LEADER DEVELOPMENTAL READINESS OF GENERATION Y IN THE TRAINING INDUSTRY

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Members of Generation Y in the training and development industry will be required to assume leadership roles as Baby Boomers retire, yet little empirical research exists regarding how best to prepare them for leadership. The purpose of this study was to examine differences in leader developmental readiness between generational cohorts in the training industry, specifically Baby Boomers, Generation X, and Generation Y. Leader developmental readiness provided a definition of developmental readiness for leaders using the five constructs (learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability). A volunteer sample was compiled from members of the ASTD National LinkedIN group (n = 636). Results were analyzed using structured means analysis with maximum likelihood (ML) estimation. Generational cohorts demonstrated differences in leader developmental readiness. Baby Boomers indicated statistically and practically higher metacognitive ability and developmental efficacy than Generation Y. Results demonstrated statistically and practically higher leader complexity in Generation Y and both Generation X and Baby Boomers. These results should inform leader development practitioners as they continue to use existing methods in preparing the different generations for leader development interventions while pointing to possible needs to increase the metacognitive ability and developmental efficacy in Generation Y and ensure accurate perception of leader complexity in those individuals. Further research would be helpful to confirm or refute findings and expand on the target population for enhanced generalizability.

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CHAPTER 1

INTRODUCTION

Members of Generation Y in the training and development industry will be required to assume leadership roles as Baby Boomers rapidly retire, yet little empirical research exists regarding how best to prepare them for leadership. The purpose of this study was to examine differences in leader developmental readiness among generational cohorts, specifically Baby Boomers, Generation X, and Generation Y. This section includes the background, need, theoretical framework, and purpose for this study. Limitations and delimitations of the study are also identified within this chapter.

Background

A leadership crisis is looming in the American workforce as Baby Boomer retirements leave a critical leadership void (D'Amato & Herzfeldt, 2008). Research has primarily focused on planning for and addressing this expected gap by predicting open positions, identifying and selecting replacements, and preparing replacements through training and development activities (Mensch & Dingman, 2010). Savvy American organizations have acknowledged this challenge and begun implementing these practical solutions, chiefly with younger Baby Boomers and Generation X (Fulmer & Conger, 2004).

Unfortunately, most preparation activities are currently aimed at solutions to the flight of the Baby Boomers, the group born between 1946 and 1964, and few activities are taking place to design and implement solutions for leadership roles that will be left open at lower levels (Carman, Leland, & Wilson, 2010; Eisner, 2005). Formal leadership provided by lower and mid-level management can be influential in an organization, which emphasizes the necessity to

place the right people in these roles (Mensch & Dingman, 2010). The simultaneous need to fill leadership roles in all organizational levels has the potential to cause significant disruption to the productivity and longevity of American organizations, particularly considering that little has been done to prepare Generation Y, the group born between 1980 and 2000, for leader development (Amagoh, 2009; Eisner, 2005).

Although there are many solutions to this challenge, one of the most applicable is to identify and develop suitable replacements (Fulmer & Conger, 2004). The most likely candidates to fill low and mid-level management positions currently filled by Generation X, the group born between 1965 and 1979, will be Generation Y employees. Relatively new to the workforce, this cohort has captured wide attention from human resource and management researchers for its potential impact on the workplace, both current and future (Eisner, 2005; Gursoy, Maier, & Chi, 2008).

More than any other generation, those people who makeup Generation Y have changed and will continue to change the way Americans approach their work. With the eldest of Generation Y turning 30, only a small percentage have entered into influential leadership roles, and their preparedness and impact are not yet fully known. Considering the impact that Generation Y has had on the general workforce it is reasonable to believe that they will have a similar effect as leaders on a broader scale. Gentry, Griggs, Deal, and Mondore (2009) suggest that understanding deficiencies of the Generation Y cohort related to leader developmental readiness will be helpful in preparing the next generation of leaders before the massive need arises, similar to the efforts underway to prepare for Baby Boomer retirements and the associated gap in organizational leadership (D'Amato & Herzfeldt, 2008). For the purposes of this study, *generation* refers to a group of people who were born within the same time span and therefore

share similar life experiences during similar developmental periods in life (Eisner, 2005).

Need for the Study

Leadership assessment and development are well-evolved functions (Riggio, 2008). Nevertheless, historically the emphasis has been on instrumentation and interventions designed for those with more advanced careers and, subsequently, those in the Baby Boomer and Generation X cohorts. Less effort has been made to determine whether current, prominent leadership development strategies will be effective in preparing Generation Y for formal or informal leadership roles (D'Amato & Herzfeldt, 2008). It is essential to understand how Generation Y compares to older generations in factors that could impact the success of leader development efforts, particularly in light of the identified need to develop formal leadership capacity in this generation and the extensive literature related to developing similar capacities in older generations. The expectation is that with further understanding existing tools can be used to develop Generation Y when appropriate, and future empirical research could focus on identifying techniques required to meet needs specific to Generation Y (Gentry et al., 2009).

Current literature lacks sufficient information regarding the challenges Generation Y will face in leadership development. This makes it difficult to prepare Generation Y in time to fill roles vacated as Baby Boomers retire. Although Baby Boomer retirements are believed to have been delayed due to recent economic conditions (Feldman & Vogel, 2009), it is evident that their departure is only postponed; approximately 77 million Baby Boomer retirements are expected by 2020 (Su, 2007). Furthermore, when financial markets become more favorable those who had suspended retirement over the past few years will likely attempt to take leave as quickly as possible, leading to a more rapid exodus than the graduated departure that otherwise would have

occurred. The current employment atmosphere has provided an opportunity to study the readiness of Generation Y and create targeted development programs to maximize the chance of success and minimize the coming leadership burden on organizations (D'Amato & Herzfeldt, 2008). This study was designed to fill the gap in the literature regarding the leader developmental readiness of Generation Y as compared to other generational cohorts. Such knowledge should allow talent management groups to create targeted leadership development programs for Generation Y, thus helping avert the coming leadership shortage.

Theoretical Framework

The framework of this study was provided by Avolio and Hannah's (2008) theory of leader developmental readiness, a component of their model for accelerated leader development. Central to the theory is the idea that leadership development activities are not effective for all who participate, and therefore, if the ability to identify those ready to be developed exists, the intervention will have a higher probability of success. As represented in Figure 1, the developmental readiness of the leader influences the ability of the organization to be ready for leadership growth on the organizational level. When organizational readiness is paired with targeted developmental activities, the result is positive accelerated leader development (Avolio & Hannah, 2008, p. 332). This result is emphasized in the model as both the desired outcome and the instigator of further leader development, following the idea that leader development is cyclical and high-quality leaders will continue to develop naturally when provided the appropriate environment. In other words, leader development is most successful when leaders are ready to be developed, the organization embodies a climate of developmental readiness, and appropriate developmental interventions are applied.

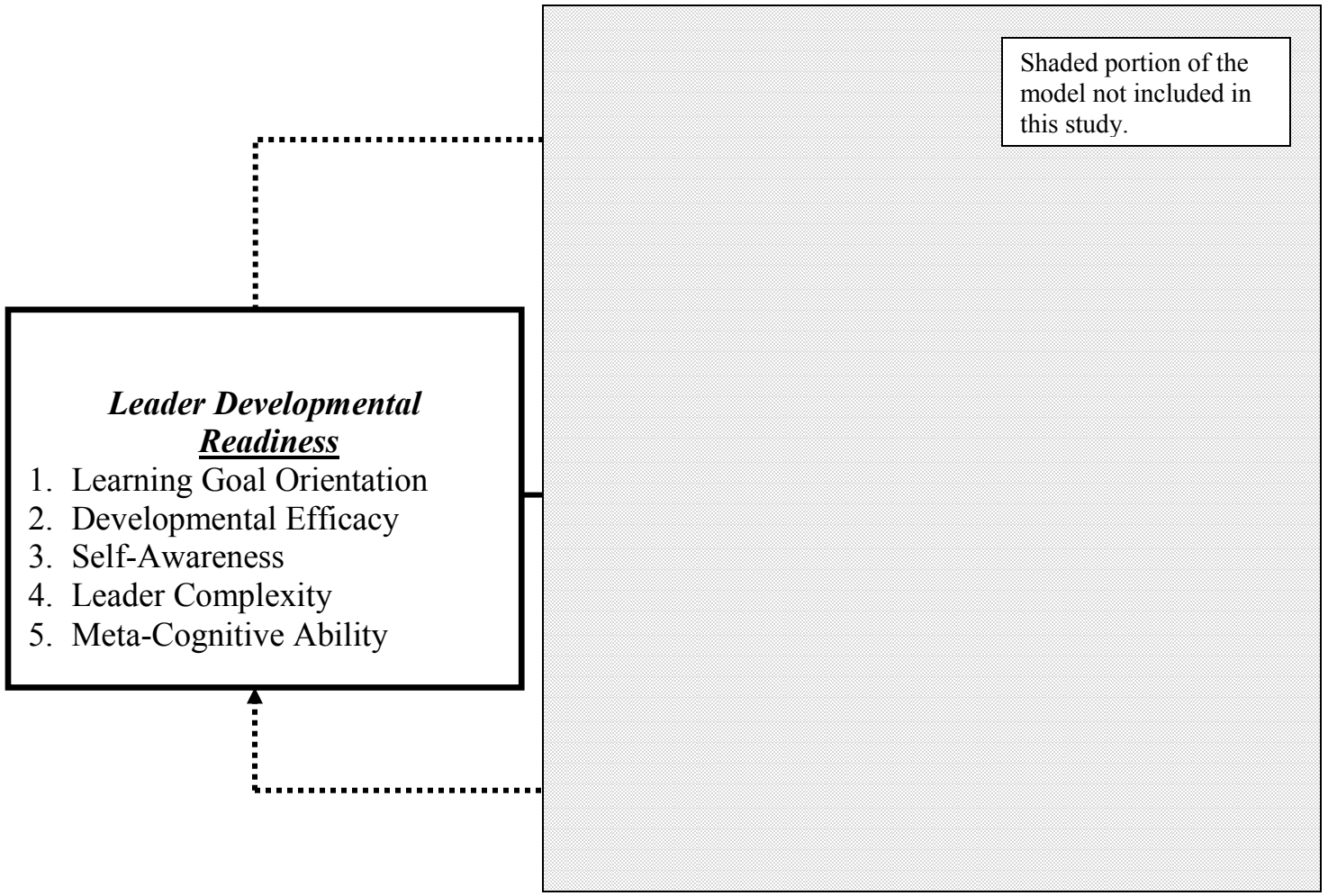

Figure 1. Avolio and Hannah's (2008) model of accelerated leader development. Adapted from Avolio and Hannah (2008, p. 334).

Leader development is rarely successful when leaders are not ready for development. If the goal is to achieve success in leader development, it is important to focus on measuring leader developmental readiness before selecting these who will participate in development activities. An effort must also be madeto account for organizational culture when selecting developmental activities for ready candidates in order to maximize potential effectiveness.

Leader Developmental Readiness

As noted in Figure 1, the focus of this study was limited to Avolio and Hannah's (2008) concept of leader developmental awareness and did not consider organizational developmental readiness climate, developmental trigger events, or positive accelerated leader development. Figure 2 depicts the hypothesized model evaluated in this study and as such provides a more detailed representation of the leader developmental awareness component of the model in Figure 1. Leader developmental readiness, as defined by Avolio and Hannah, is an individual's "positive ability, orientation, and openness to develop", composed of five constructs, including learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability. This concept is not uniquely applied to leadership; it has also been used with success in educational and clinical situations due to its practical and theory-grounded nature (e.g., Plake, Impara, & Spies, 2003; Ronen, 2003).

Per the definition above, Avolio and Hannah (2008) identified five constructs to characterize developmental readiness, including learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability.

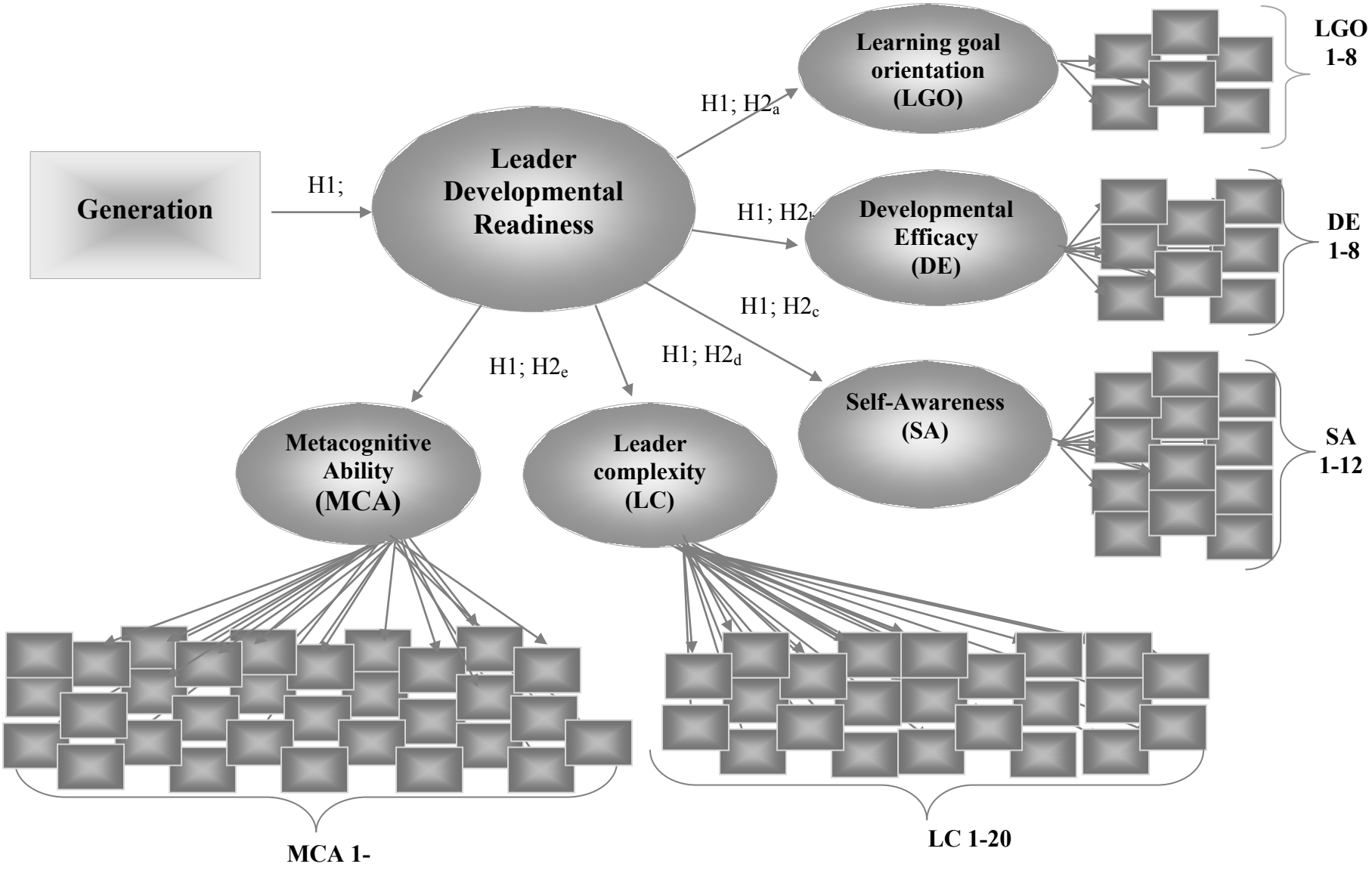

Figure 2. Structured means model with six latent variables and 80 observed variables.

- Learning goal orientation. Learning goal orientation is the demonstrated preference for performing tasks with the primary focus of improving one's understanding or knowledge (Button, Mathieu, & Zajac, 1996).Individuals with high learning goal orientations are more likely to demonstrate high motivation to learn and therefore are presumed to be more ready for leader development than those without such high motivation (Avolio & Hannah, 2008; Colquitt & Simmering, 1998).

- Developmental efficacy. Developmental efficacy, an extension of Bandura's (1986) theory of self-efficacy, is an individual's belief in personal ability to meet the demands required to develop successfully into a leader role (Avolio & Hannah, 2008; McCormick, Tanguma, & Lopez-Forment, 2002). Individuals with confidence in their individual abilities to learn the tasks and competencies necessary to effectively develop into leaders demonstrate high developmental efficacy and presumably would be more ready for leader development (Chemers, Watson, & May, 2000).

- Self-awareness. Self-awareness in Avolio and Hannah's (2008) model refers to the clarity, consistency, and stability of beliefs people have about themselves. They propose that self-awareness has a positive correlation with developmental readiness, suggesting that individuals with more clear, stable, and consistent perceptions of their personal capabilities and self-identities are more likely to be ready for leader development.

- Leader complexity. Leader complexity refers to the content and structure of the roles and attributes an individual holds or has held in the past (Avolio & Hannah, 2008). The more attributes and roles people associate with their individual identities, the more they demonstrate leader complexity, and correspondingly the more they believe that they are ready for

development (Hannah, Woolfolk, & Lord, 2009). Hannah et al. (2009) provide a sample model for leader complexity for instructional purposes.

- Metacognitive ability. Metacognitive ability describes the proficiency to think about, comprehend, and control learning (Schraw & Dennison, 1994). Avolio and Hannah (2008) indicate a positive correlation between metacognitive ability and leader developmental readiness.
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Generational Differences

Avolio and Hannah's (2008) model does not specifically address generational differences in leader developmental readiness. Nevertheless, understanding generational differences helps to clarify expectations about each cohort's readiness level for leader development. Baby Boomers were expected to have the highest developmental readiness due to their self-confidence, willingness to work hard, and tenure, which would lead to higher scores on the developmental efficacy, self-awareness, and leader complexity scales (Eisner, 2005). Lower scores were expected from Baby Boomers on measures of learning goal orientation and metacognitive ability. After working for several decades, Baby Boomers believe they have paid their dues by climbing the corporate ladder and are looking forward to the retirement they earned; therefore, they may not have a high learning goal orientation (Eisner, 2005). Generation Y was expected to have moderate-to-high levels of developmental readiness, with higher scores on learning goal orientation, developmental efficacy, and metacognitive ability because of their tendency to be highly resourceful, educated, and interested in continuous learning and improvement (Eisner, 2005; Gursoy et al., 2008). Generation Y was expected to have lower scores on self-awareness and leader complexity primarily due to their stage in life and minimal experience in the workplace. Generation X was anticipated to be the cohort least ready for leader development.

Although they are intelligent and more educated than the previous generation, likely leading to higher metacognitive ability scores, they are less likely to produce high scores on the remaining subcomponents of readiness due to their preference to work in isolation, a tendency to avoid group or teamwork, and lack of trust in organizations (Davis, Pawlowski, & Houston, 2006; Gursoy et al., 2008).

Purpose of the Study

This study was designed to fill the literature gap regarding generational differences in leader developmental readiness using Avolio and Hannah's (2008) model. The purpose was to examine group differences on a latent construct, with the population divided among three groups by generational cohort (Generation Y, Generation X, Baby Boomer), and the latent construct was leader developmental readiness (LDR) as measured by five observed variables, which represented the five constructs Avolio and Hannah identified as the building blocks of leader developmental readiness. In this study, each observed variable was measured by a set of items compiled from five separate instruments designed externally to measure constructs similar to the observed variables in this study. Specifically, this study aimed to answer the following questions:

1. Is there a statistically and practically significant difference between members of Generation Y, Generation X, and the Baby Boomer generation on leader developmental readiness as measured by a composite score derived from scores on five item sets corresponding to learning goal orientation (LGO), developmental efficacy (DE), self-awareness (SA), leader complexity (LC), and metacognitive ability (MCA)?

    H1: There are statistically and practically significant differences among generations on leader developmental readiness. Specifically, Baby Boomers is more ready for leader development than Generation Y, which is more ready for leader development than Generation X.

H_01: There is no statistically or practically significant relationship among members of Generation Y, Generation X, and the Baby Boomer generation on leader developmental readiness as measured by a composite score derived from scores on five item sets corresponding to LGO, DE, SA, LC, and MCA.

2. Is there a statistically and practically significant difference between members of Generation Y, Generation X, and the Baby Boomer generation on any of the latent variables that are attributed to leader developmental readiness? Specifically, do members of Generation Y, Generation X, and the Baby Boomer generation demonstrate a statistically and practically significant difference on:

   a. Learning goal orientation (LGO) as measured by responses on the LGO section of the study instrument?

      H2a: There are statistically and practically significant differences among generations on learning goal orientation so that Generation Y has more learning goal orientation than Baby Boomers, which has more learning goal orientation than Generation X.

      H_02a: There are no statistically or practically significant differences between members of Generation Y, Generation X, and Baby Boomer generations on learning goal orientation (LGO) as measured by responses on the LGO section of the study instrument.

   b. Developmental efficacy (DE) as measured by responses on the DE section of the study instrument?

      H2b: There are statistically and practically significant differences among generations on developmental efficacy so that Generation Y is more developmentally efficacious than Baby Boomers, who are more developmentally efficacious than Generation X.

      H_02b: There are no statistically or practically significant differences among members of Generation Y, Generation X, and Baby Boomer generations on developmental efficacy (DE) as measured by responses on the DE section of the study instrument.

   c. Self-awareness (SA) as measured by responses on the SA section of the study instrument?

      H2c: There are statistically and practically significant differences among generations on self-awareness so that Baby Boomers are more self-aware than Generation Y, which is more self-aware than Generation X.

      H_02c: There are no statistically or practically significant differences among members of Generation Y, Generation X, and Baby Boomer generations on self-awareness (SA) as measured by responses on the SA section of the study instrument.

d. Leader complexity (LC) as measured by responses on Section 4 of the study instrument?

   H2d: There are statistically and practically significant differences among generations on leader complexity so that Baby Boomers are more complex leaders than Generation Y, which is more complex than Generation X.

   $H_0$2d: There are no statistically or practically significant differences between members of Generation Y, Generation X, and Baby Boomer generations on leader complexity (LC) as measured by responses on the LC section of the study instrument.

e. Metacognitive ability (MCA) as measured by responses on the MCA section of the study instrument?

   H2e: There are statistically and practically significant differences among generations on metacognitive ability so that Generation Y has higher metacognitive ability than Generation X, which has higher metacognitive ability than Baby Boomers.

   $H_0$2e: There are no statistically or practically significant differences among members of Generation Y, Generation X, and Baby Boomer generations on metacognitive ability (MCA) as measured by responses on the MCA section of the study instrument.

Limitations

1. Generational cohort size in the American workforce may not be represented with precision in the ASTD membership. This was not addressed in this study, and therefore the relationship is unknown.

2. The design does not take into account geographic location other than restricting the sample to United States residents. It is possible that geographic differences acted as a confounding variable to generational cohort.

3. Data collection involves self-reported measures from a volunteer sample without corroboration from multiple raters or observations and therefore increases risk of response bias.

4. Samples larger by group than those obtained in this study are warranted for sufficient power using the analytical techniques in this study.

5. The instrumentation used in this study is derived from five published instruments designed to evaluate the constructs relevant to this study. One instrument in particular was significantly modified and therefore is assumed to be a new instrument that should have robust validation that was outside the scope of this study.

Delimitations

1. Participants were limited to members of the National ASTD LinkedIn group. Nonmembers did not have the opportunity to participate.

2. Participants were limited to ASTD members self-reported as residents of the United States who are employed in the training industry.

3. Leader developmental readiness was operationally defined as the score produced in a combination of subscales chosen to represent each of the five constructs modeled by Avolio and Hannah (2008) to represent leader developmental readiness.

Chapter 2 presents a review of literature relevant to this study.

CHAPTER 2

LITERATURE REVIEW

A number of refereed journals and other sources of relevant literature were used to gather information in this review. The intent was to identify factors contributing to leader developmental readiness along with any differences observed or expected among Baby Boomer, Generation X, and Generation Y employees. Literature provided insight into generational differences and developmental readiness that can help in achieving the goal of this research. This review acts as preparatory information to aid the reader's process and attempts to inform the findings of this study. It is not intended to provide a comprehensive understanding of generational differences or general leadership theories.

This chapter is divided into two main sections. First, a discussion is provided regarding generational differences, with an emphasis on information pertaining to leadership. Second, a discussion of research available on the topic of leader developmental readiness is presented, with an emphasis on studies relevant to generational differences.

Generational Differences

The generations remaining in the workforce, and of most recent concern in the literature, are Baby Boomers, Generation X, and Generation Y, although it is important to remember that due to the fast-paced life brought on by globalization, current generational span identifications may be too broad to characterize any one group (Davis et al., 2006). There are about 80 million people in the Baby Boomer generation, defined as those born between 1945 and 1964, equating to 45-55 % of the working population (Eisner, 2005; Hall & Richter, 1990). Baby Boomers are willing to sacrifice for their career, believe in paying their dues, and work extended hours since

they see this as a tie to success (Gursoy et al., 2008). This has earned them the alternative label "Workaholic Generation" (Hall & Richter, 1990, p. 8). They believe they can achieve whatever they want by working long hours and being loyal and ruthless (Eisner, 2005). Baby Boomers have a strong sense of self-awareness and tend to be optimistic and confident, striving to use their potential to achieve self-actualization (Eisner, 2005; Hall & Richter, 1990). They value free expression and social reform (Eisner, 2005). After working for several decades, the Baby Boomers believe they have paid their dues climbing the corporate ladder and are looking forward to the retirement they have earned, which has been postponed due to the current U.S. economy (Eisner, 2005).

Generation X, those succeeding Baby Boomers, has received a large amount of attention by researchers in a variety of fields. Born between 1965-1980, this generation includes 46 million people, comprising 30 % of the workforce (Eisner, 2005; Jeffries & Hunte, 2004). Nicknamed "X'ers," "Gen X'ers," or "The MTV generation," Generation X and Baby Boomers are more alike than different (Eisner, 2005; Jurkiewicz, 2000). Key differences are that Generation X does not focus on obtaining or building long-term careers at the same company, nor do they offer respect to leaders based purely on positional title (Eisner, 2005; Jurkiewicz, 2000). Employees in this generation expect to be promoted at a quick pace or they will look for a new position with a new company (Davis et al., 2006; Gursoy et al., 2008).

Generally, Generation X has fewer social skills but stronger technical skills than their parents (Eisner, 2005). They tend to be self-reliant, individualistic, and generally distrusting corporations, typically with a preference for work in isolation or at least with self-sufficiency (Gursoy et al., 2008; Eisner, 2005). The perception is that it is hard to make Generation X happy

because they tend to complain. They are self-reliant, impatient, and expect to be rewarded quickly for their accomplishments (Gursoy et al., 2008).

Less research is available on Generation Y, also called the Millennial Generation, due to its relative newness to the workforce (Jeffries & Hunte, 2004). Nevertheless, in recent years both researchers and practitioners have increased focus on this group and their impact on American society (Street, 2006). Born between 1980 and 2000, Generation Y numbers nearly 76 million and currently makes up 15 % of the workforce (Eisner, 2005). Loughlin and Barling (2001) found that, unlike their predecessors, Generation Y is aware that their employment status is not guaranteed, which along with a belief that employment is a means to an end, makes them more reluctant to make personal sacrifices for their jobs (Gursoy et al., 2008). Although Generation Y is less likely to compromise beliefs for financial gain, its members have high expectations for success and believe that hard work will produce beneficial results (Eisner, 2005). De Hauw and De Vos (2010) identified the considerable importance Generation Y places on organizational contribution to career development, further highlighting the need to focus on targeted applications in a poor economy.

Leader Developmental Readiness

Empirical research on leader developmental readiness differences based on generation is limited. Still, a review of the literature produced several studies regarding developmental readiness and its subscale components that helped lay a foundation for the research conducted in this study. This section provides summaries of that research.

Gentry et al. (2009) studied generational differences in preferences for learning and development at work. In investigating the developmental opportunities workers intended to take

advantage of, they found that younger workers are more likely than older workers to intend to participate in developmental opportunities in the future. Gentry et al. studied 771 librarians through an online survey regarding attitudes and beliefs about learning and development at work, preferred methods for hard and soft skill development, and the developmental opportunities in which workers intended to participate during the subsequent year. Participants in the study represented the Generation X (n = 203), Baby Boomer (n = 475), and older (n = 93) workers. It is important to note that Generation Y was not included in this study and, in fact, was not even mentioned in the content of the report. Using a one-way ANOVA design with generation and developmental initiatives as the dependent and independent variables, respectively, statistically significant differences were found among generations in intention to participate in leadership [F (3, 754) = 3.52, p = .015, η^2 = .01] and career planning [F (3, 756) = 13.76, p < .001, η^2 = .02] development opportunities (p. 64). Least significant differences post hoc analyses were used to investigate each statistically significant result. Generally, younger generations were more likely to intend to participate in these development opportunities than older generations. This conclusion was similarly supported by Gursoy et al., (2008), Hessen and Lewis (2001), and De Hauw and De Vos (2010).

D'Amato and Herzfeldt (2008) compared 1,666 Baby Boomer and Generation X managers, dividing each group into "early" and "late," excluding Generation Y. Participants in the UK were asked to complete a 20-minute survey regarding work attitudes and experiences, including organizational commitment, intention to stay, learning orientation, interest in training, values, and leadership attributes. In investigating learning goal orientation, they found a negative correlation between older generational cohorts and learning goal orientation so that those who were members of the older cohort (Baby Boomers) tended to have less learning goal

orientation than their younger peers (Generation X). The pattern was also found within groups, showing that younger and older Baby Boomers had different learning goal orientations. This observed pattern indicates that Generation Y will have a higher learning goal orientation than both Generation X and Baby Boomers. Interestingly, the design of the study investigated the relationship between developmental readiness and the intention to stay component of organizational commitment, finding that those who have a higher learning orientation are more likely to intend to stay in an organization. Practically, the authors suggested a generation-specific talent-retention approach.

Summary

This chapter is an overview of available literature describing research on leader developmental readiness, its subcomponents, and the relationship between generational differences and readiness levels for leader development. It also provided expanded information on generational differences, specifically those related to leader development, in order to provide an understanding of the differences and how they impact readiness. Chapter 3describes the methodological approach employed in this study.

CHAPTER 3

METHODOLOGY

The study examined differences in leader developmental readiness among generational cohorts including those in Generation Y, Generation X, and the Baby Boomer generation. Specifically, among currently employed members of the American Society of Training and Development (ASTD) was there a statistically and practically significant difference between generational cohorts (Generation Y, Generation X, Baby Boomer) on leader developmental readiness? Also, were there statistical and practical differences between generational cohorts on any of the leader developmental readiness constructs including learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability. This chapter presents the methodology used in conducting this study including research design, sampling, instrumentation, data collection, and data analysis procedures.

Research Design

This study answers the stated research questions using a correlational, group comparison research design. Survey data were used to gather information on participants' leader developmental readiness as determined by scores on item sets designed to measure learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability. Additionally, participants provided survey data to enable the researcher to separate them into groups by generation so that the relationship between generation and leader developmental readiness could be determined.

Challenges to experimental validity have been considered, and an attempt to control them has been made in this research design. Plausible threats to internal validity included nonresponse

bias, volunteer bias, and instrumentation bias (McMillan, 2004). Nonresponse and volunteer bias were possible in this study because data collection was through an Internet survey in which participants had the opportunity to avoid responding (Alreck & Settle, 1995). In order to control for these related threats to internal validity, the researcher attempted to maximize the response rate through data collection procedures including repeated contact attempts through reminder emails scheduled at effective time intervals. Furthermore, the assessment invitation and instructions were worded to compel the recipient to participate, as recommended by Alreck and Settle (1995). Knowing that not all volunteer and nonresponse bias can be avoided, data analysis included an evaluation of sample data to determine and report noteworthy bias, either nonresponse or volunteer, if found in collected data (McMillan, 2004). This study attempted to avoid bias by using instrumentation with demonstrated evidence of validity and score reliability in the literature (Popham, 2000).

Two threats to external validity were of primary concern. First, selecting participants solely from the U.S. ASTD membership population limits generalizability to the broader population of learning professionals. This was not considered a major challenge to external validity due to the popularity of ASTD membership among training professionals (ASTD, 2010). Nevertheless, this is noted as a delimitation of the study to be considered further. Second, with the volunteer nature of the sample, it was important to capture and evaluate sample characteristics to ensure that they matched the defined population. Along with previously discussed measures to control for volunteer/nonresponse bias, this was expected to reduce limitations on generalizability (Alreck & Settle, 1995; McMillan, 2004).

As presented in Figure 2, the hypothesized model previously described, this study analyzed 86 variables, including six latent variable and 80 observed variables. Generation is an

independent, exogenous, observed grouping variable designed to divide participants into three groups based on generational cohort as determined by birth year. Birth year was collected along with additional demographic information in the demographic section of the survey instrument used in this study. As described in Eisner (2005), the three most common generational cohorts in the workplace are Baby Boomers (1945 – 1964), Generation X (1965 – 1980), and Generation Y (1981 – 1999). Learning goal orientation (LGO), developmental efficacy (DE), self-awareness (SA), leader complexity (LC), and metacognitive ability (MCA) are each endogenous, latent variables that represent the five constructs of leader developmental readiness as described by Avolio and Hannah's (2008) model. Each latent variable was measured using a set of individual observed variables represented by items on the survey instrument. Leader developmental readiness is an endogenous latent variable measured by a composite score derived from scores on each of the endogenous, observed variables (LGO, DE, SA, LC, and MCA). Details about variable measurement including item set descriptions and source instruments are provided in the Instrumentation subsection.

Sampling

Of particular interest in this study were the differences in leader developmental readiness between generational cohorts in the training and development industry. With over 44,000 members, ASTD is the largest professional organization dedicated to learning and performance in the workplace (ASTD, 2010). Since 1943, ASTD has grown to represent members from more than 100 countries (ASTD, 2010). ASTD, with its tenure and influence as an organization, provides a membership that serves as a valuable source of data for this study.

As recommended by ASTD's department responsible for higher education and research, ASTD's official LinkedIN group (ASTD National) was used to gather participants. As of June 5, 2012, this group had 55, 281 members. Group membership is not an assurance of membership in the American Society of Training and Development. Nevertheless, membership on the LinkedIN group is voluntary and requires intentional selection; therefore, it is understood that those who elected to participate in the LinkedIN group are expressly interested in learning and development with a desire to be affiliated with the industry. Additionally, LinkedIN group membership is believed to parallel membership in ASTD.

Potential participants were informed of the study through discussion posts on the ASTD National LinkedIN group's Web page. Group members interested in participating were asked to click a link embedded in the discussion post to continue to the survey Web site and begin the survey. To increase the response rate, group members were emailed individually inviting participation in the study. Not all participants responded to the survey invitation in the allotted timeframe; therefore, a volunteer sample of participants was obtained.

Of the 55,281 potential participants, 640 responses were received for a response rate of 1.16%. Four responses were removed from the data set because they came from members of a generation not included in this study as indicated by reported birth year. The 636 remaining responses were submitted with 263 Baby Boomer, 214 Generation X, and 159 Generation Y participants. Although structural equation modeling and related analytical techniques such as those used in this study (confirmatory factor analysis, structured means modeling, etc.) are incredibly robust, they pose a significant challenge to researchers in that, due to sample size sensitivity, larger sample sizes are required than when other GLM-based statistical techniques are used (e.g., ANOVA) (Hooper, Coughlin, & Mullen, 2008). Various rules of thumb exist, as

do methods of calculating sample size to maximize estimated power, similar to power analysis calculation in ANOVA (Hooper et al., 2008). Recommended sample size for this study based on the number of estimated parameters, degrees of freedom, and desired power level ($\alpha = .05$) ranged from 200 – 1500 per group (Garver & Mentzer, 1999; Hoelter, 1983; Krejcie & Morgan, 1970; Preacher & Coffman, 2006; Schreiber, Nora, Stage, Barlow, & King, 2006). Because of the discrepancy between the size of the obtained sample for each group, especially Generation Y ($n = 159$) and the recommended sample size range ($200 <= n <= 1500$), caution is recommended in interpreting model-fit indices, which are known to be less powerful with smaller sample sizes (Hooper et al., 2008).

Instrumentation

Participants who qualified based on the criteria previously described were presented with a link to complete an electronic survey. The survey consisted of six sections representing each of the five leader developmental readiness constructs (learning goal orientation, developmental efficacy, self-efficacy, leader complexity, metacognitive ability) and demographic information. The first five sections were presented to the learner in random order, as managed by the online survey tool, in order to reduce common method bias. The demographic information section was always presented last. Table 1 provides a summary of the variables in this study, the item sets designed to measure each variable, and the source of the items in each item set.

Table 1

Instrument Description, Study Variables, Corresponding Item Sets, and Item Set Source(s)

		Item Count			Item Source		
Section	Variable	Original	Pilot	Final	Original	Pilot	Final
LGO	Learning goal orientation (Endogenous latent)	8	8	8	L1-L8	L1-L8	L1-L8
	Source: Goal Orientation Inventory (Button et al., 1996)						
DE	Developmental efficacy (Endogenous latent)	8	8	8	1-8	1-8	1-8
	Source: Leadership Efficacy Instrument (Kane and Baltes, 1998)						
SA	Self-awareness (Endogenous latent)	12	10	10	1-12	1-5, 7-10, 12	1-5, 7-10, 12
	Source: Self-Concept Clarity Measure (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 2008)						
LC	Leader complexity (Endogenous latent)	32	21	20	1-32	4, 7-9, 11-15, 17-21, 23-25, 27, 29-30	4, 7-9, 11-15, 17-19, 21, 23-25, 27, 29-30
	Source: Restricted Trait Sort Activity (Woolfolk, Gara, Allen, & Beaver, 2004)						
MCA	Metacognitive ability (Endogenous latent)	20	20	19	1-20	1-20	2-20
	Source: State Metacognitive Inventory (Abedi, 1996)						
DI	Generation (Exogenous observed) Self-Developed	1	1	1	*Self-Developed Instrument. Section includes 8 items; only one is used for this variable.*		
	Instrument Item Count Total	88	75	73			

Learning Goal Orientation (LGO)

The LGO section of the survey represented Avolio and Hannah's (2008) learning goal orientation construct. The Button et al. (1996) inventory is a self-rated instrument including18 questions, using a 7-point, Likert-type scale. In this study only the 8-question Learning Goal Scale was used; the remaining 10 items of the Performance Goal Scale were omitted because these items were designed to measure a construct not relevant to this study. Sample items include "The opportunity to do challenging work is important to me" and "I try hard to improve on my past performance." All items were scored positively using the same Likert-type scale proposed by the original authors. Low scores on each item indicated a low learning goal orientation, and high scores indicated a high learning goal orientation.

Validity. One objective of Button et al. (1996) in creating the Goal Orientation Inventory was to create a valid measure of learning goal orientation for use with adult populations. After developing the instrument they used it in four studies specifically designed to examine different aspects of validity with variant samples. CFAs were conducted to evaluate construct validity. In the first two studies each of the items loaded to the single factor (LGO) with factor weights above .41 and .21 respectively. Factor loadings for all items in the third and fourth study were above .42. Ultimately, Button et al. summarized the findings as providing high-quality evidence for construct and discriminant validity with the opportunity to expand validity evidence through future research.

Reliability. Button et al., (1996) used this instrument in four separate but related studies as part of the instrument development process. In each of these four studies, reported score reliabilities were adequate and produced coefficient alphas ranging from $\alpha = 0.79 - 0.85$ for the learning goal orientation scale.

Developmental Efficacy (DE)

The DE section measured developmental efficacy using Kane and Baltes's (1998) instrument as described by McCormick et al. (2002). This instrument is an 8-item survey using a 7-point Likert-type scale asking participants to indicate their ability to perform various leader roles. All items were scored positively using the same Likert-type scale proposed by McCormick et al. (2002). Low scores indicated low leader efficacy; high scores indicated high leader efficacy.

Validity. McCormick et al. (2002) provided evidence of construct validity with Kane and Baltes's (1998) instrument by evaluating the relationship between leadership self-efficacy and other leadership behaviors. In order to examine that relationship, McCormick et al. (2002) evaluated the relationship between self-efficacy and attempting to lead, an essential leadership behavior per Chemers et al. (2000). Leadership self-efficacy and attempting to lead were strongly, positively correlated ($r = .60$; $p < .01$; $n = 223$). They also found through a two-group one-way ANOVA that those who have high self-efficacy attempt to take on leadership roles with greater frequency than those who have low self-efficacy. In summary, the authors concluded that the evidence for construct validity was sufficient, though they acknowledged the need for further evaluation.

Reliability. McCormick et al. (2002) did not report reliability coefficients but instead referred to the report of Kane and Baltes (1998) who reported evidence of high score reliability ($\alpha = .90$) in the instrument's development process.

Self-Awareness (SA)

The SA section measured self-efficacy using all 12 items from the Self-Concept Clarity

Measure developed by Campbell et al. (1996). The instrument was developed to measure "the extent of which self-beliefs are clearly and confidently defined, internally consistent, and stable" (Campbell et al., 1996, p. 141). This definition of the self-concept clarity construct is equivalent to that used by Avolio and Hannah (2008) in the definition of the self-awareness construct. Furthermore, Avolio and Hannah recommend the use of the Self-Concept Clarity Measure to evaluate self-awareness. Sample items included "My beliefs about myself often conflict with one another" and "On one day I might have one opinion of myself and on another day I might have a different opinion."

The instrument uses a Likert-type scale, and to remain consistent with the other sections of this survey, self- a 7-point scale was used to measure each item. In this section, higher scores indicate higher awareness and lower scores indicate lower self-awareness.

Validity. Campbell et al. (1996) assessed divergent, convergent, and construct validity by evaluating the pattern of correlations between results provided by the instrument and those expected based on theoretical assumptions. Additionally they examined external validity by using participant scores on the instrument to predict internal consistency and stability of self-descriptions. Cultural variance in construct validity was also investigated through use on participants from Japan and Canada. Construct validity was evaluated with EFA results where each item on the instrument had factor weights greater than .43. The authors concluded that results from the three studies provided sufficient evidence for construct and criterion validity, although they caution that further research should be done to support or refute their results.

Reliability. Campbell et al. (1996) used this instrument in a study with three unique samples as part of the instrument-development process. Reported score reliabilities were adequate and produced stable coefficient alphas ranging from $\alpha = 0.85 - 0.86$.

Leader Complexity (LC)

The LC section measured leader complexity using a modification of a restricted trait sort activity described by Woolfolk et al. (2004). In its original version, the instrument included 70 adjectives to which an individual would respond in an affirmative or contradictive manner. Of these 70 adjectives, 38 were descriptions considered negative and were subsequently associated with a depressed affect. Woolfolk et. al. identified a positive correlation with the remaining 32 descriptors and positive affect, which Avolio and Hannah's (2008) theory indicates would be positively correlated with developmental readiness such that individuals who rate themselves high on the 32 descriptors would have high leader complexity. Although the original instrument was applicable to a variety of social roles, Linville (1987) promoted the ability to use it specifically for leader roles. Participants in this study were asked to consider themselves in the role of a leader when rating themselves on the 32 items on a 7-point Likert-type scale. Higher scores indicated higher levels of leader complexity and lower scores indicated lower leader complexity.

The assessment used in this study was substantially modified from the original version, which was developed to assess the full construct of self-complexity and therefore had a broader purpose than what is needed for this study. Rather than repeat the trait sort for every role with which the participant identifies, each participant was asked to focus solely on the leader role when responding to each trait. The original study did not use a Likert-type scale as proposed in this study but instead asked the participants to sort the traits that were most and least like them in their leader roles. Although this study could have employed a similar technique it would have been extremely time-consuming and difficult to get participants to respond to in an online survey. The method in the original study depended on an in-person administrator, which was

impractical in this study. Instead, participants were asked to respond to items by choosing how they applied to them as leaders, on a 7-point Likert-type scale.

Validity and reliability. Sufficient reliability and validity data was not reported by the instrument's author, especially considering the substantial changes made to the instrument for the purpose of this study. In order to assess validity and score reliability, a pilot study was done prior to use of the instrument in the full study. Results of the pilot are presented in Chapter 4.

State Metacognitive Inventory

The MCA section measured metacognitive ability using Abedi's (1996) State Metacognitive Inventory. This instrument consists of 20 items, including "I am aware of my own thinking" and "I check my work while I'm doing it" that are self-scored on a 7-point Likert-type scale similar to that used in the other sections of the assessment. Higher scores indicated higher levels of metacognitive ability and lower scores indicated lower levels of metacognitive ability.

Validity. Abedi (1996) reported evidence of construct validity, providing useful information about the sample and the instrument itself, as demonstrated in studies by Khabiri (1993), Kosmicki (1993), O' Neil, Sugrue, Abedi, Baker, & Golan (1992), and Yap (1993). In assessing construct validity, the authors made a series of predictions about theoretical relationships, about metacognition, the instrument's four subscales (planning, self-checking, cognitive strategies, and awareness), and various performance measures. Most resulting correlations were statistically significant and not low, and they were in the predicted direction, with metacognition influencing the other factors rather than vice versa. Abedi also conducted analyses of discriminant validity that produced acceptable evidence; however, they were not

relevant to this study. It should be noted that Abedi recommended that further research studies be conducted with emphasis on validity to support or refute his findings.

Reliability. Abedi (1996) indicated internal consistency was the more accurate measure of reliability for this instrument. The construct of metacognition, as described by Abedi and recommended by Avolio and Hannah (2008), is related to anxiety states that vary in intensity, and therefore scores on the instrument are expected to vary over time. It was hypothesized, demonstrated, and later confirmed by O'Neil et al. (1972) that test-retest reliability would consistently produce statistically nonsignificant results in these types of situations. With that in mind, Abedi assessed reliability using a measure of internal consistency and reported an adequate range of score reliabilities (α = .77 - .87).

Demographics

The DI section asks about demographic information using a self-developed item set that includes basic demographic information including gender, age, highest completed education level, career tenure, current position, and race/ethnicity. A detailed description of each of these variables is presented in Table 2.

Pilot

A pilot study was conducted prior to beginning full data collection. A convenience sample was drawn from the official SHRM LinkedIn group. This group includes individuals who are official members of the Society of Human Resource Management, either national or local chapters, or individuals who desire to be associated with the human resources profession.

Table 2

Study Demographic Data

Category	Response options (Data Code)
Gender	a. Male (1) b. Female (2)
Age	4-Digit Year
Highest Completed Education Level	a. Less than High School (1) b. High School (2) c. Associates Degree (3) d. Bachelors Degree (4) e. Masters Degree (5) f. Doctoral Degree (6) g. Advanced Professional Degree (7)
Career Tenure	Years (Number, Quantity)
Current Position	a. Unemployed (1) b. Self-Employed (2) c. Individual Contributor (3) d. Manager (4) e. Director (5) f. VP (6) g. President/C-Level (7)
Race/Ethnicity	a. Are you of Hispanic Origin? a. Yes (1) b. No (2) b. Which of the following best describes your race? a. White b. Black or African-American c. Native Hawaiian or other Pacific Islander d. Asian e. American Indian or Alaskan Native f. Two or More Races g. Other

It is similar to the ASTD National LinkedIn group in that the training and development profession is similar and often overlapping with the broader human resources profession. Upon

initial investigation, it was noted that some potential participants were members of both groups. Additionally, neither group required chapter membership in order to participate in the LinkedIn groups.

Participants were contacted using a discussion post in the SHRM LinkedIN group and were asked to voluntarily complete the entire instrument for two purposes. First, they were asked to report spelling errors, grammatical errors, and any portions of the instrument that are unclear to improve the quality of the instrument. Second, data collected were assessed for evidence of validity and reliability. The pilot study was conducted from May 22, 2012, through June 4, 2012. The initial plan was to post discussions to the SHRM site as a reminder on Tuesdays and Thursdays during the pilot. After the initial 3 days, only five results had been obtained using that method. To increase the response rate, emails were individually sent to 250 group members requesting participation using the same language as the discussion post. This action increased the number of responses obtained, and it was determined that individual LinkedIN messages would be required during the final data collection period. For the pilot study, the incentives provided were similar to those of the full data collection period with the exception of the number and magnitude of prizes offered. Pilot participants were provided the option to enter to win one of five $25 iTunes gift cards.

Pilot results were used to refine the assessment prior to data collection. Coefficient alpha was used to evaluate score reliability. Factor analysis was conducted on the test items to verify evidence of validity. Instrument modification was carefully considered after the pilot according to the criteria in Table 3 (Tabachnick & Fidell, 2007). Results of the pilot study are presented in Chapter 5 of this study.

Table 3

Instrument Modification Criteria Matrix

Coefficient α (if item removed)	r^2	R^2	Factor weights	Theoretical Value	Conclusion
+, =, or - < .02	< .40	< .15	< .32	Lacking	(Standard)
True	True	True	True	True	Remove
True	True	True	True	False	Keep
False	True	True	True	True	Remove

Data Collection

Data were collected using an online survey through the Qualtrics tool with participants obtained from a volunteer sample through the ASTD National LinkedIN group page. According to Andrews, Nonnecke, and Preece (2003), higher response rates can be obtained when a brief, pre-notification invitation is provided to the prospective participants prior to the beginning of the survey. With this in mind, an initial discussion topic was posted to the ASTD National LinkedIN group page on Thursday, May 31, 2012, prior to beginning the study, that invited group members to participate in the upcoming study (see Appendix C). The discussion post included a brief introduction and information about the researcher, a description of the research study, an invitation to participate, and a brief description of the incentive related to participating. It also included the specific dates when the survey would be available and the researcher's contact information in case anyone had questions about the study.

The survey was made available to participants on the Tuesday following the pre-notification invitation, June 5, 2012. To inform group members of the beginning of the survey, a

new discussion was created and posted to the ASTD National LinkedIN group page. The discussion post requested participation in a research study and directed interested group members to click a link embedded in the post (see Appendix C). To maximize participation, a new discussion topic was posted weekly, on Tuesdays and Thursdays at 11:00am, reminding group members to participate during the data collection period. This timing was determined based on recommendations from the LinkedIN group owner and administrator. Additionally, group members were sent individual messages through LinkedIN that requested participation in the study. The total collection period lasted for five weeks.

An incentive program was used to further encourage participation. Group members who completed the survey were offered the opportunity to participate in a drawing to win an iPad or 1 of 10 iTunes gift cards. Participation in the drawing was voluntary and required a valid email address to be used as a method of contact in case of winning a prize. That contact information was entered by the researcher onto a spreadsheet and then placed in alphabetical order by email address. A random number generator Web site (www.Random.org) was used to generate 11 numbers at random. The first 10 numbers were used to determine the winners of the 10 iTunes gift cards. The final number was used to determine the winner of the iPad. The drawing took place, and winners were notified on July 31, 2012.

Data Analysis Procedures

The purpose of this study was to examine differences in leader developmental readiness among generational cohorts including Generation Y, Generation X, and Baby Boomers, utilizing two research questions. First, the study aimed to answer whether there is a statistically and practically significant difference among members of the Generation Y, Generation X, and the

Baby Boomer generation on leader developmental readiness as measured by a composite score derived from scores on five item sets corresponding to learning goal orientation (LGO), developmental efficacy (DE), self-awareness (SA), leader complexity (LC), and metacognitive ability (MCA). Second, the study aimed to answer whether there is a statistically and practically significant difference among members of Generation Y, Generation X, and the Baby Boomer generation on any of the observed variables that are attributed to leader developmental readiness. The hypothesized model and study design involved testing group differences on a latent factor structure where the latent variables were expected to influence and thereby covary with the observed variables; therefore, the most appropriate method of data analysis is a specialized form of structural equation modeling (SEM) (Hancock, 1997). Specifically, data analysis was completed using structured means model analysis as described by Hancock (1997) with the PASW release version 18 (SPSS, Inc., 2009) and AMOS release version 5 (Arbuckle, 2006) statistical software programs.

Data Screening

Data screening was prior to further analysis. Participant responses were imported into the PASW program for initial screening and data analysis. Of primary concern was missing data and outliers. Missing data were imputed using linear trend analysis within the PASW program. Data were analyzed for outliers and inconsistent responses, and cases with these characteristics were deleted. Additional screening was completed to ensure that statistical assumptions were met. These results are presented in Chapter 4.

Assumptions

Mueller (1997) provides a basic overview of SEM in which he outlines the assumptions of the statistical technique. Structured means analysis, as a specialized form of SEM, requires these same statistical assumptions to be met prior to proceeding with data analysis. The primary assumption of structural equation modeling is that the research study and hypothesized model are based on a well-structured theoretical framework before data can be analyzed using this technique. This study was based on substantiated theory provided by Avolio and Hannah (2008) and others, as described in Chapter 1 of this study. Second, covariance matrices were calculated from raw data and were analyzed using the maximum likelihood (ML) estimation technique, which assumes univariate and multivariate normality and in such circumstances has been shown to perform reasonably well (Chou & Bentler, 1995). As such, the researcher evaluated normality on each variable and multivariate normality on the data set before proceeding with analysis. Third, SEM assumes a large sample size, which is taken into consideration in this study and described in the sampling subsection of this chapter.

Structured means modeling has additional assumptions that must be met in addition to those required of more generic SEM techniques. First, structured means analysis involves invariance assumptions so that it is expected for data to show that those with the same score on the latent construct have the same scores on the observed (measured) variables (Hancock, 1997). This situation can become apparent when fit indices are less desirable and/or with certain modification indices suggestions. The researcher was aware of this assumption and considered releasing constraints on questionable variables only when it was theoretically appropriate to do so as suggested by Hancock.

Analysis of the data in relation to the hypothesized model is the next step after data screening and testing for assumptions. This process occurs in three stages. First, the

measurement model is assessed for model-fit to determine whether the hypothesized model for the latent construct fits the data obtained from the sample participants. The measurement model must be assessed for the data set for each group. Per Hancock's (1997) discussion of model/group invariance, it is important to obtain a model that fits the data in each group but also that structure of the models obtained in each group does not vary one from another. Second, mean differences between groups on the latent variable should be compared for practical and significant differences. At this point in the study the information was available to answer the first specified research question. Third, mean differences between groups on the observed endogenous variables (LGO, DE, SA, LC, MCA) were analyzed, the results of which informed the second research question.

Analysis of Model-Fit

The first step in data analysis after screening and assumption testing was to evaluate the structure of the measurement model. This was done through CFA and tests of measurement invariance, both of which enable researchers to make conclusions about the model based on model-fit indices and other statistics. Although there are as many opinions on evaluating model fit as there are techniques to do so, common recommendations are to review the non-normed fit index (NNFI), comparative fit index (CFI), root means square error of approximation (RMSEA) and standardized root means square residual (SRMR) fit indices; therefore, these were the model-fit indices analyzed in this study (Hoe, 2008; Hooper et al., 2008; Phan, 2007; Schreiber et al., 2006). Table 4 displays the acceptable values for fit indices in this study. Modification indices provided by the AMOS software program were reviewed to identify acceptable model changes that were both statistically and theoretically sound (Schreiber et al., 2006).

Table 4

Model-Fit Indices and Acceptable Fit Values

Model-Fit index	Acceptable value
NNFI	> 0.95 (Phan, 2007; Hooper et al., 2008)
CFI	> 0.95 (Phan, 2007; Hooper et al., 2008)
SRMR	< .08 (Hu & Bentler, 1999)
RMSEA	< .07 (Steiger, 2007)

The model-fit analysis and model modification process were iterative until the model that best fits the data was identified, keeping model parsimony and theoretical framework in mind.

Before completing the analysis of the measurement model the researcher ran an analysis using the model of best fit using the data set from each group independently. The researcher then compared the standardized path coefficients and modification indices to ensure that the model of best fit was invariant across groups. Next tests for measurement invariance were performed as described by Vandenberg and Lance (2004), with an emphasis on configural, weak, strong, and strict invariance. After this step was complete, the researcher moved forward with analysis of mean differences between groups on the latent construct.

Latent construct (LDR) group mean differences were tested for statistical significance ($\alpha = .05$) by first constraining all parameters to be equal across the groups, then freeing the parameters associated with the LDR mean. The mean of LDR for Generation Y was set to equal zero in order to use it as the referenced group. Finally, the model-fit statistics from the base model with all parameters constrained was compared to the model with the LDR means set to vary to determine whether a statistically significant difference was detectable in the model-fit indices.

The process of analyzing a model with all parameters constrained across groups except for the latent mean parameters in question, in this case LDR, also produces an estimated mean coefficient equivalent to a measure of effect. Two values were obtained, one for the group of Baby Boomer respondents and one for the group of Generation X participants. These values represented the respective measure of effect of the mean difference between the respective group and the mean of Generation Y. These coefficients are interpreted similar to Cohen's *d* whereby the equivalent of $d < .20$ represents a small effect, $d < .50$ represents a medium effect, and $d < .80$ represents a large effect (Hancock, 2001). This analysis provided the primary information necessary to answer research question 1, whether there is a statistically and practically significant difference between generational cohorts on leader developmental readiness.

The final step before completing data analysis was to review group differences on each of the five observed endogenous variables (LGO, DE, SA, LC, MCA). The theoretical framework of this study presented by Avolio and Hannah (2008) indicated that the latent construct influences responses on each of the six latent variables. With that in mind it was important to understand how groups differed on mean scores on each of the five latent variables to determine whether differences on LDR can account for score differences on one or more of the observed variables. To accomplish this task the process of testing for practical and statistical significance was repeated for each of the five latent endogenous variables separately, as completed for the LDR latent construct and previously described.

This section has presented the methodology used in conducting this study, including research design, sampling, instrumentation, data collection, and data analysis procedures. Chapter 4 presents the results of this study.

CHAPTER 4

RESULTS

The purpose of this study was to examine differences in leader developmental readiness between generational cohorts including those in Generation Y, Generation X, and the Baby Boomer generation. In the course of this study, two research questions were evaluated. The first research question tested the relationship between generation and the leader developmental readiness factor, which is comprised of learning goal orientation (LGO), developmental efficacy (DE), self-awareness (SA), leader complexity (LC), and metacognitive ability (MCA). The second research question evaluated the relationship between generation and each of the factors that are associated with leader developmental readiness (LGO, DE, SA, LC, and MCA). This section reports the results of this study including information about the pilot and full study. Specifically, for the full study this section includes data screening information, assessment of statistical assumptions, model-fit analysis, and structured means analysis. Finally, this section also includes the results of null hypothesis testing.

Pilot Study

A pilot study was conducted in order to test the data collection procedures and obtain preliminary results about the model to be tested. The pilot included 105 participants obtained from the official national SHRM LinkedIN group. Results from pilot participants' responses were analyzed according to the procedures of this study with an emphasis on evaluating the instrument prior to implementing the full study. Specifically, pilot data from the instrument were evaluated for reliability and construct validity in order to provide additional support for use of the instrument in the full study. Cronbach's α coefficient was used to evaluate data reliability,

and construct validity was assessed with factor analysis through evaluation of the measurement model using SEM techniques. At the end of the pilot study the instrument was modified, according to the criteria presented in Chapter 3, to improve potential reliability and validity results that could be obtained with the data from the full study according. Group differences were not evaluated in the pilot study because the sample size was insufficient to support a multigroup CFA. The results of the pilot study are included in this subsection.

Reliability

To test for internal consistency, coefficient alpha was calculated in SPSS for each endogenous latent variable (LGO, DE, SA, LC, MCA) and for the full instrument. Coefficients for scores on instrument subsets representing these latent variables were initially concerning because they did not meet the intended threshold of $\alpha = .90$. In order to determine whether reliability could be improved, SPSS estimation for the coefficient if the item was removed was reviewed for each item, taking note of the items that, if removed, would lead to increased coefficient alphas. Several items were identified for potential removal using this method according to the instrument modification criteria matrix presented in Table 3. Reliability coefficients for pilot data using the original and modified instruments are included in Table 5.

Validity

Construct validity was determined using the SEM equivalent of confirmatory factor analysis (CFA), evaluation of the measurement model. Each item was reviewed to determine the contribution to the model as represented by the standardized path coefficient, squared multiple

correlation coefficient and the factor score weights. Squared multiple correlation coefficients lower than .15 were noted for possible removal as indicated in Table 5.

Table 5

Cronbach's α Coefficients for Pilot Data Using Original and Modified Instruments

	Original	Modified
Complete Instrument	.88	.90
Learning goal orientation (LGO)	.89	.89
Developmental efficacy (DE)	.91	.91
Self-awareness (SA)	.83	.91
Leader complexity (LC)	.83	.90
Metacognitive awareness (MCA)	.94	.94

Note. $N = 105$. Original instrument included all items (LGO 1-8, DE 1-8, SA 1-12, LC 1-31, and MCA 1-20). Modified instrument included all items except SA 6, 11, LC 10, 16, 22, 26, 28, and 31.

Similarly, factor score weights were reviewed by item to evaluate whether each item appeared to load uniquely and correctly on one latent variable (factor). Items with factor score weights < .32 were identified as loading poorly on the factor and were noted for possible removal. Standardized path coefficients were also reviewed and those smaller than .40 were noted for possible removal. Table 6 presents model-fit indices for the original and modified instrument with pilot data.

Instrument Modification

Instrument modification was considered after initial pilot data review. Prior to deleting any items from the instrument, reliability coefficients, factor loadings, and squared multiple correlation coefficients were reviewed together. Several items were problematic for reliability,

as indicated by estimated coefficients with the items removed, did not contribute sufficiently to the model according to low squared multiple correlation coefficients, and did not support construct validity according to the factor loadings. These items did not strongly link to theory or were otherwise represented in the instrument and therefore were logical removals. The final instrument did not include eight of the original items including SA 6, SA 11, and LC 10, 16, 22, 26, 28, and 31.

Table 6

Model-Fit Statistics for the Base, Modified, and By-Group Models

	X^2/d.f	CFI	NNFI	SRMR	RMSEA
Original Instrument (Base Model)	1.985	.60	.58	.107	.097
Modified Instrument	2.329	.98	.97	.052	.039

To determine whether the final instrument produced more reliable scores, analysis of reliability and construct validity was completed a second time. Final reliability coefficients are summarized in Table 4 and demonstrate sufficient reliability in the pilot scores using the modified instrument. With the 8 items removed, model-fit indices were acceptable and improved over the original statistics. Additionally, all remaining items loaded uniquely to the latent variable associated with the item's intended construct thereby supporting construct validity. With the modification, the final version of the instrument used in the full study included 67 items in addition to the demographic questions. After sufficient reliability and construct validity was established in the pilot study, the full study continued as planned with the modified instrument.

Data Assessment and Descriptive Statistics

Data for this study were collected according to the procedures outlined in Chapter 3 of this report. Upon completion of collection the data set was reviewed to determine how complete and appropriate the data were for use in this study. To this end, descriptions of the sample size and descriptive statistics for demographic variables are presented in further detail.

Sample Size

Upon completion of data collection 640 responses had been received. Four responses were removed from the data set because they came from members of a generation not included in this study as indicated by reported birth year. The remaining data set included 159 participants in Generation Y, 214 in Generation X, and 263 in the Baby Boomer generation, for a total of 636 respondents. Missing data were assumed to be at random and were estimated using trend regression in SPSS for all indicators except demographic variables, which were left in their raw state.

It is important to note that SEM requires large samples, and as previously described with the model to be tested in this study, the ideal sample size is between 200 and 1,500 people per group. Initially upon completion of data collection it appeared as if there would be at least minimum sufficiency of about 200 per group, with a total sample size of 636. An assumption was made that participants would respond equally from each group, but this did not prove to be true. Baby Boomers responded more frequently than Generation X, who responded more frequently than Generation Y. Analysis proceeded without collection of additional respondents; however, it is important to remember the violation of the large sample size assumption of SEM

techniques in interpreting results further, particularly as that violation relates to model-fit statistics, which are less likely to be statistically significant with smaller sample sizes.

Table 7 provides additional information about the sample's demographic characteristics, and Table 8 provides information about the sample's career tenure, by group. Of particular note for all demographic variables was that there were more missing data in the demographic section among Generation Y participants than others, because data shows approximately 35 respondents in this group failed to respond to each demographic question even though they responded to items in all other sections of the instrument.

Table 7

Descriptive Statistics for Categorical Demographic Variables

		Boomers		Generation X		Generation Y		Total	
		n	%	*n*	%	*n*	%	*n*	%
Gender	Male	122	46.4	89	41.6	49	30.8	260	40.9
	Female	136	51.7	121	56.5	60	37.7	317	49.8
	Unspecified	5	1.9	4	1.9	50	31.4	59	9.3
Education	High School	4	1.5	4	1.9	1	.6	9	1.4
	Some College	19	7.2	9	4.2	3	1.9	31	4.9
	Associates Degree	9	3.4	3	1.4	2	1.3	14	2.2
	Bachelors Degree	70	26.6	70	32.7	43	27.0	183	28.8
	Masters Degree	122	46.4	107	50.0	55	34.6	284	44.7
	Doctoral Degree	31	11.8	13	6.1	16	10.1	60	9.4
	Other	8	3.0	8	3.7	4	2.5	20	3.1
	Unspecified	0	0.0	0	0.0	35	22.0	35	5.5
Employment Status	Unemployed	17	6.5	18	8.4	9	5.7	44	6.9
	Self-Employed	66	25.1	23	10.7	17	10.7	106	16.7
	Individual Contributor	63	24.0	68	31.8	46	28.9	177	27.8
	Manager	47	17.9	63	29.4	23	14.5	133	20.9
	Director	45	17.1	35	16.4	18	11.3	98	15.4
	Vice President	11	4.2	2	.9	3	1.9	16	2.5
	President/C-Level	13	4.9	4	1.9	6	3.8	23	3.6
	Unspecified	1	.4	1	.5	37	23.3	39	6.1

(table continues)

Table 7 *(continued).*

		Boomers		Generation X		Generation Y		Total	
		n	%	*n*	%	*n*	%	*n*	%
Consultant Status	Yes	129	49.0	50	23.4	35	22.0	214	33.6
	No	134	51.0	164	76.6	88	55.3	386	60.7
	Unspecified	0	0.0	0	0.0	36	22.6	36	5.7
Ethnicity (Hispanic?)	Yes	11	4.2	13	6.1	14	8.8	38	6.0
	No	249	94.7	201	93.9	109	68.6	559	87.9
	Unspecified	3	1.1	0	0.0	36	22.6	39	6.1
Race	White	226	85.9	176	82.2	101	63.5	503	79.1
	Black or African American	14	5.3	17	7.9	6	3.8	37	5.8
	Asian	7	2.7	8	3.7	3	1.9	18	2.8
	American Indian or Alaskan Native	1	.4	10	4.7	2	1.3	3	.5
	Two or More Races	10	3.8	2	.9	7	4.4	27	4.2
	Other	3	1.1	0	0.0	5	3.1	10	1.6
	Unspecified	2	.8	1	.5	35	22.0	38	6.0

Table 8

Descriptive Statistics for Continuous Demographic Variable (Career Tenure)

	n	M (SD)
Boomers	261	33.97 (6.95)
Generation X	212	19.97 (6.23)
Generation Y	156	7.56 (4.49)
Total	629	22.70 (12.26)

Descriptive Statistics

Tables D.2-D.6 in Appendix D show descriptive statistics for all indicators in the model, organized with indicators for one latent variable per table. Statistics are provided by group and

for the total sample. A review of the data revealed violations of univariate normality, especially in calculations of kurtosis and to a lesser degree in skewness. Although SEM is less sensitive to violations of normality than traditional GLM models, the violation in this data set was not acceptable (Kline, 2005). Square root data transformation was necessary to correct violations of univariate normality in the LGO and MCA variables and to ensure that assumption was met for data analysis (Finney & DiStefano, 2006). Additionally, Table D.1 in Appendix D presents the correlation matrix for responses from all participants on all variables.

Sample Limitations

The sample-related limitations of this study impact generalizability and should be taken into consideration. These limitations include lack of control for differences between generational cohort size in the American workforce and that in the ASTD group membership, geographical differences that could confound the impact of generation and the effects of response bias.

First, the target population of this study was individuals in the American training industry. The sample was taken from members of the National ASTD LinkedIN group who were presumed to be either members of ASTD or highly interested in ASTD membership. For purposes of this study, the sample was divided into groups by generation. It is unknown whether the generational makeup in the ASTD population matches that in the American training industry. Therefore, caution is recommended in generalizing results by group to the target population.

The second limitation regards the geographic location of participants, which was not controlled in the study. Aside from defining the target population to include residents of the United States, there was nothing in the survey instrument or the data analysis that controlled for

geographical differences. Although not part of the theoretical framework of this study, geographic differences might act as a confounding variable with generational differences but because they were not controlled for in this study, the implications in the population (or the sample) are not clear.

The third limitation is uncontrolled response and common method bias. The data in this study were collected using an online, self-reported measure with an anonymous, volunteer sample. The study did not utilize multiple raters or observations, nor did it include multiple methods of data collection. The survey instrument consisted of six sections, one for each endogenous latent variable and one for the demographic data. Though the demographic data section was always presented last, the other sections were presented in random order as a way to control for common method bias. Nevertheless, error attributed to common method and response bias is still possible in the study results.

One final limitation of this study, though not intended in the design, was the small sample size per group that did not contribute to sufficient power to detect statistical differences in the model. Larger samples by group and in total could have resolved concerns about statistical power and therefore interpretation of results.

The effects of limitations in this study could be addressed in future studies by increasing the sample size, modifying data collection procedures, controlling for geographic differences in the sample, and measuring the difference in generational cohort size in the American training industry and members of the National ASTD LinkedIn group. Additional study is warranted, and suggestions are provided in the next section.

Assessment of the Measurement Model

The first step in analyzing a structured means model is to complete a confirmatory factor analysis on the total sample (full group), identifying the model of best fit. In determining this model, reliability and construct validity (CFA) data were reviewed to determine whether all items were appropriate to include in the model based on sample data. CFAs were then conducted on the model of best fit for using the data from each group (generation) independently to determine whether the model was invariant across groups. Structured means modeling requires moderate invariance across generations in the measurement model in order to proceed with analyzing the structural model, which in this study is represented by the mean estimation by group.

Model-fit indices for the base model (all groups) and the model of best fit (All Groups, Baby Boomers, Generation X, Generation Y) are presented in Table 9. The base model was unconstrained and included all observed and latent variables except those removed after completion of the pilot. Although RMSEA and SRMR values were acceptable, the values calculated for NNFI and CFI failed to meet the a priori threshold of .95, suggesting that additional, theoretically acceptable model changes were warranted before continuing with the analysis. Internal reliability, construct validity, and modification indices were reviewed to determine whether any changes could be made to make the model statistically more acceptable without violating the integrity of the model from a theoretical perspective.

Reliability

As in the pilot study, internal reliability was evaluated using Cronbach's α coefficients calculated by SPSS. Table 10 displays the obtained coefficients for the original instrument used

in the base model and the final instrument used in the model of best fit. Initial analysis of the coefficients indicated sufficient reliability for the complete instrument and each of the subsections, with the exception of LGO, which was slightly smaller than the desired minimum limit of $\alpha = .90$. Gotz, Liehr-Gobbers, and Krafft (2010) indicated that reliability coefficients are acceptable if they meet a minimum threshold of .70, which would mean results obtained for LGO with the original instrument in the base model were acceptable; nevertheless, individual items were reviewed for potential removal to improve internal reliability. Items identified by SPSS with the potential to increase reliability coefficients of the related construct if removed were noted for further evaluation pending results of the construct validity analysis.

Table 9

Model-Fit Statistics for the Base, Modified, and By-Group Models

	X^2/d.f	CFI	NNFI	SRMR	RMSEA (Null)
Base Model (All Groups)	3.20	.81	.80	.072	.059 (.131)
Model of Best Fit					
All Groups	2.83	.85	.84	.069	.054 (.134)
Baby Boomers	1.92	.82	.82	.075	.059 (.139)
Generation X	1.89	.80	.79	.093	.064 (.139)
Generation Y	2.11	.68	.67	.090	.084 (.145)

Table 10

Cronbach's α Coefficients for Data Using Original and Adjusted (Final) Instruments

	Original	Final
Complete Instrument	.90	.90
Learning goal orientation (LGO)	.88	.88
Developmental efficacy (DE)	.92	.92
Self-awareness (SA)	.92	.92
Leader complexity (LC)	.91	.91
Metacognitive Awareness	.94	.94

Construct Validity

Congruent with the pilot study, construct validity was evaluated through analysis of standardized path coefficients, factor score weights and squared multiple correlation coefficients. Items with squared multiple correlation coefficients smaller than .15 were noted as potential items to delete from the model pending further analysis. Factor score weights for these items were reviewed to determine whether they were uniquely and sufficiently contributing to the model, as was done in the pilot study. Additionally, all other items in the model were reviewed using the same criteria to determine whether they were also problematic for further analysis.

Model Modification

To determine whether any items should be removed from the model, each of the items identified as problematic for construct validity and/or reliability per the instrument modification criteria matrix was reviewed to determine whether removal was appropriate. Two items were removed after it was determined they did not pass any of the criteria listed in Table 3. LC_20 was removed after having failed all statistical thresholds and after review of the instrument showed the item was similar to other items already represented on the instrument. MCA_1 was removed after having failed identified statistical thresholds and a review of the question indicated the wording was not clear and posted a confusion point for the participant. In total, the instrument used in the final model included 65 items in addition to the demographic questions. The base model was then modified to remove the contribution of the deleted items.

Another CFA was conducted on the full-group with the modified model to determine whether additional changes to the model were suggested and/or necessary. Relevant modification indices were reviewed to determine potential error covariances that should be added

to the model. Iterations of adding theoretically consistent, single error covariances, reestimation of the model, and review of model-fit indices occurred until the model-fit indices were in the acceptable range and modification indices no longer included relevant error covariances to be added. In the end, error covariances were added and maintained between SA_1 and SA_2, MCA_3 and MCA_4, LC_4 and LC_7, LC_12 and LC_14, LC_24 and LC_25, LC_19 and LC_30. These covariances were theoretically feasible. Byrne, Baron, and Campbell (1993) identified perceived redundancy to be a reasonable rationale for error covariance and, in the case of this data set and the theoretical framework, this would make sense. Resulting model-fit indices are presented as model-of-best-fit in Table 9. Figure 3 presents the path model for the model-of-best-fit with standardized path coefficients for paths between latent variables.

Multigroup Analysis and Measurement Invariance

Upon specification of the model-of-best-fit, the model was re-estimated in triplicate using data obtained from each of the three generations with all paths constrained. Figure 4 presents the path models for the by-group analyses including standardized path coefficients for paths between latent variables. Obtained model-fit indices presented in Table 9 were reviewed along with standardized path coefficients and squared multiple correlation coefficients to determine if model invariance was present among data from each group. To determine whether statistically significant differences existed among the measurement models of each group, indicating measurement variance, constraints were released individually, all models were re-estimated, and model-fit indices were compared again iteratively to determine whether a large increase in the chi-square value occurred as a result.

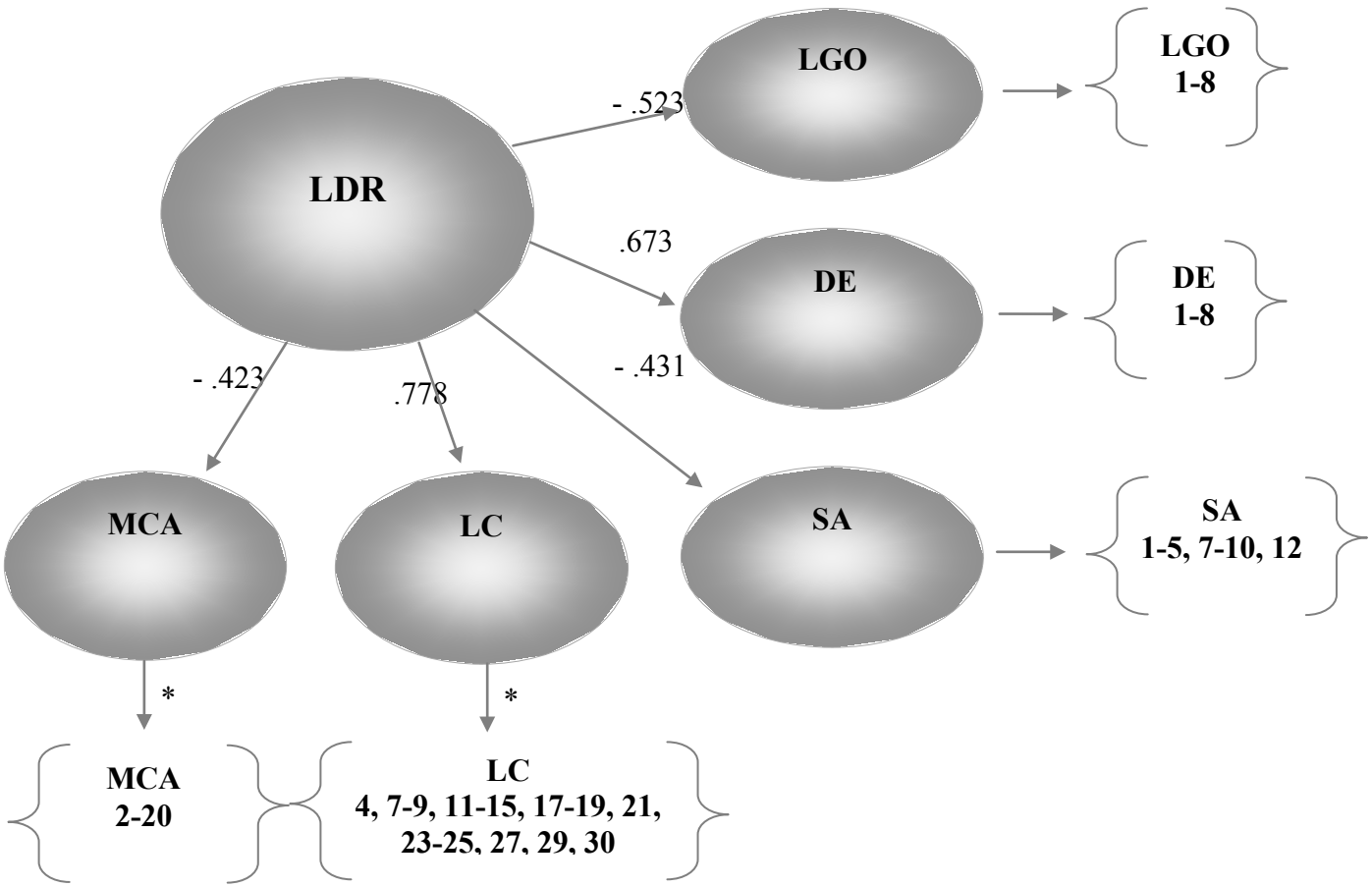


Figure 3. Measurement model-of-best fit with standardized path coefficients for all groups (n = 636). Bracket refers to a set of items as indicated. *See Table D.7 for path coefficients between endogenous latent variables and observed variables and Table D.8 for squared multiple correlation coefficients.

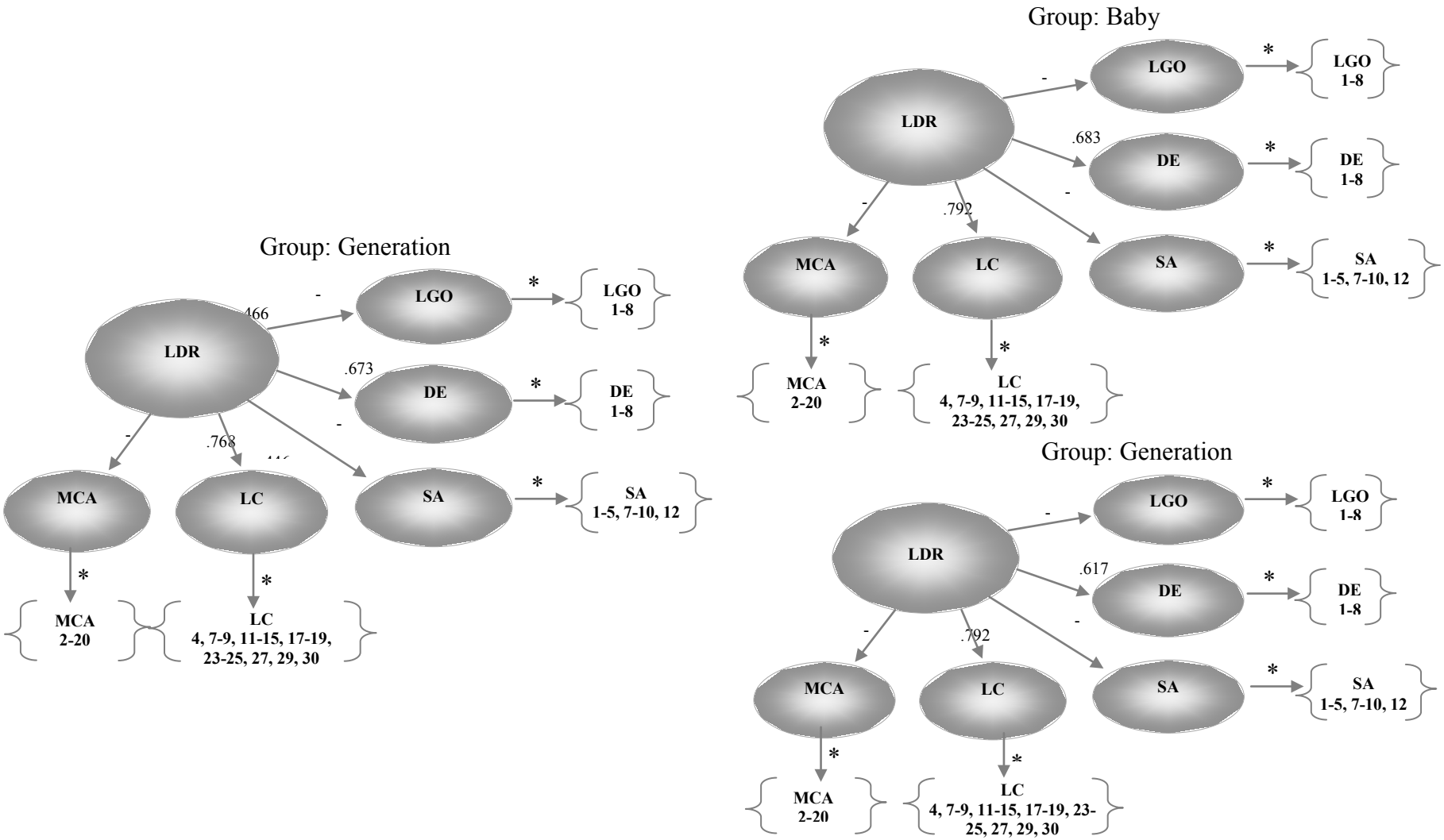


Figure 4. Measurement model with standardized regression coefficients for each group: Baby Boomers (n = 263), Generation X. Bracket refers to a set of items as indicated. *See Table D.7 for path coefficients between endogenous latent variables and observed variables and Table D.8 for squared multiple correlation coefficients.

Table 11

Tests of Measurement Invariance

Model	*df*	χ^2	*P*	SRMR	RMSEA	NNFI	CFI	Δ*df*	Δ χ^2	*p*	ΔCFI
1. Configural Invariance	5,947	11,749.46	<.001	.077	.039 (.038, .040)	.766	.769	___	___	___	___
2. Weak Invariance	5,949	11,750.12	<.001	.077	.039 (.038, .040)	.766	.770	2	0.66	.718	.001
3. Strong Invariance	5,961	11,777.61	<.001	.078	.039 (.039, .041)	.766	.769	14	28.15	.014	.000
4. Strict Invariance	6,101	12,163.13	<.001	.078	.081 (.080, .082)	.761	.759	154	413.67	<.001	- .010

In the end, the model of best fit was the fully constrained model, indicating that the models were invariant by group.

Model-fit indices obtained for the model of best fit for the by-group data were questionable. RMSEA values for each group on the model were acceptable, but the only other acceptable model-fit index was SRMR for the Baby Boomer group. No other value met or exceeded the a priori expectation. This result is likely due to the small sample size per group (n = 159), which as discussed earlier was not sufficient for high-quality SEM analyses to be conducted due to the requirement for large samples. Though model analysis continued, caution is recommended in interpreting results based on the lack of sufficient values obtained for model-fit indices, otherwise suggesting insufficient model fit. It is important to note that values for NNFI and CFI presented in Table 9 do not meet the desired standard (> .95). According to Kenny (2012), incremental measures of fit may not be appropriate to assess when the null

model RMSEA is < .158. RMSEA values for the null model for each of the models presented in this study are included in Table 9. In each case, the null model RMSEA value is less than the value needed to make CFI and NNFI values relevant for analysis.

Tests of measurement invariance (configural, weak, strong, strict) were utilized to assess for measurement invariance across groups as described by Vandenberg and Lance (2000). Table 11 includes actual and comparative fit indices for each of the models tested. As described by Nimon and Reio (2011) cut-offs for these indices are numerous but mirror those set in this study for RMSEA (<.07) and SRMR (<.08). An additional consideration is the value for ΔCFI; model equivalence is suggested when $\Delta CFI \leq -.01$ (Cheung & Rensvold, 2000). With these thresholds, the comparative model-fit indices are within the acceptable range to suggest measurement invariance sufficient to test group mean differences.

Structured Means Analysis

After completion of the data assessment and measurement model assessment, the structured means analysis was performed through tests of latent mean differences. The multigroup and multimodel function in AMOS were used to specify several models to be compared between three different groups representing the three different generations included in this study. The base model utilized the model of best fit previously determined with the addition of estimated means and intercepts across groups through AMOS. In this model, means and intercepts were constrained to be equal across groups, with the means and intercepts for Generation Y constrained to zero for identification purposes. Once this model was established and tested for invariance across groups, it was used to create six additional models, one per latent variable in the model. Means or intercepts for one latent variable were allowed to vary for each

of the additional models with all other parameters constrained as in the base model. Model-fit indices with emphasis on the chi-square statistic were compared between the base model and each of the additional six models to determine the statistical significance of group mean differences on the variable allowed to vary. Mean estimates derived in this way indicate the estimated difference between the mean of the constrained group and that of the group allowed to vary. Effect sizes were calculated using these estimated means and reported standard errors with the calculation described by Kline (1998).

Evaluation of Research Questions

Results of structured means analysis were used to provide insight into the research questions of this study. Figure 5 presents the path diagram for the base model with standardized path coefficients for the paths between latent variables. Table D.9 provides unstandardized and standardized path coefficients for all variables, by group. Table D.10 provides the squared multiple correlation coefficients for all variables.

Actual *p* values obtained with AMOS are reported whenever possible. AMOS only reports actual values when $p \geq .001$. Where calculated values are unavailable in AMOS, asterisks are used in place of *p* values, indicating $p < .001$ (Arbuckle, 2011). For measures of effect, Kline's (2005) definitions for effect sizes were used; therefore, a small effect was .10, a medium effect was .30, and a large effect was .50. Table 12 displays the summary of results for each hypothesis in this study. Table 13 presents the model-fit indices for the base model and each of the models which led to the testing of the hypotheses.

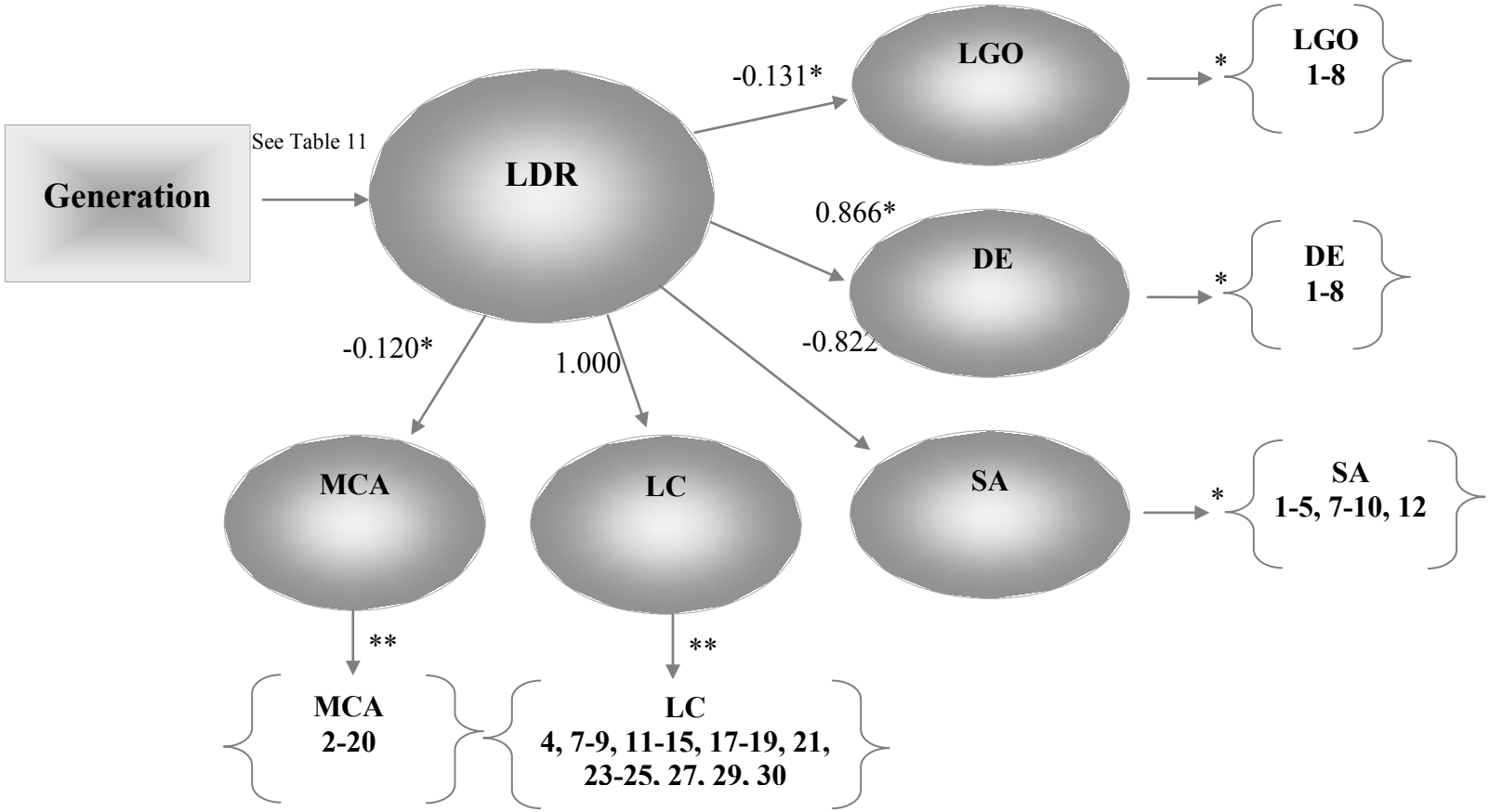


Figure 5. Structured means model with unstandardized path coefficients for all groups. Bracket refers to a set of items as indicated.

*significant at $p < .05$. **Table D.9 includes path coefficients between latent endogenous and observed variables.

Table 12

Summary of Support and Effect Sizes for Each Hypothesis

Hypothesis and Mean/Intercept	Statistically significant? ($p < .05$)	Effect size (In relation to Generation Y)	
		Baby Boomers	Generation X
H1: Estimated mean, by group, of LDR	Yes	Large	Large
H2a: Estimated intercept, by group, of LGO	No	None	None
H2b: Estimated intercept, by group, of DE	Yes	Large	Small
H2c: Estimated intercept, by group, of SA	No	Small/Medium	Medium
H2d: Estimated intercept, by group, of LC	Yes	Large	Large
H2e: Estimated intercept, by group, of MCA	Yes	Small/Medium	None

Table 13

Comparative Model-Fit Indices for Structured Means Models

	ΔX^2/d.f	*P*	ΔNNFI	ΔCFI
Base Model*	2.010	***	.757	.756
LDR Free	58.829	***	.002	.002
LGO Free	.105	.949	.000	.000
DE Free	13.100	*.001*	.000	.000
SA Free	2.128	.345	.000	.000
LC Free	47.246	***	.002	.000
MCA Free	6.280	*.043*	.000	.000

Note. *Statistics provided for Base Model are actual values used as the base for delta comparisons with other presented models. ***indicates *p* values less than .001.

Research Question 1

The first research question in this study sought to answer whether there is a statistically and practically significant difference among generational groups on leader developmental readiness (LDR). The null hypothesis said there was no significant or practical difference among generational groups on LDR. The alternative hypothesis is that there are statistically and practically significant differences among generations on leader developmental readiness. Specifically, this study hypothesized that Baby Boomers are more ready for leader development than Generation Y, which is more ready for leader development than Generation X.

Results of this study indicate there is a statistically significant difference between groups on LDR as demonstrated by the model comparison fit indices between the model of best-fit with LDR constrained across groups and the same allowed to vary across groups (p <.001). Furthermore, results show Baby Boomers (p <.001) and Generation X (p <.001) are less ready for leader development than Generation Y based on statistically and practically significant group mean differences on the LDR latent variable. Therefore, the null hypothesis for research question 1 is rejected. Mean differences and related effect sizes are reported in Table 14. Interpretation and implications of these results are discussed in Chapter 5.

Research Question 2(a-e)

The second research question of this study sought to determine whether there were any statistical differences on any of the latent variables that contributed to leader developmental readiness in the model, specifically LGO, DE, SA, LC, and MCA. There were four statistically significant differences and three practically significant differences between groups on the endogenous latent variables in the model.

Table 14

Mean Estimates and Effect Sizes, by Group, for LDR

	Δ Mean	*p* value	Effect size
Boomers	-0.434	***	1.65
Generation X	-0.562	***	2.04
Generation Y	0		

Learning Goal Orientation (2a). This study hypothesized a statistically and practically significant difference among generations on learning goal orientation so that Generation Y has more learning goal orientation than Baby Boomers, which has more learning goal orientation than Generation X. As displayed in Table 12, there were no statistically or practically significant differences between generational groups on the learning goal orientation (LGO) construct. Intercept differences and related effect sizes are reported in Table 15. As a result, the null hypothesis for this research question is not rejected and the alternative hypothesis is rejected.

Table 15

Mean Estimates and Effect Sizes, by Group, for LGO

	Δ Mean	*p* value	Effect size
Boomers	0.005	.749	.02
Generation X	0.002	.918	.02
Generation Y	0		

Developmental Efficacy (2b). This study hypothesized a statistically and practically significant difference among generations so that Generation Y is more developmentally efficacious than Baby Boomers, who are more developmentally efficacious than Generation X. As displayed in Table 12, there was a statistically significant difference among generations. Therefore, the null hypothesis is rejected. Upon further analysis, the statistical difference is evident in the difference between Baby Boomers and Generation Y. There is a practically significant difference between these two groups on DE as measured by the large effect size displayed in Table 16. However, results show that Baby Boomers are more developmentally efficacious than Generation Y, which is directionally opposite of the hypothesized relationship. The mean for Generation X was higher than that for Generation Y but the difference was not statistically significant.

Table 16

Mean Estimates and Effect Sizes, by Group, for DE

	Δ Mean	*p* value	Effect size
Boomers	0.235	.001	.87
Generation X	0.043	.578	.15
Generation Y	0		

Self-awareness (2c). This study hypothesized a statistically and practically significant difference among generations on self-awareness so that Baby Boomers are more self-aware than Generation Y, which is more self-aware than Generation X. As displayed in Table 12, there were no statistically or practically significant differences among generational groups on

the self-awareness construct. Baby Boomers had a higher mean than Generation X, which had a higher mean than Generation Y, but none of the differences were statistically significant. The difference between Baby Boomers and Generation Y had a small/medium effect size and the difference between Generation X and Generation Y had a medium effect size as presented in Table 17.

Table 17

Mean Estimates and Effect Sizes, by Group, for SA

	Δ Mean	*p* value	Effect size
Boomers	0.106	.381	.30
Generation X	0.182	.143	.52
Generation Y	0		

Leader Complexity (2d). This study hypothesized a statistically and practically significant difference among generations on leader complexity so that Baby Boomers are more complex leaders than Generation Y, which is more complex than Generation X. As displayed in Table 12, results show a statistically significant difference among generational groups on the leader complexity (LC) construct. Further analysis produced statistically significant result between Generation Y and Baby Boomers and between Generation Y and Generation X, both with large effects. Specifically, Baby Boomers were least complex in relation to Generation Y, but both Generation X and Baby Boomers had means on LC that were statistically and practically significantly lower than Generation Y. Intercept differences and related effect sizes are reported in Table 18. As a result, the null hypothesis is rejected.

Table 18

Mean Estimates and Effect Sizes, by Group, for LC

	Δ Mean	*p* value	Effect size
Boomers	-0.415	***	1.65
Generation X	-0.396	***	1.52
Generation Y	0		

Metacognitive Awareness (2e). This study hypothesized a statistically and practically significant difference among generations on MCA so that Generation Y has higher metacognitive ability than Generation X, which has higher metacognitive ability than Baby Boomers. As displayed in Table 12, there was a statistically or practically significant difference among generational groups on the metacognitive awareness (MCA) construct; therefore, the null hypothesis is rejected. As presented in Table 19, a statistically significant difference with a small/medium effect was found whereas Baby Boomers had a higher mean than Generation Y on MCA. Though a difference exists, it is not in the direction predicted in this study.

Table 19

Mean Estimates and Effect Sizes, by Group, for MCA

	Δ Mean	*p* value	Effect size
Boomers	0.038	.015	.30
Generation X	0.009	.566	.07
Generation Y	0		

Summary

Chapter 4 reported the findings of this study. The Pilot Study section presented the findings obtained in the pilot administration of the instrument and study procedures including the reliability, construct validity, and instrument modification that resulted from the pilot study. The Data Assessment and Descriptive Statistics section presented information about the sample obtained in the full study, demographic variable statistics, are indicator descriptive statistics such as means, standard deviations, skewness, and kurtosis by group. The Assessment of the Measurement Model section provides reliability, construct validity, instrument modification, model modification, and assessment of model invariance that resulted from the process of analyzing the measurement model. The Structured Means Analysis section presents the results of the hypothesis testing and answers the research questions according to the results of the study. Chapter 5 provides a discussion of the interpretation and implications of these findings.

CHAPTER 5

DISCUSSION

Results from this study were described in the previous chapter. A discussion of the findings is presented in this chapter through the following sections: Synthesis of Findings, Discussion of Findings, Recommendations for Future Research, Implications for Practice, and Summary. The Synthesis of Findings section includes a summary of the results of the hypotheses findings to answer the study's research questions and conclusions about the findings and limitations of the study are presented in the Discussion section. The Recommendations for Future Research section includes suggested topics for researchers to investigate in the future. The Implications for Practice section includes a discussion of the findings relevant to generational differences in leader developmental readiness and areas of opportunity in preparing the generations to successfully participate in programs for leader development. The chapter concludes with a Summary section.

Synthesis of Findings

The purpose of this study was to examine group differences on a latent construct, in which the population was divided among three groups by generational cohort (Generation Y, Generation X, Baby Boomer), and the latent construct was leader developmental readiness (LDR) as measured by five observed variables. The five observed variables represented the five constructs Avolio and Hannah (2008) identified as the building blocks of leader developmental readiness. In this study, each observed variable was measured by a set of items compiled from five separate instruments designed externally to measure constructs similar to the observed variables in this study.

The first research question investigated the relationship between generation and leader developmental readiness by testing for statistically and practically significant differences among members of Generation Y, Generation X, and the Baby Boomer generations on the composite score for LDR from scores on five item sets corresponding to the endogenous latent constructs in the model (LGO, DE, SA, LC, MCA). The second research question investigated the relationship between generation and each of the five latent constructs attributed to leader developmental readiness by testing whether there were statistically and/or practically significant differences separately on learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability. Both research questions and related null hypotheses were evaluated using structured means analysis, a special form of SEM, using maximum likelihood (ML) estimation in AMOS v. 20.

Path coefficients for the model of best fit used in the structured means analysis are presented in Table D.9. All paths were statistically significant at the $p < .05$ level or greater. Mean estimates for LDR, by group in comparison to those in Generation Y, significance levels, and effect sizes by group are provided in Table 14. The mean estimates between Generation Y and Baby Boomers (-0.434) and Generation Y and Generation X (-0.562) were statistically significant ($p < .001$). Effect sizes were large for both mean differences. Therefore, it is concluded that results of this study do support statistically or practically significant differences among generational groups on leader developmental readiness. Specifically, Generation Y is more ready for leader development than Baby Boomers and Generation X. Directionally, Baby Boomers are more ready for leader development than Generation X, but that hypothesis was not specifically tested in this study and therefore no further conclusions are made about the magnitude of the relationship between these two groups.

For the second research question, statistically significant differences among generations were found on three of the endogenous latent variables. Specifically, the models designed to test mean differences on DE, LC, and MCA by allowing the latent construct in question to vary among groups indicated statistically significant differences compared to the baseline model. Further analysis showed found three mean differences between Generation Y and Baby Boomers, one on developmental efficacy ($p = .001$; $d = .87$), one on leader complexity ($p < .001$; $d = 1.65$), and another on metacognitive ability ($p = .015$; $d = .30$). There was one mean difference between Generation Y and Generation X. This difference was found on leader complexity ($p < .001$; $d = 1.52$). In addition, the mean difference between Generation Y and Generation X on self-awareness was not statistically significant but did have a medium effect ($p = .143$; $d = .52$) but the value was not. With this information, H_01, H_02_b, H_02_d, and H_02_e, were rejected as statistically and practically significant differences were identified among groups on the related constructs (LDR, DE, LC, MCA).

Discussion of Findings

This section describes conclusions that were made based on the results of the study previously resented in Chapter 4. In the first research question and related hypothesis, a statistically significant mean difference was found among generational groups on leader developmental readiness. The theoretical framework of this study suggested that Baby Boomers would have the highest composite score on LDR, with Generation Y less ready for leader development but more ready than Generation X. The alternative hypothesis (H1) reflected that assumption. Results suggest that Generation Y was the most ready to be developed, Generation X was less ready, and Baby Boomers were the least ready. This supported the hypothesis that

Generation Y was more ready than Generation X but refuted the hypothesis that Generation Y was more ready than Baby Boomers. The mean difference between Baby Boomers and Generation Y and between Generation X and Generation Y on LDR produced large effects (d = 1.65 and 2.04, respectively).

The unexpected direction of the estimated mean difference between groups would refute the hypothesis based on the theoretical framework of this study but would be consistent with other findings. Gentry et al. (2009) found that younger workers are more likely than older workers to intend to participate in developmental opportunities. Additionally, though Eisner (2005) reported the tendency for Baby Boomers to believe in the value of working long hours and loyalty, the same study identified that Baby Boomers' believe that they've already earned their current status as they near retirement. This compares to DeHauw and De Vos's (2010) report of the importance and expectation which that places on organizations to contribute to individual development among Generation Y and the finding of Gursoy et al. (2008) that Generation Y is less likely to make personal sacrifices for their jobs. Given that the older generation is nearing readiness to leave and has an expectation that individuals make a substantial contribution in order to earn career status while the younger generation is less willing to make sacrifices for their career and grew up with 'helicopter parents', it is possible that members of Generation Y perceive they are more ready to be developed as leaders while Baby Boomers have a more realistic if not accurate understanding of their own readiness to be developed into leaders.

One interesting observation to note is that Generation Y, as a group average, has spent 12 fewer years in the workforce than Generation X and 26 fewer years than Baby Boomers as measured by obtained career tenure means by group (see Table 8) and yet Generation Y

demonstrated more readiness to be developed than both of the older generations. The relationship between career tenure and LDR was outside the scope of this study so no definitive conclusions can be made at this point but it should be noted that this idea should be explored further in future research to understand how career tenure and generation interact uniquely and jointly with LDR.

The second research question sought to determine whether there were any statistically and/or practically significant mean differences between generational groups on the endogenous latent variables (LGO, DE, SA, LC, MCA). Statistically significant group mean differences were found on DE, LC, and MCA. The difference between Baby Boomers and Generation Y on developmental efficacy was not in the expected direction; Generation Y expressed a lower- level of developmental efficacy than Baby Boomers. The difference between Baby Boomers and Generation Y on leader complexity was not in the hypothesized direction; Baby Boomers were more complex as leaders than Generation Y. The difference between Generation X and Generation Y on leader complexity was as expected; Generation Y was more complex as leaders than Generation X. The direction of the mean difference between Baby Boomers and Generation Y on metacognitive ability was not as expected; Baby Boomers expressed a higher level of metacognitive ability than Generation Y expressed through responses on indicator variables in the instrument.

Generation Y was expected to be more developmentally efficacious than Baby Boomers, which was not supported by the results of the model, with a large effect size. This finding does not support the results reported by Gursoy et al. (2008) and Gentry et al. (2009), both of whom found younger workers to be highly interested in developmental opportunities and likely to participate in the future in comparison to older generations. Contrary to the hypothesized model,

Generation X was not the group that scored the lowest on developmental efficacy. Generation Y had the lowest composite scores on DE which further refutes the findings of Gentry et al. (2009).

Generation Y was expected to be less complex as leaders than Baby Boomers but more complex than Generation X, which was partially supported by the results of this study. Generation Y was more complex than Generation X, as expected, with a large effect size. This result was consistent with Gursoy et al. (2008) and Eisner (2005) who found that Generation X is less resourceful and interested in broad leadership opportunities than Generation Y. Generation Y was also more complex than Generation Y, a result that was not expected. Results for both group differences on LC refute Eisner's idea that older generations are more complex due to additional life experience and time spent in the workforce.

Generation Y was expected to have higher metacognitive ability than Baby Boomers, which was not supported by the results of the model. Baby Boomers had statistically and practically higher MCA than Generation Y. This result was not consistent with the findings of Gursoy et al. (2008) and Eisner (2005) that Generation Y is highly resourceful, educated, and interested in continuous learning, more so than previous generations. This is consistent with Eisner's description of Baby Boomers' extensive experience in the workplace, which has given them more time to learn metacognitive skills in the workplace than Generation Y.

Regarding the statistically nonsignificant mean differences between groups (LGO and SA), it is possible that those with practically significant differences may have been statistically significant with a larger sample size. Without additional participants, it is difficult to determine whether differences do in fact exist among generations in the population on these constructs. Therefore, no further conclusions will be drawn at this time.

Recommendations for Future Research

Several areas of additional research are warranted considering the results of this study and the questions left unanswered. Future researchers are encouraged to consider these suggestions as opportunities to add to the body of knowledge on the subject of generation and leader developmental readiness. These recommendations include changes to the research design, instrumentation, and population.

Research Design

Several aspects of the research design posed challenges to the validity of this study. As a result, the following are key recommendations for future research designed to address these opportunities to improve the validity of future results. The first recommendation is to modify the study to require a larger sample size by group. Assuming that the model remained the same as the base model used in the structured means analysis, the advisable sample size by group would be between 500-1,000 participants. A total sample of 1,500-3,000 may require additional time for the data collection period and potentially additional methods of sourcing participants than were utilized in this study. Although the National ASTD LinkedIN group was recommended by researchers at the ASTD organization and it appeared to be a convenient and logical recruitment pool, the response rate was low, and it was difficult to ensure that group members had a chance to see the invitation. Future researchers should consider using a source of participants other than LinkedIN groups, including paper surveys and/or in-person data collection events. Increasing the sample size requirement with support through additional recruitment options and time for data collection would provide an opportunity for the researchers to better understand true effects in the population and reduce response bias.

Instrumentation

Using improved instrumentation should be a priority for any researcher. The instrumentation used in this study was modified from its original version(s), especially the LC section, which was reduced by 11 items after the pilot. Though the researcher relied on theoretically-based and statistically-based criteria in considering item removal and inclusion, the final version of the instrument may not be the same as the sum of the original scale instruments. This is known to be true for the LC section of the instrument, which was substantially modified from the original trait-sort activity originally proposed by Woolfolk et al. (2004). This should be considered a limitation to this study and is a recommended topic for future research.

Another opportunity is to identify additional methods of collecting data beyond online surveys that would be help reduce common method bias beyond what was attempted through random delivery of instrument sections (LGO, DE, SA, LC, MCA) in this study. Additionally, assessing geographic impact by collecting information about the location of participants' residences or work locations would help in determining the degree to which geography impacts generational differences. Finally, additional measurement component in the study could be added to determine the difference between generational cohort size in the general population compared to the sample population.

Population

The target population in this study was limited to individuals in the American training industry. This was a successful way to narrow the purpose of the study, but expanding the boundaries of the target population would be beneficial. One way to expand the boundary would be to target participants in the training industry beyond those in the United States. This could

provide an opportunity to learn more about cross-cultural impacts on leader developmental readiness that might be important in a globalized world. Another opportunity to expand the target population would be to move beyond the training industry. The primary recommendation would be to target large-scale, common business-related industries such as accounting firms, management consulting firms, or professions such as marketing, logistics, or operations. Expanding or altering the target population would provide the researcher the opportunity to contribute to the body of research in a way different from that provided in this study. Additionally, the results of that study could be compared with the results obtained in the study, which could provide the foundation for future meta-analytic studies.

Implications for Practice

One reason this study was warranted at this time was to determine whether generational differences exist in LDR so that, if necessary, leadership development techniques and programs could be developed and targeted to maximize the success of the interventions for each person participating in developmental readiness activities. The current study provided support for generational differences in leader developmental readiness and suggests that differences may exist among generations on the latent constructs predicted by LDR, especially developmental efficacy, leader complexity, and metacognitive ability. This information is highly relevant for practice.

Support for generational differences on LDR in the population indicates that all generations are not equally ready for successful leader development. This is encouraging for those concerned with finding qualified and interested individuals who are willing to be developed to succeed the Baby Boomers who are exiting the workforce, especially from the

Generation Y population. Of concern, though, is the apparent under-preparedness of Generation X in relation to Generation Y for leader development interventions. Whereas the natural focus may have been on members of Generation X, who tend to be both less numerous and less interested in taking on demanding leadership roles, this study finds that Generation Y may be more suitable as potential candidates as Generation X. A larger pool of candidates to choose from is exciting to human resource professionals looking to recruit the ideal individuals to hire.

This finding should also be encouraging to members of Generation Y, who may feel they will not be given opportunities to be developed because of the perceived lack of readiness. Similarly, older generations should carefully consider stereotypes that may discriminate against Generation Y, intentionally or unintentionally excluding them from the opportunity to pursue leadership roles and associated development, not only for legal reasons including age discrimination lawsuits but also because, according to the results of this study, members of Generation Y are as ready to be developed into leaders as are their older counterparts.

The theoretical framework behind this study suggests that leader developmental readiness can be measured by learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability. Further, it suggests that LDR may be such a broad concept that it cannot be directly targeted for improvement. Instead, an individual with higher scores on the other latent constructs would correlate with increased readiness, and thus it may be valuable to target developmental activities that improve scores on one or more of the endogenous latent constructs. It is important to remember that this study was not experimental in nature; therefore, causality is not attributed but rather the correlational design of this study indicates a relationship between LDR and each of LGO, DE, SA, LC, and MCA.

As the model was determined to have strict invariance across groups, the strength of the relationship between latent constructs and LDR is comparable across generations. Therefore, any differences between groups are on means of the latent constructs, specifically developmental efficacy and metacognitive ability. The nature of these mean differences across generations indicates that Generation Y is less developmentally efficacious and reports lower metacognitive ability than Baby Boomers. If this is indeed true in the population, as suggested in the study, it provides insight into how to focus targeted developmental opportunities for Generation Y differently than with Baby Boomers. Developmental efficacy and metacognitive ability may be self-perceived weaknesses in Generation Y, and if they could be strengthened there may be a corresponding increase in readiness level.

Inversely, Generation Y reports to have higher leader complexity than both Baby Boomers and Generation X. On the surface this may indicate that Generation Y needs less focus on this construct than Baby Boomers and Generation X have in the past. While that may be true, another potential explanation may be that Baby Boomers, through years of experience, have learned to more accurately assess their own strengths and weaknesses, whereas members of Generation Y, being new to the workforce, may be inaccurate in their self-perceptions. Further research may be advisable to better understand this concept. If this theory is true, Generation Y could benefit from more focus on leader complexity so that they could become more grounded in their own abilities and have a better opportunity to develop further in their careers. If it is not true, the implications are primarily for Baby Boomers and maybe more importantly Generation X who will need to focus more on leader complexity in order to compete more definitively with Generation Y for leader development success in the future. Although the cause of the difference

is not yet known, the idea that it exists is supported by this study and may warrant further investigation to ensure that the right conclusions are made for implications for practice.

One final implication is related to the relationship between Generation X and Generation Y. The data analysis was structured in a way that compared generations by referencing Generation Y. In other words, the data show a comparison between Generation Y and Generation X and between Generation Y and Baby Boomers. With this structure there were no statistically and practically significant differences between Generation X and Generation Y except for on LDR and LC. This is an important finding having practical implications. The primary conclusion of this result is that, whereas Generation Y may not benefit thoroughly from participating in LDR activities, as Baby Boomers do currently, the lack of difference in LGO, SA, and MCA between Generation X and Y indicates that changes could be made to target LDR for Generation Y without harming LDR for Generation X. Changes to accommodate Generation Y's addition to the workforce may benefit Generation X in similar ways; therefore, return associated with the investment in these changes could be multiplicative across generations. More research is needed to confirm or reject that hypothesis.

Summary

This study demonstrated support for the leader developmental readiness model proposed by Avolio and Hannah (2008) and consisting of five latent constructs including learning goal orientation, developmental efficacy, self-awareness, leader complexity, and metacognitive ability. Results in this study showed support for strict invariance across generational cohorts on leader developmental readiness. Baby Boomers, Generation X, and Generation Y indicated similar readiness to be developed into leaders through responses provided in this study, and no

differences on the construct were noted. Statistically significant differences were noted between Baby Boomers and Generation Y on developmental efficacy and metacognitive ability. Generation Y demonstrated higher developmental efficacy and lower metacognitive ability than Baby Boomers in this study. These differences were practically significant as well. There were no statistically significant differences between Generation X and other groups, but several practically significant results were found. Sample size was a limitation in this study, and it is possible that the practically significant results found in this study would be both practically and statistically significant in replicated studies that utilize larger sample sizes by group.

Results of this study suggest that Generation Y may benefit from interventions targeting improvements in metacognitive ability. Additionally, the impact of Generation Y's enhanced perception of developmental efficacy compared to older generations should be considered more carefully in future research and by practitioners seeking to develop members of that generation. Results of this study targeted members of the United States training industry; thus, more research is warranted to expand the generalizability of these results to other industries and other nations. Additional replications are warranted to support the findings of this study.

APPENDIX A

IRB APPROVAL

Appendix B
Informed Consent Notice

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

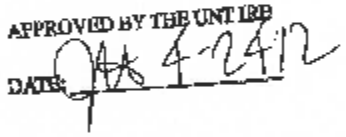
Title of Study: Leader Development Readiness for Generation Y in the Training Industry
Student Investigator: Marie Garrigue
University of North Texas (UNT) Department of Learning Technologies
Supervising Investigator: Dr. Jeff Allen

Purpose of the Study: You are being asked to participate in a research study which involves an investigating how members of different generations compare in their readiness to be developed into leaders. This study has been designed to investigate how members of different generations compare in their readiness to be developed into leaders (Leader Developmental Readiness) using a model developed by Avolio and Hannah (2008). Specifically, are there statistical and practical differences between generation cohorts who are members of the American Society of Training and Development (ASTD) on leader developmental readiness? The target population for this study is defined as members of the Baby Boomer, Generation X, and Generation Y cohorts in the training industry.
Study Procedures: You will be asked to complete an electronic survey through the internet that will take about 5-10 Minutes of your time.
Foreseeable Risks: No foreseeable risks are involved in this study
Benefits to the Subjects or Others: This study is not expected to be of any direct benefit to you, but we hope to learn more about how well-prepared Generation Y workers are to be developed into leaders at this point in time.
Compensation for Participants: Participants who complete the survey in total will be offered the opportunity to participate in a drawing to win an iPad or one of ten iTunes gift cards. Participation in the drawing will be voluntarily and will require you to provide your full name and a valid email address to be used as a method of contact in case of winning a prize. Prize winners will be drawn at random and winners notified within a week of the survey closing.
Procedures for Maintaining Confidentiality of Research Records: All information provided as part of this research will be maintained in a confidential manner in any publications or presentations regarding this study. Data will be maintained securely in the supervising investigator's office at the UNT campus. Data will be evaluated anonymously.
Questions about the Study: If you have any questions about the study, you may contact Marie at simple.performance@gmail.com or *Jeff* at *Jeff.Allen@unt.edu.*
Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights:

You participation in the survey confirms that you have read all of the above and that you agree to all of the following:

- Marie Garrigue has explained the study to you and you have had an opportunity to contact him/her with any questions about the study. You have been informed of the possible benefits and the potential risks of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You understand you may print a copy of this form for your records.



APPENDIX B

NIH HUMAN SUBJECTS TRAINING CERTIFICATE

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Marie Garrigue** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 08/06/2008

Certification Number: 57208

APPENDIX C

RECRUITMENT MATERIALS

Participants will be recruited through posts in an online discussion board, specifically the ASTD National group on LinkedIn. There are three discussion posts that will be used to recruit participants. Board members will initially be informed of the study on the Thursday in the week prior to the beginning of the study through a discussion post on the board. On the first day of the study, participants will be asked to participate through a discussion post including the link to the study. Reminders will be posted as separate discussion posts weekly thereafter.

Study Announcement

Greetings ASTD National group members!

As a fellow member of the ASTD National group on LinkedIn and a national member of ASTD I am asking for your participation in a research project I am conducting for my dissertation in pursuit of a Ph.D. from the University of North Texas. This study will begin on 6/5/2012 at which point I will post an additional announcement on this board with the survey link, requesting participation from this group. The survey will be available for 5 weeks and your participation is very much appreciated.

The purpose of this study is to investigate how members of different generations compare in their readiness to be developed into leaders. The target population for this study is defined as members of the Baby Boomer, Generation X, and Generation Y cohorts in the training industry. To participate you will be asked to complete an electronic survey through the internet that will take about 5-10 Minutes of your time. In return for your effort, you can voluntarily participate in a drawing to win an iPad or one of ten iTunes gift cards.

There are no foreseeable risks involved in this study. Aside from the opportunity to win the prizes previously mentioned, there are no expected benefits directly for you as

a result of your participation. That being said, we hope this research study contributes to the body of knowledge by learning more about how well-prepared Generation Y workers are to be developed into leaders at this point in time.

All information provided as part of this research will be maintained in a confidential manner in any publications or presentations regarding this study. Data will be maintained securely and evaluated anonymously.

Thank you in advance for your participation.

Sincerely, Marie Garrigue

Day 1 - Study Announcement and Survey Link

Greetings ASTD National group members!

As mentioned in a previous post, I am asking for your participation in completing a 5-10 minute survey that will be used as part of my doctoral dissertation research project. This study begins today and I am providing the link below. The survey will be available until 7/9/2012 and your prompt participation is very much appreciated. (If you already completed the survey as part of the SHRM pilot, please complete again - the responses from the pilot will not be reused.)

Click this link to begin the survey now:

https://unt.qualtrics.com/SE/?SID=SV_9ELtsmqxbBLyfhq

As a reminder, after you have completed the survey you will have a chance to voluntarily enter a drawing to win a free Apple iPad or one of 10 iTunes gift cards.

For more information about the study or to contact me, please feel free to connect with me on LinkedIn and send me a message or contact me at simple.performance@gmail.com

Thank you again for your participation!

Sincerely, Marie Garrigue

Reminder Discussion Post

Don't forget to complete this survey (https://unt.qualtrics.com/SE/?SID=SV_9ELtsmqxbBLyfhq) and enter yourself for a chance to win an Apple iPad or one of 10 iTunes gift cards!

I am asking for your participation in completing a 5-10 minute survey that will be used as part of my doctoral dissertation research project investigating generational differences in leader developmental readiness. This study will be available until 7/9/2012 and your prompt participation is very much appreciated.

For more information about the study or to contact me, please feel free to connect with me on LinkedIn and send me a message or contact me at simple.performance@gmail.com

Click this link to begin the survey now: https://unt.qualtrics.com/SE/?SID=SV_9ELtsmqxbBLyfhq

Thank you again for your participation!

Sincerely, Marie Garrigue

APPENDIX D

ADDITIONAL SUPPORTIVE TABLES

Table D.1

Correlation Matrix for Responses from Total Sample on All Variables

	LGO1	LGO2	LGO3	LGO4	LGO5	LGO6	LGO7	LGO8	DE1	DE2	DE3	DE4	DE5	DE6	DE7	DE8	SA1	SA2	SA3	SA4	SA5	SA7
LGO1	-																					
LGO2	0.33	-																				
LGO3	0.45	0.36	-																			
LGO4	0.51	0.33	0.63	-																		
LGO5	0.44	0.38	0.51	0.48	-																	
LGO6	0.35	0.51	0.39	0.38	0.45	-																
LGO7	0.48	0.44	0.49	0.61	0.46	0.50	-															
LGO8	0.42	0.32	0.50	0.44	0.49	0.45	0.49	-														
DE1	-0.21	-0.10	-0.18	-0.12	-0.17	-0.19	-0.19	-0.22	-													
DE2	-0.19	-0.21	-0.19	-0.16	-0.19	-0.27	-0.19	-0.24	0.71	-												
DE3	-0.16	-0.16	-0.19	-0.20	-0.18	-0.28	-0.22	-0.24	0.70	0.80	-											
DE4	-0.12	-0.16	-0.17	-0.17	-0.18	-0.26	-0.20	-0.22	0.66	0.74	0.80	-										
DE5	-0.20	-0.10	-0.14	-0.16	-0.17	-0.15	-0.22	-0.20	0.62	0.52	0.56	0.58	-									
DE6	-0.20	-0.18	-0.17	-0.16	-0.17	-0.21	-0.20	-0.22	0.59	0.53	0.56	0.56	0.54	-								
DE7	-0.27	-0.21	-0.23	-0.23	-0.21	-0.19	-0.25	-0.29	0.56	0.49	0.49	0.51	0.53	0.56	-							
DE8	-0.19	-0.13	-0.17	-0.15	-0.23	-0.23	-0.17	-0.24	0.56	0.54	0.56	0.58	0.50	0.50	0.58	-						
SA1	0.06	0.08	0.05	0.04	0.12	0.08	0.08	0.09	-0.27	-0.24	-0.20	-0.21	-0.16	-0.18	-0.18	-0.21	-					
SA2	0.08	0.11	0.10	0.10	0.13	0.11	0.12	0.14	-0.32	-0.29	-0.26	-0.25	-0.22	-0.26	-0.24	-0.24	0.76	-				
SA3	0.03	0.07	0.04	0.03	0.03	0.09	-0.02	0.08	-0.28	-0.20	-0.21	-0.21	-0.17	-0.25	-0.23	-0.23	0.61	0.67	-			
SA4	0.07	0.12	0.02	0.06	0.06	0.11	0.05	0.10	-0.25	-0.19	-0.16	-0.21	-0.20	-0.21	-0.22	-0.20	0.61	0.64	0.68	-		
SA5	0.04	0.11	0.07	0.06	0.04	0.10	0.04	0.09	-0.25	-0.17	-0.18	-0.23	-0.18	-0.18	-0.19	-0.19	0.49	0.49	0.55	0.63	-	
SA7	0.00	0.14	0.04	0.05	0.06	0.05	0.07	0.08	-0.13	-0.06	-0.10	-0.11	-0.11	-0.16	-0.12	-0.11	0.44	0.45	0.47	0.51	0.51	-

(*table continues)*

Table D.1 (*continued*).

	LGO1	LGO2	LGO3	LGO4	LGO5	LGO6	LGO7	LGO8	DE1	DE2	DE3	DE4	DE5	DE6	DE7	DE8	SA1	SA2	SA3	SA4	SA5	SA7
SA8	0.10	0.14	0.06	0.09	0.09	0.14	0.06	0.10	-0.26	-0.22	-0.20	-0.22	-0.19	-0.23	-0.19	-0.19	0.63	0.65	0.66	0.66	0.57	0.56
SA9	0.13	0.09	0.10	0.10	0.12	0.13	0.10	0.06	-0.27	-0.23	-0.22	-0.20	-0.20	-0.24	-0.16	-0.18	0.57	0.61	0.55	0.60	0.48	0.46
SA10	0.16	0.10	0.12	0.14	0.13	0.15	0.12	0.11	-0.25	-0.21	-0.20	-0.21	-0.21	-0.22	-0.21	-0.23	0.44	0.46	0.48	0.53	0.47	0.43
SA12	0.17	0.16	0.14	0.14	0.15	0.14	0.15	0.17	-0.30	-0.25	-0.24	-0.28	-0.27	-0.28	-0.29	-0.26	0.46	0.49	0.50	0.57	0.46	0.41
LC4	-0.08	-0.20	-0.12	-0.08	-0.17	-0.22	-0.12	-0.22	0.20	0.29	0.27	0.24	0.16	0.17	0.16	0.16	-0.25	-0.28	-0.20	-0.24	-0.17	-0.11
LC7	-0.06	-0.20	-0.09	-0.07	-0.13	-0.21	-0.11	-0.20	0.20	0.26	0.24	0.22	0.19	0.18	0.19	0.17	-0.25	-0.24	-0.19	-0.23	-0.13	-0.12
LC8	-0.11	-0.17	-0.12	-0.09	-0.18	-0.25	-0.19	-0.22	0.33	0.39	0.39	0.36	0.30	0.29	0.30	0.29	-0.21	-0.24	-0.18	-0.20	-0.16	-0.09
LC9	-0.09	-0.18	-0.14	-0.11	-0.16	-0.23	-0.12	-0.20	0.30	0.36	0.35	0.32	0.23	0.25	0.27	0.22	-0.25	-0.27	-0.22	-0.28	-0.23	-0.10
LC11	-0.15	-0.26	-0.21	-0.19	-0.22	-0.28	-0.19	-0.28	0.29	0.39	0.33	0.34	0.25	0.26	0.23	0.20	-0.13	-0.21	-0.11	-0.19	-0.12	-0.03
LC12	-0.09	-0.15	-0.10	-0.13	-0.14	-0.23	-0.21	-0.17	0.30	0.38	0.32	0.31	0.25	0.29	0.18	0.16	-0.14	-0.20	-0.13	-0.15	-0.04	-0.03
LC13	-0.12	-0.24	-0.15	-0.13	-0.19	-0.24	-0.16	-0.18	0.26	0.35	0.32	0.31	0.28	0.28	0.25	0.23	-0.24	-0.25	-0.23	-0.28	-0.21	-0.13
LC14	-0.10	-0.20	-0.11	-0.12	-0.15	-0.22	-0.19	-0.16	0.29	0.42	0.34	0.31	0.29	0.27	0.23	0.22	-0.15	-0.22	-0.14	-0.17	-0.10	-0.05
LC15	-0.22	-0.23	-0.24	-0.26	-0.20	-0.30	-0.28	-0.26	0.27	0.32	0.29	0.29	0.28	0.28	0.27	0.30	-0.20	-0.21	-0.15	-0.19	-0.11	-0.05
LC17	-0.25	-0.13	-0.22	-0.22	-0.20	-0.24	-0.30	-0.21	0.28	0.26	0.27	0.25	0.24	0.28	0.31	0.28	-0.12	-0.13	-0.08	-0.09	-0.10	-0.02
LC18	-0.07	-0.20	-0.14	-0.17	-0.14	-0.18	-0.18	-0.18	0.23	0.28	0.32	0.30	0.21	0.31	0.17	0.17	-0.11	-0.16	-0.14	-0.16	-0.08	-0.06
LC19	-0.25	-0.34	-0.18	-0.21	-0.23	-0.37	-0.26	-0.21	0.21	0.29	0.25	0.27	0.19	0.24	0.25	0.17	-0.18	-0.19	-0.16	-0.21	-0.12	-0.04
LC20	-0.07	-0.08	-0.11	-0.09	-0.17	-0.10	-0.10	-0.10	0.21	0.27	0.25	0.25	0.16	0.22	0.13	0.20	-0.12	-0.13	-0.07	-0.08	-0.04	0.00
LC21	-0.23	-0.23	-0.15	-0.17	-0.18	-0.22	-0.20	-0.21	0.22	0.24	0.21	0.23	0.22	0.24	0.22	0.18	-0.18	-0.19	-0.19	-0.19	-0.10	-0.06
LC23	-0.11	-0.21	-0.18	-0.14	-0.25	-0.23	-0.21	-0.24	0.25	0.34	0.32	0.33	0.24	0.25	0.24	0.23	-0.18	-0.21	-0.16	-0.17	-0.11	0.00
LC24	-0.10	-0.20	-0.15	-0.15	-0.09	-0.18	-0.16	-0.14	0.19	0.26	0.26	0.25	0.14	0.16	0.18	0.22	-0.11	-0.08	-0.09	-0.11	-0.09	-0.04
LC25	-0.16	-0.26	-0.22	-0.19	-0.16	-0.26	-0.21	-0.22	0.21	0.27	0.29	0.26	0.20	0.21	0.18	0.23	-0.12	-0.10	-0.09	-0.08	-0.08	-0.04
LC27	-0.27	-0.14	-0.29	-0.32	-0.23	-0.21	-0.29	-0.27	0.16	0.15	0.19	0.19	0.19	0.21	0.27	0.22	-0.08	-0.07	-0.02	-0.06	-0.07	-0.01

(*table continues)*

Table D.1 (*continued*).

	LGO1	LGO2	LGO3	LGO4	LGO5	LGO6	LGO7	LGO8	DE1	DE2	DE3	DE4	DE5	DE6	DE7	DE8	SA1	SA2	SA3	SA4	SA5	SA7
LC29	-0.18	-0.23	-0.21	-0.25	-0.21	-0.29	-0.23	-0.24	0.18	0.21	0.25	0.22	0.19	0.25	0.24	0.24	-0.16	-0.16	-0.19	-0.14	-0.12	-0.04
LC30	-0.16	-0.25	-0.11	-0.15	-0.07	-0.26	-0.17	-0.12	0.17	0.23	0.19	0.21	0.25	0.22	0.28	0.16	-0.16	-0.15	-0.16	-0.18	-0.11	-0.04
MCA1	0.25	0.23	0.14	0.23	0.23	0.25	0.24	0.21	-0.19	-0.15	-0.17	-0.18	-0.20	-0.20	-0.22	-0.21	0.12	0.11	0.08	0.15	0.17	0.16
MCA2	0.17	0.25	0.16	0.20	0.19	0.27	0.22	0.23	-0.09	-0.10	-0.07	-0.10	-0.07	-0.13	-0.12	-0.08	0.05	0.07	0.09	0.09	0.08	0.10
MCA3	0.22	0.19	0.16	0.18	0.22	0.21	0.19	0.27	-0.06	-0.04	-0.09	-0.03	-0.08	-0.11	-0.11	-0.11	0.01	0.06	-0.05	-0.01	0.01	0.04
MCA4	0.18	0.18	0.16	0.15	0.18	0.18	0.20	0.23	-0.08	-0.07	-0.10	-0.07	-0.02	-0.10	-0.11	-0.11	-0.01	0.04	-0.01	-0.02	0.04	0.04
MCA5	0.11	0.18	0.16	0.10	0.23	0.21	0.20	0.21	-0.20	-0.21	-0.24	-0.24	-0.17	-0.24	-0.22	-0.28	0.15	0.19	0.15	0.14	0.14	0.10
MCA6	0.13	0.22	0.09	0.15	0.18	0.20	0.21	0.15	-0.08	-0.13	-0.10	-0.12	-0.12	-0.17	-0.13	-0.11	0.09	0.08	0.05	0.04	0.04	0.07
MCA7	0.16	0.19	0.20	0.16	0.20	0.20	0.24	0.27	-0.12	-0.14	-0.11	-0.14	-0.07	-0.13	-0.07	-0.09	0.01	0.02	-0.02	-0.02	0.03	0.01
MCA8	0.19	0.23	0.17	0.14	0.25	0.27	0.23	0.27	-0.07	-0.08	-0.10	-0.08	-0.09	-0.14	-0.08	-0.10	0.01	0.01	-0.04	-0.05	-0.01	0.00
MCA9	0.13	0.20	0.16	0.13	0.16	0.25	0.22	0.21	-0.10	-0.14	-0.14	-0.14	-0.13	-0.13	-0.17	-0.09	0.05	0.06	0.04	0.02	0.04	0.01
MCA10	0.10	0.18	0.13	0.08	0.16	0.18	0.19	0.22	-0.09	-0.09	-0.10	-0.07	-0.10	-0.10	-0.09	-0.07	0.01	0.03	-0.01	0.01	0.00	0.02
MCA11	0.19	0.18	0.14	0.15	0.22	0.17	0.22	0.26	-0.08	-0.10	-0.11	-0.11	-0.10	-0.13	-0.11	-0.13	-0.02	0.01	-0.03	-0.03	0.01	0.00
MCA12	0.12	0.23	0.12	0.18	0.19	0.21	0.19	0.22	-0.14	-0.13	-0.14	-0.14	-0.17	-0.23	-0.22	-0.17	0.06	0.11	0.06	0.08	0.03	0.04
MCA13	0.23	0.17	0.20	0.22	0.28	0.24	0.26	0.27	-0.19	-0.18	-0.21	-0.18	-0.20	-0.20	-0.20	-0.24	0.06	0.07	0.05	0.06	0.11	0.04
MCA14	0.09	0.17	0.19	0.17	0.20	0.21	0.21	0.28	-0.12	-0.18	-0.17	-0.17	-0.11	-0.10	-0.13	-0.17	0.02	0.05	0.07	0.07	0.07	0.04
MCA15	0.18	0.20	0.24	0.21	0.24	0.25	0.26	0.34	-0.20	-0.22	-0.24	-0.23	-0.18	-0.19	-0.16	-0.19	0.05	0.07	0.04	0.05	0.08	0.03
MCA16	0.16	0.25	0.20	0.22	0.30	0.28	0.30	0.26	-0.16	-0.17	-0.17	-0.16	-0.16	-0.20	-0.20	-0.18	0.03	0.03	0.00	-0.02	-0.02	0.06
MCA17	0.22	0.20	0.19	0.16	0.21	0.20	0.22	0.30	-0.17	-0.17	-0.17	-0.15	-0.15	-0.18	-0.13	-0.17	0.09	0.07	0.02	0.01	0.03	0.05
MCA18	0.13	0.21	0.13	0.17	0.17	0.26	0.23	0.18	-0.06	-0.05	-0.08	-0.06	-0.03	-0.12	-0.06	-0.02	0.04	0.02	0.01	-0.03	-0.05	0.02
MCA19	0.16	0.22	0.24	0.23	0.24	0.29	0.25	0.27	-0.13	-0.13	-0.16	-0.13	-0.11	-0.13	-0.12	-0.10	0.06	0.05	0.04	0.03	0.07	0.07
MCA20	0.21	0.21	0.15	0.18	0.21	0.20	0.22	0.29	-0.09	-0.09	-0.13	-0.12	-0.11	-0.14	-0.11	-0.11	0.02	0.03	0.02	-0.02	0.01	0.04

(*table continues)*

Table D.1 (*continued*).

	SA8	SA9	SA10	SA12	LC4	LC7	LC8	LC9	LC11	LC12	LC13	LC14	LC15	LC17	LC18	LC19	LC20	LC21	LC23	LC24	LC25	LC27
SA8	-																					
SA9	0.74	-																				
SA10	0.56	0.56	-																			
SA12	0.58	0.55	0.48	-																		
LC4	-0.24	-0.27	-0.23	-0.28	-																	
LC7	-0.23	-0.25	-0.21	-0.28	0.74	-																
LC8	-0.21	-0.22	-0.22	-0.25	0.47	0.49	-															
LC9	-0.25	-0.28	-0.28	-0.29	0.60	0.53	0.43	-														
LC11	-0.14	-0.17	-0.25	-0.21	0.54	0.52	0.45	0.54	-													
LC12	-0.07	-0.09	-0.19	-0.14	0.38	0.39	0.32	0.41	0.49	-												
LC13	-0.27	-0.27	-0.32	-0.32	0.64	0.65	0.46	0.63	0.57	0.50	-											
LC14	-0.12	-0.15	-0.21	-0.17	0.50	0.44	0.42	0.46	0.63	0.64	0.62	-										
LC15	-0.19	-0.18	-0.20	-0.23	0.39	0.40	0.42	0.43	0.47	0.35	0.48	0.44	-									
LC17	-0.14	-0.07	-0.12	-0.11	0.15	0.17	0.30	0.20	0.20	0.19	0.25	0.20	0.47	-								
LC18	-0.13	-0.19	-0.21	-0.14	0.35	0.35	0.29	0.38	0.34	0.44	0.42	0.37	0.32	0.21	-							
LC19	-0.19	-0.17	-0.12	-0.26	0.28	0.27	0.30	0.29	0.30	0.26	0.30	0.25	0.39	0.26	0.34	-						
LC20	-0.11	-0.08	-0.12	-0.07	0.18	0.14	0.26	0.16	0.26	0.30	0.25	0.37	0.16	0.29	0.27	0.10	-					
LC21	-0.15	-0.12	-0.16	-0.20	0.20	0.19	0.23	0.24	0.23	0.21	0.25	0.21	0.35	0.29	0.33	0.45	0.13	-				
LC23	-0.16	-0.21	-0.19	-0.25	0.67	0.64	0.50	0.52	0.59	0.41	0.65	0.55	0.43	0.23	0.42	0.29	0.35	0.29	-			
LC24	-0.11	-0.14	-0.16	-0.11	0.33	0.36	0.29	0.32	0.28	0.25	0.36	0.26	0.35	0.24	0.51	0.34	0.21	0.29	0.37	-		
LC25	-0.10	-0.13	-0.16	-0.10	0.33	0.36	0.33	0.29	0.37	0.32	0.35	0.37	0.36	0.24	0.41	0.30	0.27	0.27	0.39	0.63	-	
LC27	-0.05	-0.05	-0.12	-0.07	0.13	0.17	0.21	0.15	0.22	0.11	0.18	0.20	0.39	0.33	0.21	0.22	0.22	0.23	0.26	0.28	0.40	-

(*table continues)*

Table D.1 (*continued*).

	SA8	SA9	SA10	SA12	LC4	LC7	LC8	LC9	LC11	LC12	LC13	LC14	LC15	LC17	LC18	LC19	LC20	LC21	LC23	LC24	LC25	LC27
LC29	-0.14	-0.14	-0.15	-0.14	0.25	0.29	0.30	0.26	0.29	0.20	0.31	0.26	0.39	0.33	0.41	0.37	0.21	0.34	0.39	0.39	0.39	0.40
LC30	-0.15	-0.11	-0.13	-0.20	0.12	0.19	0.30	0.23	0.19	0.15	0.22	0.19	0.36	0.30	0.28	0.52	0.17	0.46	0.23	0.35	0.29	0.22
MCA1	0.13	0.14	0.15	0.18	-0.12	-0.16	-0.15	-0.12	-0.11	-0.09	-0.15	-0.11	-0.17	-0.24	-0.09	-0.18	-0.11	-0.14	-0.13	-0.16	-0.19	-0.22
MCA2	0.08	0.08	0.07	0.07	-0.11	-0.13	-0.10	-0.11	-0.10	-0.05	-0.09	-0.04	-0.15	-0.14	-0.13	-0.20	0.02	-0.08	-0.08	-0.18	-0.16	-0.08
MCA3	-0.02	0.01	0.03	0.01	-0.11	-0.14	-0.17	-0.10	-0.13	-0.04	-0.11	-0.06	-0.19	-0.18	-0.07	-0.14	-0.05	-0.04	-0.13	-0.10	-0.12	-0.21
MCA4	0.01	0.04	0.08	0.02	-0.14	-0.16	-0.16	-0.12	-0.11	0.00	-0.11	-0.05	-0.18	-0.09	-0.09	-0.08	-0.04	-0.04	-0.19	-0.15	-0.11	-0.18
MCA5	0.13	0.18	0.13	0.19	-0.28	-0.24	-0.21	-0.26	-0.21	-0.07	-0.22	-0.15	-0.24	-0.19	-0.17	-0.18	-0.11	-0.13	-0.28	-0.20	-0.16	-0.16
MCA6	0.07	0.06	0.07	0.04	-0.08	-0.09	-0.12	-0.08	-0.06	-0.07	-0.13	-0.05	-0.16	-0.18	-0.16	-0.22	-0.06	-0.15	-0.05	-0.15	-0.14	-0.12
MCA7	-0.01	0.04	0.00	0.01	-0.13	-0.15	-0.14	-0.05	-0.15	-0.02	-0.09	-0.06	-0.16	-0.12	-0.12	-0.15	-0.04	-0.06	-0.18	-0.14	-0.11	-0.14
MCA8	-0.04	0.01	0.00	0.02	-0.12	-0.15	-0.12	-0.06	-0.09	-0.01	-0.06	-0.03	-0.14	-0.10	-0.09	-0.14	-0.05	-0.10	-0.17	-0.16	-0.13	-0.15
MCA9	-0.02	0.06	-0.01	0.08	-0.14	-0.17	-0.11	-0.13	-0.10	-0.03	-0.10	-0.02	-0.19	-0.10	-0.12	-0.19	0.00	-0.08	-0.18	-0.13	-0.12	-0.12
MCA10	-0.04	-0.04	-0.01	-0.01	-0.12	-0.17	-0.08	-0.13	-0.10	-0.07	-0.12	-0.04	-0.12	-0.16	-0.15	-0.11	-0.07	-0.07	-0.17	-0.10	-0.11	-0.14
MCA11	-0.03	-0.01	0.03	0.03	-0.11	-0.07	-0.12	-0.06	-0.05	-0.01	-0.06	-0.03	-0.13	-0.15	-0.10	-0.15	-0.04	-0.14	-0.13	-0.07	-0.07	-0.15
MCA12	0.05	0.03	0.01	0.06	-0.12	-0.16	-0.17	-0.05	-0.13	-0.08	-0.13	-0.11	-0.20	-0.18	-0.13	-0.19	-0.07	-0.19	-0.21	-0.08	-0.13	-0.16
MCA13	0.05	0.07	0.10	0.14	-0.16	-0.15	-0.16	-0.14	-0.13	-0.06	-0.14	-0.12	-0.20	-0.25	-0.15	-0.16	-0.12	-0.14	-0.19	-0.18	-0.19	-0.23
MCA14	0.05	0.03	0.03	0.09	-0.14	-0.14	-0.14	-0.13	-0.14	-0.08	-0.11	-0.11	-0.18	-0.17	-0.19	-0.13	-0.06	-0.07	-0.16	-0.15	-0.17	-0.15
MCA15	0.04	0.08	0.11	0.07	-0.22	-0.18	-0.19	-0.17	-0.20	-0.10	-0.19	-0.20	-0.23	-0.23	-0.18	-0.16	-0.11	-0.11	-0.26	-0.17	-0.24	-0.20
MCA16	0.00	0.01	0.05	0.04	-0.16	-0.13	-0.21	-0.09	-0.12	-0.03	-0.11	-0.11	-0.16	-0.18	-0.11	-0.15	-0.08	-0.09	-0.20	-0.10	-0.15	-0.17
MCA17	0.07	0.04	0.07	0.07	-0.17	-0.17	-0.18	-0.17	-0.12	-0.02	-0.13	-0.06	-0.23	-0.17	-0.13	-0.16	-0.07	-0.15	-0.17	-0.17	-0.19	-0.18
MCA18	-0.01	-0.01	0.03	-0.05	-0.11	-0.14	-0.10	-0.09	-0.10	-0.11	-0.09	-0.11	-0.16	-0.17	-0.21	-0.17	-0.02	-0.14	-0.11	-0.19	-0.22	-0.12
MCA19	0.06	0.07	0.05	0.03	-0.18	-0.20	-0.18	-0.12	-0.14	-0.06	-0.12	-0.12	-0.23	-0.17	-0.17	-0.21	-0.03	-0.16	-0.20	-0.13	-0.20	-0.20
MCA20	0.03	0.01	0.06	0.01	-0.09	-0.12	-0.11	-0.06	-0.09	-0.07	-0.08	-0.04	-0.21	-0.17	-0.14	-0.18	-0.01	-0.16	-0.11	-0.13	-0.17	-0.20

(*table continues)*

Table D.1 (*continued*).

	LC29	LC30	MCA1	MCA2	MCA3	MCA4	MCA5	MCA6	MCA7	MCA8	MCA9	MCA10	MCA11	MCA12	MCA13	MCA14	MCA15	MCA16	MCA17	MCA18	MCA19	MCA20
LC29	-																					
LC30	0.37	-																				
MCA1	-0.20	-0.16	-																			
MCA2	-0.21	-0.19	0.41	-																		
MCA3	-0.20	-0.10	0.35	0.39	-																	
MCA4	-0.22	-0.05	0.24	0.31	0.63	-																
MCA5	-0.23	-0.13	0.32	0.33	0.43	0.49	-															
MCA6	-0.18	-0.22	0.31	0.48	0.31	0.25	0.39	-														
MCA7	-0.18	-0.11	0.24	0.36	0.43	0.48	0.47	0.37	-													
MCA8	-0.21	-0.13	0.24	0.30	0.51	0.60	0.46	0.39	0.64	-												
MCA9	-0.18	-0.16	0.30	0.34	0.37	0.43	0.47	0.42	0.49	0.59	-											
MCA10	-0.18	-0.11	0.25	0.35	0.35	0.36	0.39	0.39	0.46	0.47	0.41	-										
MCA11	-0.20	-0.13	0.26	0.31	0.47	0.53	0.45	0.36	0.52	0.56	0.43	0.41	-									
MCA12	-0.27	-0.22	0.33	0.36	0.34	0.33	0.35	0.38	0.33	0.44	0.40	0.49	0.48	-								
MCA13	-0.31	-0.17	0.46	0.39	0.39	0.33	0.50	0.34	0.40	0.38	0.34	0.36	0.46	0.48	-							
MCA14	-0.27	-0.06	0.27	0.40	0.33	0.40	0.48	0.36	0.44	0.42	0.45	0.48	0.43	0.38	0.49	-						
MCA15	-0.23	-0.13	0.33	0.37	0.42	0.41	0.52	0.38	0.48	0.47	0.41	0.38	0.46	0.37	0.48	0.60	-					
MCA16	-0.23	-0.12	0.30	0.36	0.48	0.48	0.47	0.38	0.47	0.57	0.46	0.42	0.52	0.47	0.51	0.53	0.62	-				
MCA17	-0.22	-0.13	0.32	0.32	0.50	0.56	0.45	0.34	0.47	0.56	0.40	0.37	0.60	0.43	0.53	0.43	0.52	0.65	-			
MCA18	-0.22	-0.16	0.23	0.51	0.36	0.35	0.32	0.48	0.42	0.43	0.38	0.44	0.47	0.39	0.39	0.44	0.47	0.54	0.52	-		
MCA19	-0.24	-0.15	0.28	0.37	0.42	0.42	0.42	0.37	0.44	0.55	0.49	0.43	0.47	0.45	0.44	0.51	0.58	0.65	0.61	0.59	-	
MCA20	-0.22	-0.13	0.24	0.35	0.46	0.48	0.32	0.36	0.41	0.53	0.33	0.37	0.59	0.43	0.43	0.39	0.45	0.51	0.65	0.52	0.60	-

Table D.2

Descriptive Statistics for Learning Goal Orientation Item Set (LGO) by Group

	Baby Boomers (*n* = 263)				Generation X (*n* = 214)				Generation Y (*n* = 159)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt	M	SD	Skew	Kurt
1	6.57	0.72	-3.46	20.29	6.49	0.70	-2.64	16.11	6.48	0.57	-0.75	-0.11
	1.17	*0.25*	*1.92*	*6.49*	*1.20*	*0.25*	*1.26*	*3.37*	*1.21*	*0.22*	*0.49*	*-0.88*
2	6.10	0.98	-1.55	3.67	6.24	0.81	-1.81	7.77	6.25	0.65	-0.70	0.81
	1.34	*0.33*	*0.82*	*0.64*	*1.29*	*0.28*	*0.79*	*1.41*	*1.30*	*0.24*	*0.23*	*-0.36*
3	6.11	0.90	-1.54	4.83	6.06	0.79	-0.90	2.35	6.03	0.81	-2.05	8.01
	1.34	*0.31*	*0.69*	*0.76*	*1.36*	*0.28*	*0.25*	*-0.04*	*1.38*	*0.27*	*0.86*	*2.94*
4	6.51	0.75	-2.66	12.92	6.50	0.72	-2.62	15.11	6.43	0.59	-0.85	1.00
	1.19	*0.26*	*1.52*	*3.56*	*1.20*	*0.26*	*1.33*	*3.27*	*1.23*	*0.23*	*0.45*	*-0.49*
5	5.98	0.99	-1.51	3.52	5.97	0.98	-1.35	3.54	6.09	0.86	-1.25	2.20
	1.38	*0.32*	*0.74*	*0.76*	*1.39*	*0.33*	*0.57*	*0.42*	*1.35*	*0.30*	*0.61*	*0.36*
6	6.31	0.80	-2.07	8.84	6.29	0.86	-1.97	7.14	6.46	0.60	-1.18	2.28
	1.27	*0.28*	*0.99*	*2.05*	*1.28*	*0.30*	*1.04*	*1.64*	*1.22*	*0.23*	*0.68*	*0.11*
7	6.45	0.74	-2.40	11.90	6.42	0.79	-2.59	12.40	6.54	0.57	-1.02	0.33
	1.22	*0.27*	*1.24*	*2.76*	*1.23*	*0.27*	*1.35*	*3.38*	*1.19*	*0.22*	*0.77*	*-0.52*
8	6.24	0.86	-1.61	5.19	6.16	0.95	-2.10	7.87	6.08	0.97	-1.94	5.47
	1.29	*0.30*	*0.81*	*0.75*	*1.32*	*0.31*	*1.03*	*2.02*	*1.35*	*0.32*	*1.03*	*1.85*

Note. Items in italics transformed using $y = (8\text{-}x)^{1/2}$.

Table D.3

Descriptive Statistics for Developmental Efficacy Item Set (DE) by Group

	Baby Boomers (*n* = 159)				Generation X (*n* = 159)				Generation Y (*n* = 159)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt	M	SD	Skew	Kurt
1	5.76	0.98	-0.38	-0.62	5.40	1.05	0.07	-0.82	5.43	0.99	-0.15	0.00
2	5.67	1.00	-0.39	-0.44	5.54	1.06	-0.32	-0.51	5.53	1.03	-0.48	0.37
3	5.82	0.96	-0.68	0.48	5.57	1.02	-0.26	-0.53	5.54	1.01	-0.50	0.30
4	5.81	0.95	-0.43	-0.48	5.63	1.01	-0.17	-0.81	5.62	0.92	-0.62	1.29
5	6.21	0.88	-0.97	0.34	5.93	1.01	-0.62	-0.35	5.96	0.97	-0.76	0.61
6	5.97	0.91	-0.53	-0.57	5.76	0.96	-0.48	-0.12	5.68	0.98	-0.49	0.37
7	5.76	0.96	-0.51	0.13	5.57	0.97	-0.16	-0.82	5.55	0.95	-0.45	0.64
8	5.87	1.01	-0.62	-0.22	5.70	1.02	-0.36	-0.66	5.67	1.02	-0.46	0.15

Table D.4

Descriptive Statistics for Self Awareness Item Set (SA) by Group

	Baby Boomers (*n* = 159)				Generation X (*n* = 159)				Generation Y (*n* = 159)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt	M	SD	Skew	Kurt
1	3.13	1.80	0.47	-1.15	3.25	1.80	0.36	-1.21	2.73	1.47	1.02	0.27
2	3.41	1.96	0.27	-1.38	3.35	1.86	0.27	-1.34	3.34	1.67	0.36	-0.95
3	2.76	1.77	0.95	-0.27	3.05	1.79	0.63	-0.76	2.99	1.68	0.63	-0.59
4	2.73	1.74	0.81	-0.69	2.93	1.83	0.69	-0.88	2.72	1.65	0.75	-0.66
5	2.45	1.58	1.24	0.55	2.51	1.52	1.08	0.40	2.47	1.48	1.13	0.48
7	2.73	1.69	0.92	-0.27	2.59	1.59	0.98	-0.05	2.62	1.44	1.12	0.56
8	2.19	1.40	1.52	1.72	2.36	1.43	1.19	0.68	2.04	1.04	1.68	3.61
9	2.20	1.35	1.35	0.99	2.38	1.44	1.23	0.75	2.16	1.23	1.43	1.78
10	2.28	1.40	1.40	1.50	2.30	1.49	1.42	1.52	2.18	1.18	1.34	1.61
12	2.25	1.41	1.53	1.71	2.42	1.57	1.32	1.04	2.73	1.61	0.80	-0.52

Table D.5

Descriptive Statistics for Leader Complexity Item Set (LC) by Group

	Baby Boomers (*n* = 159)				Generation X (*n* = 159)				Generation Y (*n* = 159)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt	M	SD	Skew	Kurt
4	5.58	1.14	-0.64	-0.09	5.46	1.26	-1.20	1.05	5.72	0.93	-1.10	1.37
7	5.67	0.98	-0.86	0.73	5.59	1.13	-1.34	2.15	5.67	0.92	-1.03	1.89
8	5.81	0.93	-0.91	1.11	5.76	0.85	-0.93	1.80	5.79	0.78	-1.54	4.81
9	6.25	0.87	-1.71	4.77	6.07	0.93	-1.49	3.24	6.14	0.77	-1.54	5.60
11	5.67	1.13	-0.97	1.32	5.68	1.06	-1.05	1.19	5.68	1.05	-0.85	0.53
12	5.75	1.40	-1.28	1.03	5.69	1.29	-1.20	1.23	5.77	1.23	-1.28	1.49
13	5.91	0.96	-1.16	2.12	5.85	1.01	-1.57	3.78	5.91	0.80	-1.82	7.18
14	5.74	1.16	-1.08	1.02	5.74	1.05	-1.14	1.71	5.79	0.92	-0.87	1.33
15	6.31	0.72	-1.30	4.36	6.27	0.73	-0.99	1.69	6.15	0.65	-0.92	3.07
17	6.44	0.60	-0.65	0.08	6.36	0.69	-1.13	2.29	6.35	0.59	-0.43	-0.39
18	6.35	0.70	-1.02	1.63	6.27	0.71	-0.92	1.58	6.26	0.67	-1.09	3.03
19	6.48	0.71	-1.53	3.01	6.47	0.72	-1.73	4.52	6.42	0.61	-0.87	0.77
20	5.82	1.06	-0.75	0.13	5.81	1.00	-0.93	1.02	5.90	0.94	-0.88	1.05
21	6.65	0.54	-1.36	1.78	6.49	0.64	-1.53	4.49	6.50	0.65	-2.49	13.70
23	5.36	1.17	-0.47	-0.33	5.32	1.15	-0.89	1.18	5.41	0.97	-0.56	0.66
24	6.28	0.80	-1.18	1.78	6.18	0.85	-1.19	1.87	6.19	0.83	-1.97	6.65
25	6.12	0.90	-1.05	0.97	6.09	0.88	-0.98	1.30	6.04	0.91	-1.42	3.04
27	6.34	0.83	-1.78	6.12	6.30	0.76	-1.01	0.90	6.25	0.82	-1.64	4.85
29	6.18	0.79	-0.94	0.77	6.23	0.69	-0.87	1.83	6.18	0.62	-0.86	2.42
30	6.52	0.69	-1.60	3.25	6.45	0.67	-1.40	3.33	6.50	0.60	-1.68	6.22

Table D.6

Descriptive Statistics for Metacognitive Ability Item Set (MCA) by Group

	Baby Boomers (*n* = 159)				Generation X (*n* = 159)				Generation Y (*n* = 159)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt	M	SD	Skew	Kurt
1	6.40	0.60	-0.56	-0.01	6.28	0.88	-2.58	10.81	6.27	0.81	-2.46	9.92
	1.24	*0.24*	*0.26*	*-1.01*	*1.28*	*0.29*	*1.34*	*3.54*	*1.29*	*0.27*	*1.27*	*3.51*
2	6.04	1.05	-2.28	7.36	5.98	1.09	-1.89	4.47	5.90	1.09	-1.83	4.22
	1.36	*0.33*	*1.23*	*2.66*	*1.38*	*0.34*	*1.08*	*1.59*	*1.41*	*0.34*	*0.98*	*1.56*
3	5.73	1.14	-1.39	2.31	5.97	1.04	-1.82	5.01	5.80	1.07	-1.65	3.75
	1.46	*0.35*	*0.71*	*0.50*	*1.39*	*0.33*	*0.92*	*1.48*	*1.45*	*0.33*	*0.81*	*1.31*
4	5.17	1.49	-0.81	-0.10	5.52	1.28	-1.10	1.06	5.35	1.31	-1.17	1.22
	1.63	*0.43*	*0.34*	*-0.62*	*1.53*	*0.39*	*0.51*	*-0.12*	*1.58*	*0.38*	*0.55*	*0.19*
5	5.19	1.31	-0.84	0.38	5.12	1.30	-0.58	-0.36	5.27	1.13	-1.22	2.13
	1.63	*0.38*	*0.31*	*-0.32*	*1.65*	*0.38*	*0.13*	*-0.63*	*1.62*	*0.33*	*0.48*	*0.87*
6	6.21	0.84	-1.98	7.24	6.11	0.94	-1.89	5.93	6.25	0.81	-1.72	5.44
	1.31	*0.29*	*0.93*	*2.02*	*1.34*	*0.31*	*0.95*	*1.61*	*1.29*	*0.28*	*0.87*	*1.29*
7	5.39	1.33	-0.96	0.63	5.39	1.36	-0.95	0.42	5.58	1.12	-1.29	2.58
	1.56	*0.40*	*0.41*	*-0.36*	*1.56*	*0.41*	*0.43*	*-0.40*	*1.52*	*0.34*	*0.50*	*0.65*
8	5.41	1.44	-1.10	0.63	5.47	1.22	-0.90	0.49	5.71	1.08	-1.67	4.08
	1.55	*0.42*	*0.60*	*-0.29*	*1.55*	*0.38*	*0.36*	*-0.32*	*1.48*	*0.33*	*0.79*	*1.48*
9	5.78	1.34	-1.62	2.82	5.74	1.14	-1.09	1.13	5.97	1.02	-1.73	5.21
	1.43	*0.41*	*0.93*	*0.64*	*1.46*	*0.36*	*0.52*	*-0.15*	*1.39*	*0.33*	*0.78*	*1.24*
10	5.39	1.39	-1.19	1.20	5.48	1.31	-1.08	1.11	5.60	1.32	-1.27	1.53
	1.56	*0.41*	*0.59*	*0.01*	*1.54*	*0.40*	*0.48*	*-0.17*	*1.50*	*0.40*	*0.64*	*0.10*

(*table continues)*

Table D.6 (*continued*).

	Baby Boomers (*n* = 159)				Generation X (*n* = 159)				Generation Y (*n* = 159)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt	M	SD	Skew	Kurt
11	5.60	1.31	-1.53	2.40	5.62	1.22	-1.42	1.92	5.62	1.07	-1.59	3.43
	1.50	*0.39*	*0.86*	*0.71*	*1.50*	*0.37*	*0.80*	*0.54*	*1.51*	*0.32*	*0.76*	*1.43*
12	5.90	1.00	-1.77	4.87	5.81	0.97	-1.39	3.50	5.81	0.98	-1.75	4.48
	1.41	*0.32*	*0.86*	*1.59*	*1.45*	*0.31*	*0.58*	*0.85*	*1.45*	*0.30*	*0.85*	*1.89*
13	5.95	0.92	-1.42	3.44	5.86	1.06	-1.29	2.02	5.94	0.94	-1.54	4.50
	1.40	*0.30*	*0.62*	*0.84*	*1.42*	*0.34*	*0.63*	*0.28*	*1.40*	*0.31*	*0.62*	*1.12*
14	5.66	1.15	-1.39	2.62	5.75	1.15	-1.53	3.16	5.79	1.04	-1.92	5.70
	1.49	*0.35*	*0.67*	*0.59*	*1.46*	*0.36*	*0.76*	*0.80*	*1.45*	*0.32*	*0.89*	*2.12*
15	5.54	1.17	-1.09	1.39	5.67	1.09	-0.93	0.88	5.56	1.21	-1.27	1.96
	1.53	*0.36*	*0.47*	*0.03*	*1.49*	*0.35*	*0.36*	*-0.23*	*1.52*	*0.37*	*0.57*	*0.38*
16	5.56	1.17	-1.38	2.51	5.67	1.16	-1.23	1.62	5.83	0.82	-1.44	3.68
	1.52	*0.35*	*0.66*	*0.65*	*1.48*	*0.36*	*0.60*	*0.19*	*1.45*	*0.27*	*0.60*	*1.59*
17	5.57	1.32	-1.29	1.47	5.63	1.24	-1.17	1.32	5.69	1.06	-1.71	4.27
	1.51	*0.40*	*0.70*	*0.11*	*1.49*	*0.38*	*0.58*	*-0.04*	*1.49*	*0.32*	*0.82*	*1.66*
18	5.56	1.24	-1.40	2.19	5.77	1.09	-1.47	2.93	5.74	1.03	-1.63	4.47
	1.52	*0.37*	*0.72*	*0.54*	*1.45*	*0.34*	*0.72*	*0.75*	*1.47*	*0.32*	*0.69*	*1.48*
19	5.63	1.18	-1.51	3.06	5.77	1.04	-1.27	2.00	5.81	0.86	-1.88	7.82
	1.50	*0.36*	*0.75*	*0.83*	*1.45*	*0.33*	*0.60*	*0.43*	*1.45*	*0.27*	*0.67*	*2.73*
20	5.79	1.08	-1.50	3.39	5.91	1.03	-1.27	1.80	5.89	0.95	-1.86	5.40
	1.45	*0.34*	*0.71*	*0.81*	*1.41*	*0.34*	*0.66*	*0.22*	*1.42*	*0.30*	*0.87*	*2.10*

Note. Items in italics transformed using $y = (8\text{-}x)^{1/2}$.

Table D.7

Standardized and Unstandardized Path Coefficients Measurement Model, by Group

	Baby Boomers		Generation X		Generation Y	
	Unstandardized	Standardized	Unstandardized	Standardized	Unstandardized	Standardized
LDR→LGO	-0.15	-0.53	-0.11	-0.47	-0.13	-0.57
LDR →DE	0.88	0.68	0.71	0.67	1.06	0.62
LDR →SA	-0.77	-0.37	-1.00	-0.58	-0.58	-0.26
LDR →LC	1.00	0.79	1.00	0.77	1.00	0.79
LDR →MCA	-0.11	-0.39	-0.08	-0.34	-0.27	-0.65
LGO→LGO_1	1.00	0.67	1.00	0.73	1.00	0.50
LGO →LGO_2	1.06	0.54	0.89	0.58	1.12	0.52
LGO →LGO_3	1.42	0.77	1.09	0.72	1.64	0.69
LGO →LGO_4	1.24	0.79	0.99	0.71	1.65	0.81
LGO →LGO_5	1.36	0.70	1.25	0.71	1.62	0.61
LGO →LGO_6	1.03	0.62	1.09	0.68	1.33	0.65
LGO →LGO_7	1.20	0.76	1.11	0.75	1.61	0.81
LGO →LGO_8	1.32	0.73	1.04	0.61	1.69	0.60
DE →DE_1	1.00	0.80	1.00	0.79	1.00	0.87
DE →DE_2	1.09	0.84	1.09	0.86	1.05	0.87
DE →DE_3	1.09	0.88	1.09	0.89	1.03	0.88
DE →DE_4	1.04	0.84	1.07	0.88	0.91	0.85
DE →DE_5	0.76	0.67	0.93	0.77	0.65	0.57
DE →DE_6	0.80	0.68	0.80	0.69	0.72	0.63

(*table continues)*

Table D.7 (*continued*).

	Baby Boomers		Generation X		Generation Y	
	Unstandardized	Standardized	Unstandardized	Standardized	Unstandardized	Standardized
DE →DE_7	0.75	0.61	0.72	0.62	0.76	0.69
DE →DE_8	0.89	0.69	0.84	0.68	0.76	0.64
SA →SA_1_1	1.00	0.71	1.00	0.75	1.00	0.77
SA →SA_2_1	1.20	0.78	1.07	0.78	1.09	0.73
SA →SA_3_1	1.12	0.80	1.01	0.76	1.17	0.78
SA →SA_4_1	1.13	0.82	1.09	0.80	1.18	0.81
SA →SA_5_1	0.91	0.73	0.71	0.63	0.95	0.72
SA →SA_7_1	0.97	0.73	0.66	0.56	0.66	0.52
SA →SA_8_1	0.92	0.83	0.96	0.91	0.79	0.85
SA →SA_9_1	0.84	0.79	0.85	0.79	0.83	0.76
SA →SA_10_1	0.70	0.64	0.74	0.67	0.72	0.69
SA →SA_12_1	0.81	0.73	0.80	0.69	0.91	0.64
LC →LC_4	1.00	0.67	1.00	0.81	1.00	0.68
LC →LC_7	0.85	0.66	0.87	0.79	0.94	0.64
LC →LC_8	0.81	0.66	0.56	0.67	0.60	0.49
LC →LC_9	0.79	0.69	0.72	0.79	0.65	0.53
LC →LC_11	1.13	0.76	0.78	0.75	1.07	0.64
LC →LC_12	1.20	0.65	0.67	0.53	0.85	0.44

(*table continues)*

Table D.7 (*continued*).

	Baby Boomers		Generation X		Generation Y	
	Unstandardized	Standardized	Unstandardized	Standardized	Unstandardized	Standardized
LC →LC_13	0.96	0.76	0.80	0.82	1.06	0.84
LC →LC_14	1.08	0.71	0.67	0.66	1.02	0.70
LC →LC_15	0.63	0.67	0.41	0.58	0.73	0.70
LC →LC_15	0.33	0.42	0.18	0.27	0.46	0.49
LC →LC_18	0.53	0.58	0.41	0.59	0.51	0.48
LC →LC_19	0.40	0.43	0.36	0.51	0.46	0.47
LC →LC_21	0.35	0.50	0.21	0.34	0.39	0.38
LC →LC_23	1.18	0.77	0.90	0.80	1.21	0.79
LC →LC_24	0.57	0.55	0.41	0.50	0.59	0.45
LC →LC_25	0.68	0.57	0.40	0.47	0.84	0.58
LC →LC_27	0.42	0.39	0.23	0.31	0.50	0.38
LC →LC_29	0.57	0.55	0.32	0.48	0.42	0.43
LC →LC_30	0.38	0.42	0.23	0.36	0.31	0.32
MCA →MCA_2	1.00	0.50	1.00	0.53	1.00	0.61
MCA →MCA_3	1.38	0.65	1.06	0.58	0.98	0.61
MCA →MCA_4	1.69	0.65	1.37	0.63	1.21	0.66
MCA →MCA_5	1.47	0.63	1.30	0.61	1.08	0.69
MCA →MCA_6	0.89	0.52	0.94	0.54	0.83	0.62
MCA →MCA_7	1.69	0.70	1.36	0.60	1.20	0.73
MCA →MCA_8	1.91	0.75	1.53	0.73	1.16	0.73

(*table continues)*

Table D.7 (*continued*).

	Baby Boomers		Generation X		Generation Y	
	Unstandardized	Standardized	Unstandardized	Standardized	Unstandardized	Standardized
MCA →MCA_9	1.59	0.65	1.29	0.64	0.91	0.57
MCA →MCA_10	1.61	0.65	1.13	0.51	1.18	0.61
MCA →MCA_11	1.65	0.71	1.42	0.70	1.18	0.76
MCA →MCA_12	1.16	0.60	1.05	0.61	0.92	0.63
MCA →MCA_13	1.04	0.57	1.29	0.68	1.10	0.74
MCA →MCA_14	1.41	0.66	1.32	0.67	1.02	0.66
MCA →MCA_15	1.48	0.68	1.38	0.71	1.40	0.79
MCA →MCA_16	1.70	0.80	1.57	0.79	0.93	0.73
MCA →MCA_17	1.95	0.81	1.56	0.74	1.10	0.71
MCA →MCA_18	1.59	0.71	1.22	0.64	0.98	0.63
MCA →MCA_19	1.68	0.77	1.39	0.76	0.96	0.73
MCA →MCA_20	1.50	0.73	1.29	0.69	0.93	0.64

Table D.8

Squared Multiple Correlation Coefficients for Each Variable, by Group, for the Measurement Model

	Baby Boomers	Generation X	Generation Y
LGO	0.28	0.22	0.33
DE	0.47	0.45	0.38
SA	0.13	0.34	0.07
LC	0.63	0.59	0.63
MCA	0.16	0.12	0.43
LGO_1	0.44	0.53	0.25
LGO_2	0.29	0.34	0.27
LGO_3	0.59	0.52	0.47
LGO_4	0.62	0.50	0.65
LGO_5	0.49	0.50	0.37
LGO_6	0.38	0.46	0.42
LGO_7	0.57	0.56	0.66
LGO_8	0.54	0.37	0.36
DE_1	0.63	0.63	0.75
DE_2	0.71	0.74	0.75
DE_3	0.78	0.78	0.77
DE_4	0.71	0.78	0.72
DE_5	0.45	0.59	0.33
DE_6	0.47	0.48	0.40
DE_7	0.37	0.38	0.47
DE_8	0.47	0.46	0.40
SA_1	0.50	0.57	0.59

(*table continues)*

Table D.8 (*continued*).

	Baby Boomers	Generation X	Generation Y
SA_2	0.60	0.61	0.54
SA_3_1	0.64	0.57	0.61
SA_4_1	0.67	0.64	0.66
SA_5_1	0.53	0.39	0.52
SA_7_1	0.53	0.32	0.27
SA_8_1	0.69	0.83	0.72
SA_9_1	0.62	0.63	0.58
SA_10_1	0.41	0.45	0.47
SA_12_1	0.53	0.47	0.40
LC_4	0.44	0.66	0.46
LC_7	0.44	0.62	0.41
LC_8	0.43	0.44	0.24
LC_9	0.47	0.63	0.28
LC_11	0.58	0.57	0.41
LC_12	0.42	0.28	0.19
LC_13	0.58	0.67	0.70
LC_14	0.50	0.43	0.49
LC_15	0.45	0.34	0.49
LC_17	0.18	0.07	0.24
LC_18	0.33	0.34	0.23
LC_19	0.18	0.26	0.22
LC_21	0.25	0.12	0.15
LC_23	0.59	0.64	0.62
LC_24	0.30	0.25	0.20

(*table continues)*

Table D.8 (*continued*)

	Baby Boomers	Generation X	Generation Y
LC_25	0.33	0.22	0.34
LC_27	0.15	0.10	0.15
LC_29	0.30	0.23	0.18
LC_30	0.17	0.13	0.11
MCA_2	0.25	0.28	0.37
MCA_3	0.42	0.33	0.38
MCA_4	0.42	0.40	0.43
MCA_5	0.40	0.37	0.47
MCA_6	0.27	0.29	0.38
MCA_7	0.48	0.36	0.53
MCA_8	0.56	0.54	0.54
MCA_9	0.42	0.41	0.33
MCA_10	0.43	0.26	0.37
MCA_11	0.50	0.49	0.58
MCA_12	0.37	0.37	0.40
MCA_13	0.32	0.46	0.54
MCA_14	0.44	0.44	0.43
MCA_15	0.46	0.50	0.63
MCA_16	0.64	0.62	0.54
MCA_17	0.66	0.54	0.51
MCA_18	0.50	0.41	0.40
MCA_19	0.60	0.57	0.53
MCA_20	0.53	0.48	0.41

Table D.9

Standardized and Unstandardized Path Coefficients, Structured Means Model, by Group

	Unstandardized	Standardized		
		Baby Boomers	Generation X	Generation Y
LDR→LGO	-0.13	-0.51	-0.55	-0.56
LDR →DE	0.87	0.70	0.69	0.63
LDR →SA	-0.82	-0.40	-0.45	-0.43
LDR →LC	1.00	0.76	0.78	0.83
LDR →MCA	-0.12	-0.41	-0.47	-0.48
LGO→LGO_1	1.00	0.67	0.69	0.59
LGO →LGO_2	0.98	0.51	0.58	0.56
LGO →LGO_3	1.32	0.74	0.76	0.70
LGO →LGO_4	1.21	0.78	0.75	0.77
LGO →LGO_5	1.35	0.70	0.70	0.63
LGO →LGO_6	1.08	0.64	0.63	0.66
LGO →LGO_7	1.22	0.77	0.75	0.79
LGO →LGO_8	1.27	0.72	0.66	0.58
DE →DE_1	1.00	0.81	0.81	0.86
DE →DE_2	1.05	0.84	0.87	0.86
DE →DE_3	1.06	0.88	0.89	0.87
DE →DE_4	0.99	0.84	0.88	0.86
DE →DE_5	0.80	0.70	0.73	0.64
DE →DE_6	0.77	0.69	0.70	0.65
DE →DE_7	0.74	0.62	0.65	0.67
DE →DE_8	0.83	0.67	0.70	0.66
SA →SA_1_1	1.00	0.72	0.74	0.77

(*table continues)*

Table D.9 (*continued*).

	Unstandardized	Standardized		
		Baby Boomers	Generation X	Generation Y
SA →SA_2_1	1.12	0.66	0.78	0.76
SA →SA_3_1	1.08	0.74	0.77	0.76
SA →SA_4_1	1.12	0.77	0.80	0.80
SA →SA_5_1	0.84	0.80	0.68	0.69
SA →SA_7_1	0.79	0.83	0.61	0.60
SA →SA_8_1	0.90	0.72	0.87	0.89
SA →SA_9_1	0.83	0.66	0.77	0.78
SA →SA_10_1	0.72	0.84	0.64	0.70
SA →SA_12_1	0.80	0.80	0.67	0.58
LC →LC_4	1.00	0.72	0.76	0.73
LC →LC_7	0.87	0.72	0.74	0.68
LC →LC_8	0.66	0.62	0.68	0.58
LC →LC_9	0.74	0.71	0.75	0.64
LC →LC_11	0.95	0.74	0.78	0.66
LC →LC_12	0.91	0.59	0.61	0.52
LC →LC_13	0.91	0.79	0.81	0.84
LC →LC_14	0.89	0.68	0.72	0.71
LC →LC_15	0.56	0.67	0.66	0.64
LC →LC_17	0.28	0.40	0.36	0.37
LC →LC_18	0.49	0.59	0.61	0.52
LC →LC_19	0.37	0.44	0.48	0.45
LC →LC_21	0.26	0.39	0.36	0.30

(*table continues)*

Table D.9 (*continued*).

	Unstandardized	Standardized		
		Baby Boomers	Generation X	Generation Y
LC →LC_23	1.06	0.78	0.81	0.80
LC →LC_24	0.55	0.57	0.55	0.47
LC →LC_25	0.62	0.57	0.59	0.51
LC →LC_27	0.35	0.36	0.40	0.31
LC →LC_29	0.45	0.49	0.56	0.50
LC →LC_30	0.25	0.30	0.33	0.29
MCA →MCA_2	1.00	0.54	0.53	0.48
MCA →MCA_3	1.25	0.66	0.64	0.59
MCA →MCA_4	1.54	0.66	0.68	0.63
MCA →MCA_5	1.35	0.66	0.63	0.65
MCA →MCA_6	0.91	0.57	0.53	0.52
MCA →MCA_7	1.51	0.70	0.64	0.69
MCA →MCA_8	1.63	0.74	0.76	0.75
MCA →MCA_9	1.33	0.63	0.65	0.59
MCA →MCA_10	1.39	0.65	0.59	0.55
MCA →MCA_11	1.44	0.70	0.71	0.76
MCA →MCA_12	1.07	0.62	0.61	0.56
MCA →MCA_13	1.17	0.66	0.64	0.63
MCA →MCA_14	1.30	0.68	0.66	0.62
MCA →MCA_15	1.46	0.72	0.73	0.68
MCA →MCA_16	1.47	0.79	0.76	0.77
MCA →MCA_17	1.63	0.79	0.75	0.74

(*table continues)*

Table D.9 (*continued*).

	Unstandardized	Standardized		
		Baby Boomers	Generation X	Generation Y
MCA →MCA_18	1.33	0.68	0.67	0.63
MCA →MCA_19	1.40	0.75	0.76	0.75
MCA →MCA_20	1.31	0.73	0.69	0.66

Table D.10

Squared Multiple Correlation Coefficients for Each Variable, by Group for the Structured Means Model

	Baby Boomers	Generation X	Generation Y
LGO	0.26	0.30	0.32
DE	0.49	0.48	0.40
SA	0.16	0.20	0.18
LC	0.58	0.60	0.68
MCA	0.17	0.22	0.23
LGO_1	0.45	0.47	0.35
LGO_2	0.26	0.33	0.31
LGO_3	0.55	0.58	0.48
LGO_4	0.60	0.56	0.59
LGO_5	0.49	0.49	0.40
LGO_6	0.41	0.40	0.43
LGO_7	0.59	0.56	0.62
LGO_8	0.52	0.43	0.33
DE_1	0.65	0.65	0.74

(table continues)

Table D.10 *(continued).*

	Baby Boomers	Generation X	Generation Y
DE_2	0.71	0.75	0.74
DE_3	0.78	0.79	0.76
DE_4	0.71	0.77	0.75
DE_5	0.49	0.53	0.41
DE_6	0.47	0.49	0.42
DE_7	0.38	0.43	0.45
DE_8	0.45	0.49	0.44
SA_1	0.52	0.54	0.60
SA_2	0.59	0.61	0.58
SA_3_1	0.65	0.59	0.58
SA_4_1	0.69	0.64	0.64
SA_5_1	0.51	0.46	0.47
SA_7_1	0.44	0.37	0.36
SA_8_1	0.70	0.76	0.79
SA_9_1	0.64	0.59	0.61
SA_10_1	0.44	0.41	0.49
SA_12_1	0.55	0.45	0.34
LC_4	0.51	0.57	0.54
LC_7	0.52	0.54	0.46
LC_8	0.39	0.47	0.34
LC_9	0.51	0.56	0.41
LC_11	0.55	0.61	0.44
LC_12	0.35	0.37	0.27
LC_13	0.62	0.65	0.71

(table continues)

Table D.10 *(continued).*

	Baby Boomers	Generation X	Generation Y
LC_14	0.46	0.52	0.50
LC_15	0.45	0.44	0.41
LC_17	0.16	0.13	0.14
LC_18	0.35	0.38	0.27
LC_19	0.20	0.23	0.20
LC_21	0.15	0.13	0.09
LC_23	0.60	0.66	0.64
LC_24	0.32	0.31	0.22
LC_25	0.33	0.34	0.26
LC_27	0.13	0.16	0.10
LC_29	0.24	0.32	0.25
LC_30	0.09	0.11	0.09
MCA_2	0.29	0.28	0.23
MCA_3	0.43	0.41	0.34
MCA_4	0.44	0.46	0.40
MCA_5	0.43	0.39	0.43
MCA_6	0.33	0.28	0.27
MCA_7	0.50	0.41	0.48
MCA_8	0.54	0.57	0.56
MCA_9	0.39	0.42	0.35
MCA_10	0.42	0.35	0.30
MCA_11	0.50	0.50	0.58
MCA_12	0.39	0.38	0.31
MCA_13	0.43	0.40	0.40

(table continues)

Table D.10 *(continued).*

	Baby Boomers	Generation X	Generation Y
MCA_14	0.46	0.43	0.39
MCA_15	0.52	0.53	0.47
MCA_16	0.62	0.58	0.59
MCA_17	0.63	0.56	0.55
MCA_18	0.47	0.45	0.39
MCA_19	0.57	0.57	0.56
MCA_20	0.53	0.48	0.43

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