., Amor, I., & Alon, P. (2012). Relations between leader-subordinate personality similarity and job attitudes. *Journal of Managerial Pscyhology, 27*(5), 479-496. doi:10.1108/02683941211235391

Özdemir, Y., & Ergun, S. (2015). The relationship between organizational socialization and organizational citizenship behavior: The mediating role of person-environment fit. *Procedia - Social and Behavioral Sciences, 207*(20), 432-443. doi:10.1016/j.sbspro.2015.10.113

Pardo, J. (2013). Measuring phonetic convergence in speech production. *Frontiers in Psychology, 119*(4), 2382-2393. doi:10.1121/1.2178720

Pardo, J., Jordan, K., Mallari, R., Scanlon, C., & Lewandowski, E. (2013). Phonetic convergence in shadowed speech: The relation between acoustic and perceptual measures. *Journal of Memory and Language, 69*(3), 183-195. doi:10.1016/j.jml.2013.06.002

Parent, J., & Lovelace, K. (2011). Creating a learning organization in the management classroom through dialogue and reflective journaling. *Busuiness Renaissance Quarterly, 6*(2), 21-42. Retrieved from http://brqjournal.com/

Park, H., & Cameron, G. (2014). Keeping it real: Exploring the roles of conversational human voice and source credibility in crisis communication via blogs. *Journalism & Mass Communication Quarterly, 91*(3), 487-507. doi:10.1177/1077699014538827

Paxton, A., & Dale, R. (2013). Frame-differencing methods for measuring bodily synchrony in conversation. *Behavior Research Methods, 45*(2), 329-343. doi:10.3758/s13428-012-0249-2

Pelligra, V. (2011). Empathy, guilt-aversion, and patterns of reciprocity. *Journal of Neuroscience, Psychology, & Economics, 4*(3), 161-173. doi:10.1037/a0024688

Perlman, M., & Cain, A. A. (2014). Iconcity in vocalization, comparisons with gesture, and implications for theories on the evolution of language. *Gesture, 14*(3), 320-350. doi:10.1075/gest.14.3.03per

Perlovsky, L., & Ilin, R. (2013). Mirror neurons, language, and embodied cognition. *Neural Networks, 41*, 15-22. doi:10.1016/j.neunet.2013.01.003

Perrot, S., Bauer, T., Abonneau, D., Campoy, E., Erdogan, B., & Liden, R. (2014). Organizational socialization tactics and newcomer adjustment: The moderating role of perceived organizational support. *Group & Organization Management, 39*(3), 247-273. doi:10.1177/1059601114535469

Perugini, M., Zogmaister, C., Richetin, J., Prestwich, A., & Hurling, R. (2013). Changing implicit attitudes by contrasting the self with others. *Social Cognition, 31*(4), 443-446. doi:10.1521/soco_2012_1003

Peterson, R., & Limbu, Y. (2009). The convergence of mirroring and empathy: Communications training in business-to-business personal selling persuasion efforts. *Journal of Business-to-Business Marketing, 16*(3), 193-219. doi:10.1080/10517120802484551.

Pfau, T., & Ruske, G. (1998). Estimating the speaking rate by vowel detection. *Institute for Human-Machine-Communication* (pp. 1-4). Munich: Technical University of Munich.

Phillips, N., Tracey, P., & Karra, N. (2013). Building entrepreneurial tie protfolios through strategic homophily: The role of narrative identity work in venture

creation and early growth. *Journal of Business Venturing, 28*, 134-150. doi:10.1016/j.jbusvent.2011.12.002

Phutela, D. (2015). The importance of non-verbal communication. *IUP Journal of Soft Skills, 9*(4), 43-49. Retrieved from http://www.iupindia.in/

Piazza, A., & Castellucci, F. (2014). Status in organization and management theory. *Journal of Management, 40*(1), 287-315. doi:10.1177/0149206313498904

Pinch, S., & Sunley, P. (2015). Social enterprise and neoinstitutional theory: An evaluation of the organizational logics of SE in the UK. *Social Enterprise Journal, 11*(3), 303-320. doi:10.1108/SEJ-07-2014-0030

Pinder, D. (2015). On 'value' and 'performance'. *Journal of Creating Value, 1*(2), 150-158. doi:10.1177/2394964315569648

Pisano, M. (2014). Demography is economic destiny. *National Civic Review, 103*(3), 14-19. doi:10.1002/ncr.21200

Pishghadam, R., Shayesteh, S., & Shapoori, M. (2011). Validation of an NLP scale and its relationship with teacher success in high schools. *Journal Of Language Teaching & Research, 2*(4), 909-917. doi:10.4304/jltr.2.4.909-917

Pradhan, S., & Pradhan, R. (2015). An empirical investigation relationship among transformational leadership, affective organizational commitment and contextual performance. *The Journal of Business Perspective, 19*(3), 227-235. doi:10.1177/0972262915597089

Press, C., & Cook, R. (2015). Beyond action-specific simulation: Domain-general motor contributions to perception. *Trends in Cognitive Science, 19*(4), 176-178. doi:10.1016/j.tics.2015.01.006

Preston, S., & de Waal, F. (2002). Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences, 25*(1), 1-72. Retrieved from www.cambridge.org

Preston, S., & Hofelich, A. (2012). Author reply: Understanding empathy by modeling rather than organizing its contents. *Emotion Review, 4*(1), 38-39. doi:10.1177/1754073911421397

Price, E., Ottati, V., Wilson, C., & Kim, S. (2015). Open-minded cognition. *Personality and Social Psychology Bulletin, 41*(11), 1488-1504. doi:10.1177/0146167215600528

Pterneas, V. (2017, January 28). *Vitruvius*. Retrieved from Create stunning apps in minutes: https://vitruviuskinect.com/

Qadeer, F., & Jaffery, H. (2014). Mediation of psychological capital between organizational climate and organizational citizenship behavior. *Pakistan Journal of Commerce & Social Sciences, 8*(2), 453-470. Retrieved from http://www.jespk.net

Qiumei, J., & Jianfeng, J. (2010). The moderating role of cultural similarity in leadership training effectiveness. *Journal of European Industrial Training, 34*(3), 259-269. doi:10.1108/03090591011031746

Ramseyer, F., & Tschacher, W. (2011). Nonverbal sychrony in psychotherapy: Coordinated body movement reflects relationship quality and outcome. *American Psychological Association, 79*(3), 284-295. doi:10.1037/a0023419

Ramseyer, F., & Tschacher, W. (2011). Nonverbal synchrony in psychotherapy: Coordinated body movement reflects relationship quality and outcome. *Journal of Consulting and Clinical Psychology, 79*(3), 284-295. doi:10.1037/a0023419

Ramseyer, F., Kupper, Z., Caspar, F., Znoj, H., & Tschacher, W. (2014). Time-series panel analysis (TSPA): Multivariate modeling of temporal associations in psychotherapy process. *Journal of Consulting & Clinical Psychology*, *82*(5), 828-838. doi:10.1037/a0037168.

Randhawa, G., & Kaur, K. (2015). An empirical assessment of impact of organizational climate on organizational citizenship behavior. *Paradigm*, *19*(1), 65-78. doi:10.1177/0971890715585202

Ravangard, R., Karimi, S., Farhadi, P., Sajjadnia, Z., & Shokrpour, N. (2016). The effects of transformational leadership and mediating factors on the organizational success using structural equation modeling: A case study. *The Health Care Manager, 35*(1), 58-71. doi:10.1097/HCM.0000000000000090

Redlitz, J. (2013). The baby boom bust: Strategies to overcome retirement brain drain. *Cornell HR Review, 2013*(1), 1-4. Retrieved from http://cornellhrreview.org/

Reester Jr., K. (2008). Dynamic succession planning: Overcoming the baby boomer retirement crisis. *Journal of Public Works & Infrastructure, 1*(1), 97-106. Retrieved from http://www.henrystewart.com/

Reeves, E. (2012). The effects of opportunity to learn, family socioeconomic status, and friends on the rural math achievement gap in high school. *American Behavioral Scientist, 56*(7), 887-907. doi:10.1177/0002764212442357

Regenbogen, C., Schneider, D., Finkelmeyer, A., Kohn, N., Derntl, B., Kellermann, T., . . . Habel, U. (2012). The differential contribution of facial expressions, prosody, and speech content to empathy. *Cognition & Emotion, 26*(6), 995-1014. doi:10.1080/02699931.2011.631296

Regnier, D. (2009). A moment in mamardasvili's conception of non-classical rationality. *Transcultural Studies: A Series in Interdisciplinary Research, 5*(1/2), 30-49. doi:10.1163/23751606-00501004

Reitter, D., & Moore, J. D. (2014). Alignment and task success in spoken dialogue. *Journal of Memory and Language, 76*, 29-46. doi:10.1016/j.jml.2014.05.008

Rhodes, C., & Butler, J. (2010). Organizational membership and business success: The importance of networking and moving beyond homophily. *Challenge (Atlanta): A Journal of Research on African American Men, 10*(1), 33-48. Retrieved from http://www.morehouse.edu/centers/mri/challengejournal.html

Riordan, M., Kreuz, R., & Olney, A. (2014). Alignment is a function of conversational dynamics. *Journal of Language and Social Psychology, 33*(5), 465-481. doi:10.1177/0261927X13512306

Riva, G., Baños, R. M., Botella, C., Wiederhold, B. K., & Gaggioli, A. (2012). Positive technology: Using interactive technologies to promote positive functioning.

CyberPschology, Behavior & Social Networking, 15(2), 69-77. doi:10.1089/cyber.2011.0139

Rivera, L. (2012). Hiring as cultural matching: The case of elite professional service firms. *American Sociological Review, 77*(6), 999-1022. doi:10.1177/0003122412463213

Rivera, L. (2012). Hiring as cultural matching: The case of elite professional service firms. *American Sociological Review, 77*(6), 999-1022. doi: 10.1177/0003122412463213

Roberts, K. (2012). The end of the long baby-boomer generation. *Journal of Youth Studies, 15*(4), 479-497. doi:10.1080/13676261.2012.663900

Rodero, E. (2015). The principle of distinctive and contrastive coherence of prosody in radio news: An analysis of perception and recognition. *Journal of Nonverbal Behavior, 39*(1), 79-92. doi:10.1007/s10919-014-0201-5

Rose, K. (2016). Examining organizational citizenship behavior in the context of human resource development: An integrative review of the literature. *Human Resource Development Review,* 1-22. doi:10.1177/1534484316655668

Rothausen, T., Henderson, K., Arnold, J., & Malshe, A. (2015). Should I stay or should I go? Identity and well-being in sesemaking about retention and turnover. *Journal of Managment,* 1-29. doi:10.1177/0149206315569312

Ruben, B., & Gigliotti, R. (2016). leadership as social influence: An expanded view of leadership communication theory and practice. *Journal of Leadership & Organizational Studies, 23*(4), 467-479. doi:10.1177/1548051816641876

Ruben, B., & Gigliotti, R. (2017). Communication: Sine qua non of organizational leadership theory and practice. *International Journal of Business Communication, 54*(1), 12-30. doi:10.1177/2329488416675447

Sankowska, A., & Söderlund, J. (2015). Trust, reflexivity and knowledge integration: Toward a conceptual framework concerning mobile engineers. *Human Relations, 68*(6), 973-1000. doi:10.1177/0018726714549646

Schaefer, D., Kornienko, O., & Fox, A. (2011). Misery does not love company: Network selection mechanisms and depression homophily. *American Sociological Review, 76*(5), 764-785. doi:10.1177/0003122411420813

Schaefer, M., Heinze, H.-J., & Rotte, M. (2012). Embodied empathy for tactile events: Interindividual differences and vicarious somatosensory responses during touch observation. *NeuroImage, 60*(2), 952-957. doi:10.1016/j.neuroimage.2012.01.112

Schaubroeck, J., Lam, S., & Peng, A. (2011). Research Report Cognition-based and affect-based trust as mediators of leader behavior influences on team performance. *Journal of Applied Psychology, 96*(4), 863-871. Retrieved from http://www.apa.org/journals/apl

Schaubroek, J., Peng, A., & Hannah, S. (2013). Developing trust with peers and leaders: Impacts on organizational identification and performance during entry. *Academy of Management Journal, 56*(4), 1148-1168. doi:10.5465/amj.2011.0358

Schieber, M. H. (2013). Mirror neurons: Reflecting on the motor cortex and spinal cord. *Current Biology, 23*(4), R151-R152. doi:10.1016/j.cub.2013.01.004

Schmidt, R., Nie, L., Franco, A., & Richardson, M. (2014). Bodily synchronization underlying joke telling. *frontiers in Human Neuroscience, 8*, 1-13. doi:10.3389/fnhum.2014.00633

Scott, K., Motes, S., & Irving, G. (2012). Examining the impact of socialization through trust. *Journal of Personnel Psychology, 11*(4), 191-198. doi:10.1027/1866-5888/a000072

Sears, G., & Holmvall, C. (2010). The joint influence of supervisor and subordinate emotional intelligence on leader-member exchange. *Journal of Business & Psychology, 25*(4), 593-605. doi:10.1007/s10869-009-9152-y.

Sebastian, C., Fontaine, N., Bird, G., Blakemore, S.-J., McCrory, E., & Viding, E. (2012). Neural processing associated with cognitive and affective theory of mind in adolescents and adults. *Social Cognitive & Affective Neuroscience, 7*(1), 53-63. doi:10.1093/scan/nsr023

Seiryte, A., & Rusconi, E. (2015). The Empathy Quotient (EQ) predicts perceived strength of bodily illusions and illusion-related sensations of pain. *Personality and Individual Differences, 77*, 112-117. doi:10.1016/j.paid.2014.12.048

Semrau, J., Herter, T., Kiss, Z., & Dukelow, S. (2015). Distruption in proprioception from long-term thalamic deep brain stimulation: A pilot study. *Frontiers in Human Neuroscience, 9*, 1-13. doi:10.3389/fnhum.2015.00244

Seok-Woo, K., & Adler, P. (2014). Social capital: Maturation of a field of research. *Academy of Management Review, 39*(4), 412-422. doi:10.5465/amr.2014.0210

Sethibe, T., & Steyn, R. (2016). Organizational climate, innovation and performance: A systematic review. *Journal of Entrepreneurship and Innovation in Emerging Economies, 2*(2), 161-174. doi:10.1177/2393957516646287

Setter, J., & Stojanovick, V. (2013). Prosody in typical and atypical populations. *Clinical Linguistics & Phonetics, 27*(8), 553-554. doi:10.3109/02699206.2013.800581

Shalizi, C., & Thomas, A. (2011). Homophily and contagion are generically confounded in observational social network studies. *Sociological Methods & Research, 40*(2), 211-239. doi:10.1177/0049124111404820

Sharpley, C. (1987). Research findings on Neurolinguistic Programming: Nonsupportive data or an untestable theory? *Journal of Counseling Psychology, 34*(1), 103-107. Retrieved from http://www.apa.org/pubs/journals

Shen, L. (2010). Mitigating psychological reactance: The role of message-induced empathy in persuasion. *Human Communication Research*, 397-422. doi:10.1111/j.1468-2958.2010.01381.x

Shipilov, A., Greve, H., & Rowley, T. (2010). When do interlocks matter? Institutional logics and the diffusion of multiple corporate governance practices. *Academy of Management Journal, 53*(4), 846-864. doi:10.5465/AMJ.2010.52814614

Shollen, S., & Brunner, C. (2016). Virtually anonymous: Does the absence of social cues alter perceptions of emergent leader behavior? *Leadership, 12*(2), 198-229. doi:10.1177/1742715014554320

Simosi, M. (2010). The role of social socialization tactics in the relationship between socialization content and newcomers' affective commitment. *Journal of Managerial Pschology, 25*(3), 301-327. doi:10.1108/02683941011023758

Singer, T., & Klimecki, O. M. (2014). Empathy and compassion. *Current Biology, 24*(18), R875-R878. doi:10.1016/j.cub.2014.06.054

Singh, U., & Srivastava, K. (2016). Organizational trust and organizational citizenship behavior. *Global Business Review, 17*(3), 594-609. doi:10.1177/0972150916630804

Sinkin, J., & Putney, T. (2015). How to manage internal succession. *Journal of Accountancy, 219*(2), 20-24. Retrieved from http://www.aicpa.org/pubs/jofa/index.htm

Skvoretz, J. (2013). Diversity, integration, and social ties: Attraction versus repulsion as drivers of intra- and intergroup relations. *American Journal of Sociology, 119*(2), 486-517. Retrieved from http://www.journals.uchicago.edu/

Skvoretz, J., & Bailey, J. (2016). "Red, white, yellow, blue, all out but you": Status effects on team formation, an expectation states theory. *Social Psychology Quarterly, 79*(2), 136-155. doi:10.1177/0190272516643920

Slater, M., Coffee, P., Barker, J., & Evans, A. (2014). Promoting shared meanings in group membership: A social identity approach to leadership in sport. *Reflective Practice, 15*(5), 672-685. doi:10.1080/14623943.2014.944126

Sluss, D., Ployhart, R., Cobb, M., & Ashforth, B. (2012). Generalizing newcomers' relational and organizational identifications: Processes and prototypicality.

Academy of Management Journal, 55(4), 949-975. Retrieved from http://amj.aom.org/

Smith, J. (2017). What is empathy for? *Synthese, 194*(3), 709-722. doi:10.1007/s11229-015-0771-8

Smith, J., McPherson, M., & Smith-Lovin, L. (2014). Social distance in the United States: Sex, race, religion, age, and education homophily among confidants, 1985 to 2004. *American Sociological Review, 79*(3), 432-456. doi:10.1177/0003122414531776

Smith, L., Amiot, C., Smith, J., Callan, V., & Terry, D. (2013). The social validation and coping model of the organizational identity development: A longitudinal test. *Journal of Management, 39*(7), 1952-1978. doi:10.1177/0149206313488212

Smith, L., Gillespie, N., Callan, V., & Fitzsimmons, T. (2016). Injunctive and descriptive logics during newcomer socialization: The impact on organizational identification, trustworthiness, and self-efficacy. *Journal of Organizational Behavior, 38*(4), 487-511. doi:10.1002/job.2131

Smith, S., Maas, I., & van Tubergen, F. (2014). Ethnic ingroup friendships in schools: Testing the by-product hypothesis in England, Germany, the Netherlands and Sweden. *Social Networks, 39*, 33-45. doi:10.1016/j.socnet.2014.04.003

Snell, A. (2006). Researching onboarding best practices. *Strategic HR Review, 5*(6), 32-35. Retrieved from http://www.melcrum.com/products/journals/shrr.shtml

Sommer, K., & Bernieri, F. (2015). Minimizing the pain and probability of rejection: Evidence for relational distancing and proximity seeking within face-to-face

interactions. *Social Psychological and Personality Science, 6*(2), 131-139. doi:10.1177/1948550614549384

Southgate, V. (2013). Do infants provide evidence that the mirror system is involved in action understanding? *Consciousness and Cognition, 22*(3), 1114-1121. doi:10.1016/j.concog.2013.04.008

Sprehn, K., Okudan Kremer, G., & Riley, D. (2013). Information format and cognitve style: The impact of paired styles on performance and preference. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting. 57*, pp. 1129-1133. State College: Pennsylvania State University. doi:10.1177/1541931213571252

Srivastava, S. (2013). Job satisfaction and organizaitonal commitment relationship: Effect of personality variables. *Vision, 17*(2), 159-167. doi:10.1177/0972262912483529

Stark, T., & Flache, A. (2012). The double edge of common interest: Ethnic segregation as an unintended byproduct of opinion homophily. *Sociology of Education, 85*(2), 179-199. doi:10.1177/0038040711427314

Stazyk, E., Pandey, S., & Wright, B. (2011). Understanding affective organizational commitment: The importance of institutional context. *The American Review of Public Administration, 41*(6), 603-624. doi:10.1177/0275074011398119

Stephan, E., Liberman, N., & Trope, Y. (2011). The effects of time perspective and level of construal on social distance. *Journal of Experimental Social Psychology, 47*(2), 397-402. doi:10.1016/j.jesp.2010.11.001

Sternberg, R. (2014). Introduction: Adopted at last. *Psychological Science in the Public Interest, 15*(1), 1-2. doi:10.1177/1529100614527727

Stout, M. (2014). The many faces of unity. *Public Administration Quarterly, 38*(2), 273-281.

Streeck, J. (2015). Embodiment in human communication. *Annual Review of Anthropology, 44,* 419-438. doi:10.1146/annurev-anthro-102214-014045

Streukens, S., & Andreassen, T. (2013). Customer preferences for frontline employee traits: Homophily and heterophily effects. *Pscychology & Marketing, 30*(12), 1043-1052. doi:10.1002/mar.20665

Stueber, K. (2012). Varieties of empathy, neuroscience and the narrativist challenge to the contemporary theory of mind debate. *Emotion Review, 4*(1), 55-63. doi:10.1177/1754073911421380

Sturt, J., Ali, S., Robertson, W., Metcalfe, D., Grove, A., Bourne, C., & Bridle, C. (2012). Neurolinguistic programming: A systematic review of the effects on health outcomes. *The British Journal of General Practice, 62*(604), e757-e764. doi:10.3399/bjgp12X658287

Syrek, C., Apostel, E., & Antoni, C. (2013). Stress in highly demanding IT jobs: Transformational leadership moderates the impact of time pressure on exhaustion and work-life balance. *American Psychological Association, 18*(3), 252-261. doi:10.1037/a0033085

Tacon, R. (2016). The organizational embeddedness of social capital: A comparative case study of two voluntary organizations. *Journal of Economic Issues, 50*(1), 23-42. doi:10.1080/00213624.2016.1147298

Talley, L., & Temple, S. (2015). How leaders influence followers through the use of nonverbal communication. *Leadership & Organization Development Journal, 36*(1), 69-80. doi:10.1108/LODJ-07-2013-0107

Tamuri, K., & Mihkla, M. (2012). Emotions and speech temporal structure. *Linguitica Uralica, 48*(3), 209-217. doi:10.3176/lu.2012.3.07

Tantardini, M., & Kroll, A. (2016). The role of organizational social capital in performance management. *Public Performance & Management Review, 39*(1), 83-99. doi:10.1080/15309576.2016.1071163

Tasselli, S. (2014). Social networks of professionals in health care organizations: A review. *Medical Care Research and Review, 71*(6), 619-660. doi:10.1177/1077558714557079

Tasselli, S., Kilduff, M., & Menges, J. (2015). The microfoundations of organizational social networks: A review and an agenda for future research. *Journal of Management, 41*(5), 1361-1387. doi:10.1177/0149206315573996

Thompson, J., Courtney, L., & Dickson, D. (2002). The effect of neurolinguistic programming on organisational and individual performance: A case study. *Journal of European Industrial Training, 26*(6), 292-298. doi:10.1108/03090590210431265

Thornton, P., & Ocasio, W. (1999). Institutional logics and the historical contingency of power in organizations: Executive sucession in the higher education publishing industry, 1958-1990. *American Journal of Sociology, 105*(3), 801-844. Retrieved from http://www.journals.uchicago.edu/

Tickle-Degnen, L., & Rosenthal, R. (1990). The nature of rapport and its nonverbal correlates. *Psychological Inquiry, 1*(4), 285-294. Retrieved from http://www.erlbaum.com/Journals/journals/PI/pi.htm

Tight, D. (2010). Perceptual learning style matching and L2 vocabulary acquisition. *Language Learning: A Journal of Research in Language Studies, 60*(4), 792-833. doi:10.1111/j.1467-9922.2010.00572.x

Tihanyi, L., Graffin, S., & George, G. (2014). Rethinking governance in management research. *Academy of Management Journal, 57*(6), 1535-1543. doi:10.5465/amj.2014.4006

Tittenbrun, J. (2014). Social capital: Neither social, nor capital. *Social Science Information, 53*(4), 453-461. doi:10.1177/0539018414532318

Toledo, D., Manzano, G., Barela, J., & Kohn, A. (2016). Cortical correlates of response time slowing in older adults: ERP and ERD/ERS analyses during passive ankle movement. *Clinical Neurophysiology, 127*(1), 655-663. doi:10.1016/j.clinph.2015.05.003

Toma, C., & D'Angelo, J. (2015). Tell-tale words: Linguistic cues used to infer the expertise of online medical advice. *Journal of Language and Social Psychology, 34*(1), 25-45. doi:10.1177/0261927X14554484

Tonello, M. (2013). Companies looking outside for CEOs. *Financial Executive, 29*(5), 10-10. Retrieved from http://www.financialexecutivemag.com

Trahms, C. A., Ndofor, H. A., & Sirmon, D. G. (2013). Organizational decline and turnaround: A review and agenda for future research. *Journalo of Management, 39*(5), 1277-1307. doi:10.1177/0149206312471390

Trapido, D. (2013). Counterbalances to economic homophily: Microlevel mechanisms in a historical setting. *American Journal of Sociology, 119*(2), 444-485. Retrieved from http://www.press.uchicago.edu/ucp/journals/journal/ajs.html

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*(2), 440-463. doi:10.1037/a0018963

Tschacher, W., & Ramseyer, F. (2014). The 'social present' in interacting dyads. *International Conference on Timing and Time Perception. 126*, p. 106. Corfu, Greece: Procedia - Social and Behavioral Sciences. doi:10.1016/j.sbspro.2014.02.330

Tschacher, W., Rees, G., & Ramseyer, F. (2014). Nonverbal synchrony and affect in dyadic interactions. *fronties in Psychology, 5*, 1-13. doi:10.3389/fpsyg.2014.01323

Tversky, B. (2011). Spatial thought, social thought. In G. Kristiansen, & F. Ruiz de Mendoza Ibañez, *Applications of Cognitive Linguistics* (18th ed., Vol. 18, pp. 17-38). Berlin: De Gruyter Mouton.

Ünlü, A., & Dettweiler, U. (2015). Motivation internalization and simplex structure in self-determination theory. *Psychological Reports, 117*(3), 675-691. doi:10.2466/14.PR0.117c25z1

Unsworth, C., Baker, A., Taitz, C., Chan, S.-P., Pallant, J., Russell, K., & Odell, M. (2012). Development of a standardised occupational therapy: Driver off-road assessments battery to assess older and/or functionally impaired drivers. *Australian Occupational Therapy Journal, 59*(1), 23-36. doi:10.1111/j.1440-1630.2011.00979.x

Uskul, A., Paulmann, S., & Weick, M. (2016). Social power and recognition of emotional prosody: High power is associated with lower recognition accuracy than low power. *Emotion, 16*(1), 11-15. doi:10.1037/emo0000110

Vacharkulksemsuk, T., & Fredrickson, B. L. (2012). Strangers in sync: Achieving embodied rapport through shared movements. *Journal of Experimental Social Psychology, 48*(1), 399-402. doi:10.1016/j.jesp.2011.07.015

Valentine, D. (2011). Maintaining organization culture through leadership succession planning. *Franklin Business & Law, 2011*(4), 103-109. Retrieved from www.franklinpublishing.net

Vallano, J., & Compo, N. (2015). Rapport-building with cooperative witnesses and criminal suspects: A theoretical and empirical review. *Psychology, Public Policy, and Law, 21*(1), 85-99. doi:10.1037/law0000035

Van Bavel, J., & Reher, D. (2013). The baby boom and its causes: What we know and what we need to know. *Population & Development Review, 39*(2), 257-288. doi:10.1111/j.1728-4457.2013.00591.x

van der Werf, L., & Buckley, F. (2014). Getting to know you: A longitudinal examination of trust cues and trust development during socialization. *Journal of Management*, 1-29. doi:10.1177/0149206314543475

Van Maanen, J. (1978). People processing: Strategies of organizational socialization. *Organizational Dynamics, 7*(1), 18-36. Retrieved from http://www.elsevier.com/locate/orgdyn

van Oers, B. (2012). Meaninful cultural learning by imitative participation: The case of abstract thinking in primary school. *Human Development, 55*(3), 136-158. doi:10.1177/1948550612473783

van Tubergen, F. (2015). Ethnic boundaries in core discussion networks: A multilevel social network study of Turks and Moroccans in the Netherlands. *Journal of Ethnic and Migration Studies, 41*(1), 101-116. doi:0.1080/1369183X.2014.886955

Vandenberghe, C., Mignonac, K., & Manville, C. (2015). When normative commitment leads to lower well-being and performance. *Human Relations, 68*(5), 843-870. doi:10.1177/0018726714547060

Vasilaki, A. (2011). The relationship between transformational leadership and postacquisition performance. *International Studies of Management & Organization, 41*(3), 42-58. Retrieved from http://www.mesharpe.com/results1.asp?ACR=imo

Vázquez-Montilla, E., Reyes-Blanes, M., Hyun, E., & Brovelli, E. (2000). Practices for culturally responsive inveterviews and research with Hispanic families. *Multicultural Perspectives, 2*(3), 3-7. doi:10.1207/S15327892MCP0203_02

Venkataramani, V., Labianca, G., & Grosser, T. (2013). Positive and negative workplace relationships, social satisfaction, and organizational attachment. *Journal of Applied Psychology, 98*(6), 1028-1039. doi:10.1037/a0034090

Vigil, J., & Venner, K. (2012). Prejudicial behavior: More closely linked to homophilic peer preferences than to trait bigotry. *Behavioral and Brain Sciences, 35*(6), 448-449. doi:10.1017/S0140525X12001458

Viki, G., Abrams, D., & Winchester, L. (2013). Ingroup identification and evaluations of confessions from ingroup and outgroup members. *Social Psychology, 44*(4), 256-263. doi:10.1027/1864-9335/a000110

Virkkula-Räisänen, T. (2010). Linguistic repertoires and semiotic resources in interaction. *Journal of Business Communication, 47*(4), 505-531. doi:10.1177/0021943610377315

Waismel-Manor, R., Tziner, A., Berger, E., & Dikstein, E. (2010). Two of a kind? Leader-member exchange and organizational citizenship behaviors: The moderating role leader-member similarity. *Journal of Applied Social Psychology, 40*(1), 167-181. Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1559-1816

Walter, H. (2012). Social cognitive neuroscience of empathy: Concepts, circuits, and genes. *Emotion Review, 4*(1), 9-17. doi:10.1177/1754073911421379

Walther, E., Weil, R., & Düsing, J. (2011). The role of evaluative conditioning in attitude formation. *Current Directions in Psychological Science, 20*(3), 192-196. doi:10.1177/0963721411408771

Wang, J., & Wang, H. (2012). Place existing online business communication classes into the international context: Social presence from potential learners' perspectives. *Journal of Technical Writing & Communication, 42*(4), 431-451. Retrieved from http://www.baywood.com

Wang, S., Zhou, H., & Dong, B. (2016). Is being connected to leaders always beneficial? Instrumental interaction and the development of social capital within organisational networks. *Enterprise Information Systems*, 1-11. doi:10.1080/17517575.2016.1157212

Wang, Z.Z., & Zhu, J. (2014). Homophily versus preferential attachment: Evolutionary mechanisms of scientific collaboration networks. *International Journal of Modern Physics C, 25*(5), 1440014/1-1440014/8. doi:10.1142/S0129183114400142

Watkins, M. (2013). Avoiding onboarding and promotion traps. *Strategy & Leadership, 41*(6), 43-46. doi:10.1108/SL-07-2013-0052

Weaver, A. (2015). Is credit status a good signal of productivity? *ILR Review, 68*(4), 742-770. doi:10.1177/0019793915586382

Wells, J., & Aicher, T. (2011). Follow the leader: A relational demography, similarity attraction, and social identity theory of leadership approach of a team's performance. *Journal of Marketing Theory and Practice, 19*(4), 407-422. doi:10.2753/MTP1069-6679190404

Westbrook, T. (2015). New reflections on mirror neuron research, the Tower of Babel, and intercultural education. *Christian Higher Education, 14*(5), 322-337. doi:10.1080/15363759.2015.1079749

White, C., Campbell, K., & Kacmar, K. (2012). Development and validation of a measure of leader rapport management: The LRM scale. *Journal of Behavioral & Applied Management, 13*(2), 121-149. Retrieved from http://www.ibam.com

White, S. J., & Murphy Enright, S. (2013). Is there still a pharmacy leadership crisis? A seven-year follow-up assessment. *American Journal of Health-System Pharmacy, 70*(5), 443-447. doi:10.2146/ajhp120258

Williams Jr., W., Novicevic, M., & Ammeter, A. (2015). Rediscovering lost values: Exploring contextual and universal views of values within leaders. *Journal of Applied Management and Entrepreneurship, 20*(3), 75-91. doi:10.9774/GLEAF.3709.2015.ju.00007

Williams, L. (2014). The distinct affective consequences of psychological distance and construal level. *Journal of Consumer Research, 40*(6), 1123. doi:10.1086/674212

Williams, L., & Bargh, J. (2008). Keeping one's distance: The influence of spatial distance cues on affect and evaluation. *Psychological Science, 19*(3), 302-308. doi:10.1111/j.1467-9280.2008.02084.x

Williams, M. H. (2012). Physical webbing: Collaborative kinesthetic three-dimensional Mind Maps. *Active Learning in Higher Education, 13*(1), 35-46. doi:10.1177/1469787411429185

Wiltermuth, S. (2012). Synchrony and destructive obedience. *Social Influence, 7*(2), 78-89. doi:10.1080/15534510.2012.658653

Winkelmann-Gleed, A. (2011). Demographic change and implications for workforce ageing in Europe. *Contemporary Readings in Law & Social Justice, 3*(1), 62-81. doi:http://www.addletonacademicpublishers.com/

Wiseman, R., Watt, C., Brinke, L., Porter, S., Couper, S.-L., & Rankin, C. (2012). The eyes don't have it: Lie detection and Neuro-linguistic programming. *PLoS ONE, 7*(7), 1-5. doi:10.1371/journal.pone.0040259

Won, A., Bailenson, J., Stathatos, S., & Wenqing, D. (2014). Automatically detected nonverbal behavior predicts creativity in collaborating dyads. *Journal of Nonverbal Behavior, 38*(3), 389-408. doi:10.1007/s10919-014-0186-0

Wood, D., & Furr, R. (2016). The correlates of similarity estimates are often misleadingly positive: The nature and scope of the problem, and some solutions. *Personality and Social Psychology Review, 20*(2), 79-99. doi:10.1177/1088868315581119

Wood, J. (2006). NLP revisisted: Nonverbal communications and signals of trustworthiness. *Journal Of Personal Selling & Sales Management, 26*(2), 197-204. From http://mkt.cba.cmich.edu/jpssm/subscrip/subsform.htm

Wright, K. (2000). Perceptions of on-line support providers: An examination of perceived homophily, source credibility, communication and social support within on-line support groups. *Communication Quarterly, 48*(1), 44-59. Retrieved from http://associationdatabase.com/aws/ECA/pt/sp/p_Home_Page

Wright, K. (2012). Emotional support and perceived stress among college students using Facebook.com: An exploration of the relationship between source perceptions and emotional support. *Communication Research Reports, 29*(3), 175-184. doi:10.1080/08824096.2012.695957

Xiong, K., Lin, W., Li, J., & Wang, L. (2016). Employee trust in supervisors and affective commitment: The moderating role of authentic leadership. *Psychological Reports, 18*(3), 829-848. doi:10.1177/0033294116644370

Yang, K. C., Erives, R. A., & Kang, Y. (2015). The effects of candidate's ethnic source cue and party affiliation on hispanic voters' homophily perceptions and voting intent. *Journal of Creative Communications, 10*(2), 199-214. doi:10.1177/0973258615597409

Yap, J., & Harrigan, N. (2015). Why does everybody hate me? Balance, status, and homophily: The triumvirate of signed tie formation. *Social Networks, 40*, 103-122. doi:10.1016/j.socnet.2014.08.002

Yavaş, M., & Yücel, G. (2014). Impact of homophily on diffusion dynamics over social networks. *Social Science Computer Review, 32*(3), 354-372. doi:10.1177/0894439313512464

Yeganeh, H. (2011). A generic conceptualization of the cultural distance index. *Journal of Strategy and Management, 4*(4), 325-346. doi:dx.doi.org/10.1108/17554251111180990

Young, K., Lenné, M., Beanland, V., Salmon, P., & Stanton, N. (2015). Where do novice and experienced drivers direct their attention on approach to urban rail level

crossings? *Accident Analysis & Prevention, 77*, 1-11. doi:10.1016/j.aap.2015.01.017

Zacher, H., Rosing, K., Henning, T., & Frese, M. (2011). Establishing the next generation at work: Leader generativity as a moderator of the relationships between leader age, leader member exchange, and leadership success. *Psychology and Aging, 26*(1), 241-252. doi:10.1037/a0021429

Zahavi, D. (2012). Empathy and mirroring. *Phaenomenologica*(201), 217-254. doi:10.1007%2F978-94-007-2211-8_9

Zahavi, D., & Rochat, P. (2015). Empathy ≠ sharing: Perspectives from phenomenology and developmental psychology. *Consciousness and Cognition, 36*, 543-553. doi:10.1016/j.concog.2015.05.008

Zellers, M., & Ogden, R. (2014). Exploring interactional features with prosodic patterns. *Language and Speech, 57*(3), 285-309. doi:10.1177/0023830913504568

Zeng, Q., Tao, W., Lei, C., Dong, W., & Liu, M. (2015). Etiology and risk factors of posterior cirulation infarction compared with anterior circulation infarction. *Journal of Stroke and Cerebrovascular Diseases, 24*(7), 1614-1620. doi:10.1016/j.jstrokecerebrovasdis.2015.03.033

Zhang, Z., & Jia, M. (2010). Using social exchange theory to predict the effects of high-performance human resource practices on corporate entrepreneurship: Evidence from China. *Human Resource Management, 49*(4), 743-765. Retrieved from http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1099-050X

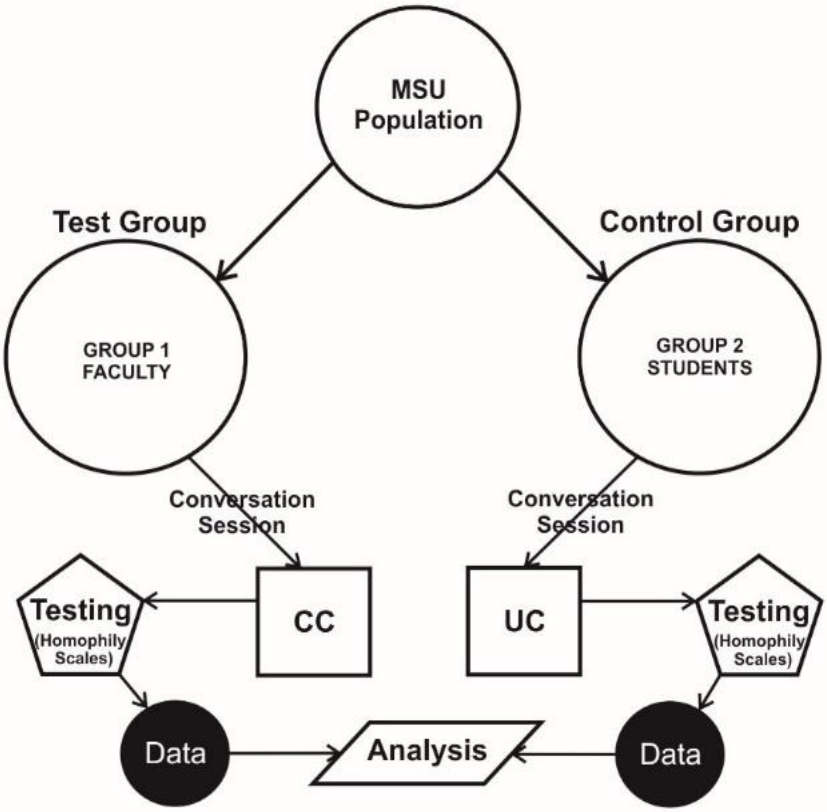
Zhao, M., & Xie, J. (2011). Effects of social and temporal distance on consumers' responses to peer recommendations. *Journal of Marketing Research, 48*(3), 486-496. doi:10.1509/jmkr.48.3.486

Zhong, J., Lam, W., & Chen, Z. (2011). Relationship between leader-member exchange and organizaitonal citizenship behaviors: Examining the moderating role of empowerment. *Asia Pacific Journal of Management, 28*(3), 609-626. doi:10.1007/s10490-009-9163-2

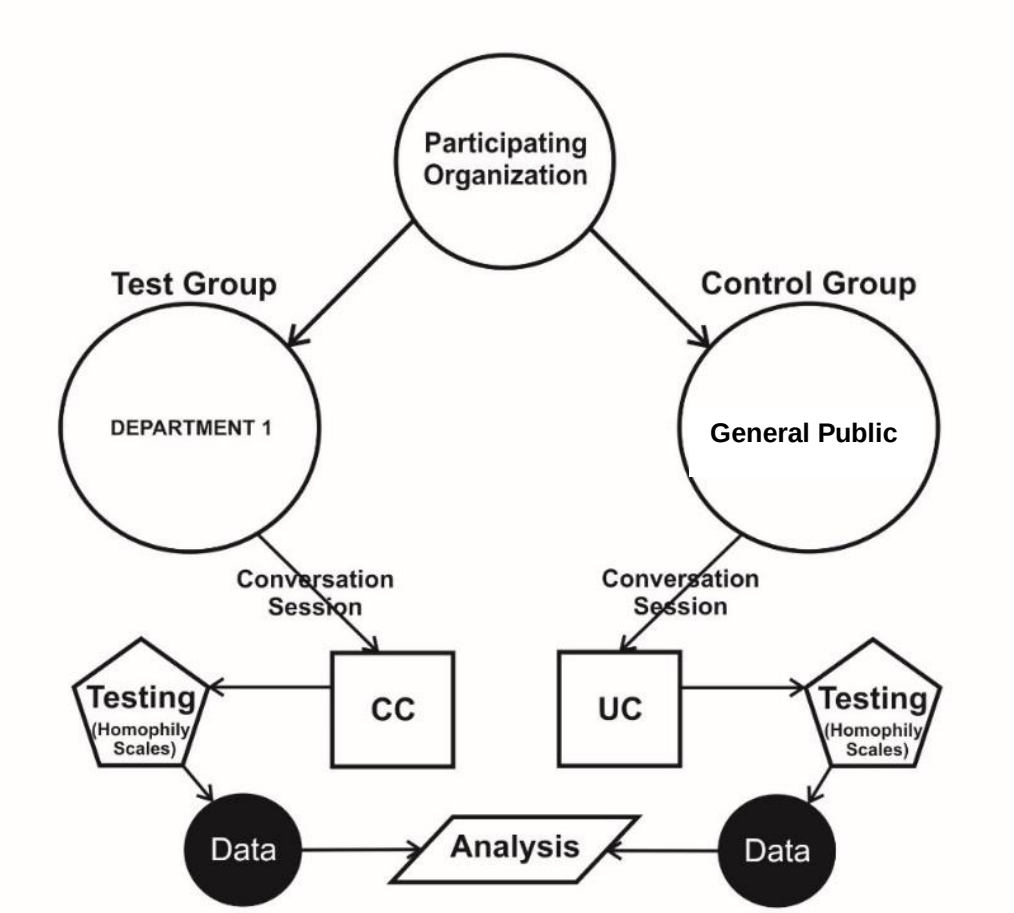
Zhou, M. (2011). Intensification of geo-cultural homophily in global trade: Evidence from the gravity model. *Social Science Research, 40*(1), 193-209. doi:10.1016/j.ssresearch.2010.07.002

Zhou, M. (2013). Substitution and stratification: The interplay between dyadic and systemic proximity in global trade, 1993-2005. *Sociological Quarterly, 54*(2), 302-334. doi:10.1111/tsq.12027

Appendix A: MWSU Flowchart



Appendix B: Main Study Flowchart



Appendix C: The Attitude Homophily Scale

Item	Strongly Disagree	Generally Disagree	Neutral	Generally Agree	Strongly Agree
This person thinks like me	☐	☐	☐	☐	☐
This person doesn't behave like me	☐	☐	☐	☐	☐
This person is different from me	☐	☐	☐	☐	☐
This person shares my values	☐	☐	☐	☐	☐
This person is like me	☐	☐	☐	☐	☐
This person treats people like I do	☐	☐	☐	☐	☐
This person doesn't think like me	☐	☐	☐	☐	☐
This person is similar to me	☐	☐	☐	☐	☐
This person doesn't share my values	☐	☐	☐	☐	☐
This person behaves like me	☐	☐	☐	☐	☐
This person is unlike me	☐	☐	☐	☐	☐
This person doesn't treat people like I do	☐	☐	☐	☐	☐
This person has thoughts and ideas that are similar to mine	☐	☐	☐	☐	☐
This person expresses attitudes different from mine	☐	☐	☐	☐	☐
This person has a lot in common with me	☐	☐	☐	☐	☐

Note. The attitude *homophily* scale was restructured from the original McCroskey, Richmond, & Daly (1975) to the current 15-item scale by McCroskey, McCroskey, and Richmond (2006). All assessments will be used in a Likert-type gradient to ascertain degrees of *homphilous* perceptions.

Appendix D: Participant Invitation Flyer

VOLUNTEERS NEEDED FOR RESEARCH STUDY ON LEADERSHIP COMMUNICATION

Seeking volunteers to participate in a leadership study on socialization. As a participant in this study, you would be asked to: engage in social conversation with a local leader and answer a few questions about the person with whom you conversed. The study will take approximately 15 minutes for you to complete. In appreciation of your time, you will receive a $10 Starbucks gift card.

If you are interested, please inquire here.
MWSU Student Center
Thank you!

This study has been reviewed and approved by the IRB at Walden University

Place: Moffett Library Group Study Room
Tentative Date: August 02, 2017

Contact: Manuel Almendarez – Researcher
(940)224-5303

Appendix E: Debriefing Statement

Thank you for participating in the leadership socialization study. The experiment required a measure of deception to conceal experimental communication processes. The deception was necessary to test a method of communication that may or may not help leaders or group members integrate into a new group.

The experiment was a test of an advanced method of communication called *matching* and *mirroring*.

The process involved matching your speech rate and mirroring your body positions. Matching and mirroring occurred naturally in people who were in a state of rapport. However, this study tested whether a person could consciously create more instances of matching and mirroring than natural tendencies while having a conversation.

Your body positions and speech rate were recorded using specialized sensors that detected 3D body positions and audio signals for processing. The questionnaire you filled out after your conversation session will help the researcher determine whether increased instances of synchronization affected your viewpoint regarding the other person's similarity to you.

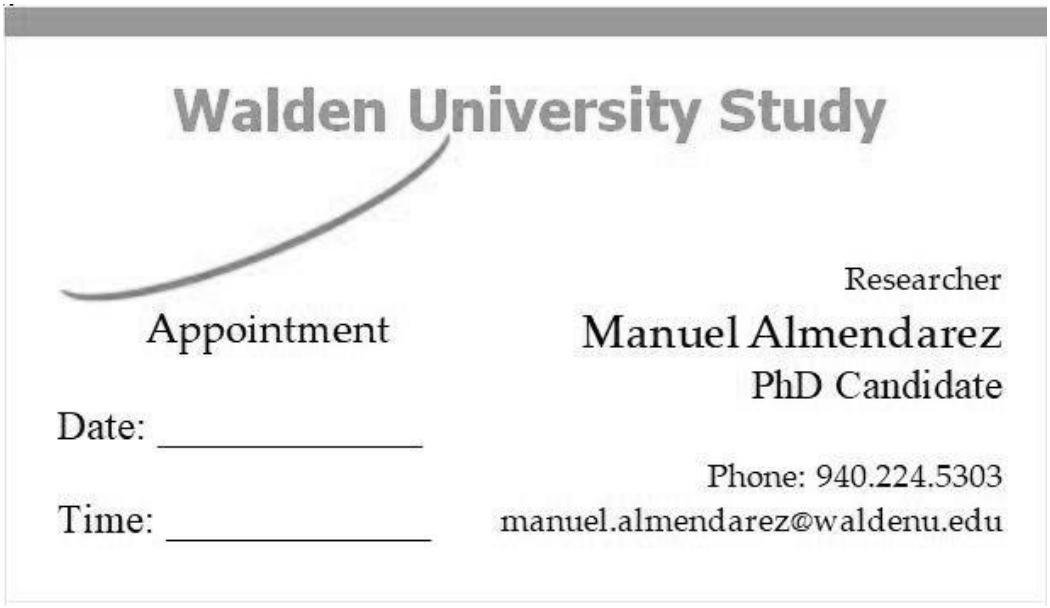
You may or may not have been talking with a candidate that applied the techniques during your session. Nevertheless, the processes were concealed from all test participants to avoid tainting the data.

The results of the study will be available to you at a future date to be determined after testing has been completed.

IMPORTANT: PLEASE DO NOT DISCUSS THIS DEBRIEFING STATEMENT AND ITS CONTENT TO **ANYONE** WHILE THE STUDY IS UNDERWAY

Thank you,
Manuel Almendarez, researcher

Appendix F: Appointment Card



Appendix G: Participant Invitation Flyer

VOLUNTEERS NEEDED FOR DOCTORAL STUDY ON LEADERSHIP COMMUNICATION

Seeking volunteers to participate in a leadership study on socialization for completion of a doctoral study. As a participant in this study, you would be asked to: engage in social conversation with a local leader and answer a few questions about the person with whom you conversed. The study will take approximately 15 minutes for you to complete. In appreciation of your time, you will receive a $10 Starbucks gift card.

If you are interested, please call or text.
Manuel Almendarez, Researcher
Phone: (940)224-5303
manuel.almendarez@waldenu.edu
Thank you!

This study has been reviewed and approved by the IRB at Walden University

Appendix H: Confidentiality Agreement

CONFIDENTIALITY AGREEMENT

Name of Signer:

During the course of my activity in collecting data for this research: "Testing Matching and Mirroring in Onboarding Socialization for Leadership Succession" I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature: **Date:**

Appendix I: Permission to use Improved Homophily Measure

Lynda McCroskey Oct 27

to me

Dear Manuel Almendarez:

We are happy to grant your request to use the requested scale(s) for your research purposes. Your project is very interesting! I hope you might include me on a final draft/conclusions. I wish you great success on this project!

best regards—

Dr.

*Please note that an improved measure and analyses procedures was published since the first scale iteration. I hope that you will examine the paper (L. McCroskey et al.,) and cite in your references section. best--LLM

Associate Professor of Communication Studies
California State University, Long Beach. USA

A/S 347 - office

Oct 27

Appendix J: Human Subjects Research Approval

Human Subjects In Research Committee

Institutional Review Board in Compliance with 45 CFR 46

MSU Policy 2.37

MEMORANDUM

TO: Manuel Almendarez

RE: Testing Matching and Mirroring in Onboarding Social Integration for Leadership Succession

DATE: July 5, 2017

Your proposal for exempt research utilizing human subjects has been reviewed and approved by the above named committee.

The number assigned this project is 17030202.

Please include this file number in any presentation or publication arising from this research. This approval is valid for one calendar year following granting of approval status. Your may request an extension by submitting a letter requesting such to the HSRC committee chair.

Respectfully,

Suzanne F. Lindt, Ph.D.
Chair, Human Subjects in Research Committee (IRB)

Appendix K: Letter of Cooperation

Workforce Solutions North Texas
Attn:

October 19, 2017

Dear Manuel Almendarez,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Testing Matching and Mirroring in Onboarding Social Integration for Leadership Succession at Workforce Solutions. As part of this study, I authorize you to consult with the director in organizing recruitment of participants by disseminating material for volunteer participation; schedule individual participants; record video and audio data of individual participants during the experiment, and; personally supervise the sessions. Additionally, you are authorized to collect the data for your study and to disseminate the results afterward by making the data available to all participants via the HR department. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: providing an office to conduct the experiment in complete privacy, and; two comfortable chairs. Our organization will not provide supervision of the testing environment. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

Director
Workforce Solutions North Texas

IRB Approval Granted, Conditional upon Partner Approval

IRB <irb@mail.waldenu.edu>

Thu 6/29/2017 1:59 PM

To:Manuel Almendarez <manuel.almendarez@waldenu.edu>;

Cc:IRB <irb@mail.waldenu.edu>; Richard S. Schuttler <richard.schuttler@mail.waldenu.edu>;

3 attachments (309 KB)

Toyota of Lawton Consent Form.pdf; UC Consent Form.pdf; MWSU Consent Form.pdf;

Dear Mr. Almendarez,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Testing Matching and Mirroring in Onboarding Social Integration for Leadership Succession," conditional upon the approval of the research partner, as documented in MWSU's letter of cooperation, which will need to be submitted to the Walden IRB when obtained. The researcher may not commence the study until the Walden IRB confirms receipt of that letter of cooperation.

Your approval # is 06-29-17-0164098. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Your IRB approval expires on June 28th, 2018. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Please note that this letter indicates that the IRB has approved your research. You may **NOT** begin the research phase of your doctoral study, however, until you have received official notification from the IRB to do so. Once you have received this notification by email, you may begin your data collection. Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application materials that have been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you a made commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.