THE IMPACT OF VIDEO GAMING ON MANAGERS' ADAPTIVE LEADERSHIP SKILLS: DO MILLENNIALS HAVE AN ADVANTAGE?

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ABSTRACT

The aging Baby Boomer Generation, coupled with the large coming of age Millennial Generation and the need for more adaptive and flexible employees in business, is presenting companies with a challenge of how to develop individuals in leadership positions within their organizations to properly demonstrate and implement adaptive leadership attributes. This study compared data previously gathered by the participating organization from individuals composed of multiple generations currently in leadership positions attending a leadership orientation course. Data were collected using a selected instrument measuring adaptive leadership skills. The focus of this study was to determine if the Millennial Generation has gained more experience with situations playing video games and, if so, if this resulted in enhanced adaptive leadership skills. Potentially acquiring leadership, organizational, and social skills, while learning to accomplish tasks in a rapidly changing and volatile simulated environment in a video game, could have a positive impact on the Millennials' ability to employ adaptive leadership. The learning outcomes from video game play are accomplished either as a part of the individual video game design or via Internet games for multiple players. The applicability of this study could provide direction on how to better prepare more appropriate learning solutions to develop individuals as they move into leadership roles. The resulting analysis generated data finding no significant relationship between birth generations and scores from an instrument measuring adaptive leadership, or with the amount of video game play by generation. There was a positive relationship found between birth generation and the amount of video game play.

DEDICATION

I would like to dedicate this body of work to the soldiers, non-commissioned officers, and officers with whom I have had to pleasure to serve with in the United States Army. Through the interaction and experiences gained during my period of service with these patriots, I have been able to become a better research practitioner and contributor to the larger body of knowledge.

Additionally, I dedicate this work to my mother and father, who both recognized the importance of a good education and pushed, demanded, encouraged, and expressed their pride in all my academic and professional achievements.

Finally, and most importantly, I dedicate this body of work to my wife who has supported me in both my professional and academic endeavors. Without her support I would not have had the degree of success while serving in the Army, practicing my craft as a leader, nor would I have been able to have any modicum of a work/life balance while completing this journey.

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Four individuals in particular have been instrumental in my completion of this program. Dr. David Rausch, Committee Chair, has provided leadership and unique perspective, which pushed me to expand my horizons. His perspective from the business world also helped make my journey more applicable to my current professional pursuits.

Dr. Elizabeth Crawford and Dr. Elizabeth O'Brien have also been critical players in my journey as I have navigated the core course curriculum and, have been constant resources of knowledge, experience, and superb perspective.

Finally, Dr. Ted Miller has provided the guidance, expertise, and attention to detail in the development of my methodology that I had only previously experienced while in the Army. As a young officer I had to rely on my senior non-commissioned officers to help me apply the theory of leadership and tactics of Army Doctrine to the real world. Dr. Miller gave me the same level of professional and academic advice I needed to successfully complete this body of work.

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CHAPTER I

INTRODUCTION

Background

The confluences of three major events generate the subject of this study. The first is the need of companies to exercise adaptive leadership to be successful in their markets. Businesses in today's fast-paced environment have expressed a need for an adaptive approach to leadership that can demonstrate speedy decision making, enhance collaboration among employees, and strengthen the management of teams that are in some cases virtual (Reeves, Malone, & O'Driscoll, 2008). DeGenring (2005) discussed how businesses will need to change their approaches, models, thinking, and leadership in order to survive in this new and fast-paced, changing environment. Glover, Jones, and Friedman (2002) described the challenge for individuals in leadership positions in regard to change more precisely:

> Every leader in the world is facing the need to cope with change, but not all leaders are creating changes that enable their corporations…to adapt in a successful and sustained way. Unless leaders are able to develop abilities that enable them to lead adaptively in complex and rapidly changing situations, their organizations will be unable to effectively meet the challenges dictated by the modern world. (pp. 15-16)

According to Heifetz, Grashow, and Linsky (2009), the desire to have employees who can exercise adaptive leadership has its roots in our human desire to evolve and grow. However, the emphasis on adaptive leadership is being driven by the increased speed of technology and communication, which is causing rapid changes in the marketplace (Ross, 2000).

The second event is the aging of the Baby Boomer Generation and their impending departure from the workforce. The incumbent generation of workers who will replace the Baby Boomer Generation will be the Millennial Generation (Gen Y). This potential rapid influx of Millennial Generation employees assuming leadership positions is a result of many Baby Boomers in those roles staying in place longer due to the recession of 2008 and 2009, and the fact that the Baby Boomers are currently occupying positions three to four levels below top executives (Espinoza, Ukleja, & Rusch, 2010). The large number of replacements needed, coupled with the smaller size of the Gen X Generation, will propel workers from the Millennial Generation into leadership roles at a much greater rate and number than previous generations (Espinoza et al., 2010). It was estimated that the Millennial Generation will represent 36% of the total workforce by 2014 (Zamir, 2013) and as much as 75% (Young, 2013) five years after. With this increase of the Millennial Generation in the total workforce, some are already beginning to assume leadership roles.

Estimates suggested that approximately 50% of individuals in leadership roles in the United States would be eligible to retire by 2011 (Dychtwald, Erickson, & Morison, 2006). The Millennial Generation, made up of individuals who could potentially replace these retirees, has grown up in an era where the Internet has expanded, technology has enhanced access to information, and individuals have a greater ability to engage in social dialogue not previously experienced by other generations (Young, 2013). With the growing desire of companies to have employees in leadership roles that can be more adaptive and develop better relationships with their customers (Heifetz et al., 2009), the need to develop leadership skills within the incoming Millennial Generation will become critical to companies. Based on the realization that the Millennial Generation has had a continual relationship with technology, they have been labeled

as “digital natives” (Prensky, 2001, p. 9). “They are native speakers of technology fluent in the digital language of computers, video games, and the Internet” (Prensky, 2005, p. 9). Gorman, Nelson, and Glassman (2004) discussed how the exposure to technology has

> affected this generation like no other. . . . the ability to effectively utilize broadly networked digital communication technologies to quickly and seamlessly accomplish a wide variety of tasks. . . . has resulted from rich experience with Internet communications. (p. 257)

Even with this exposure to technology, Gorman et al. (2004) acknowledged that the digital competency assumed to be present in all Millennial Generation members will only be present “on average . . . in comparison to the average member of the current workforce” (p. 267). Finally, the exposure to technology has also impacted this generation, in varying degrees, while playing video games. Technology provides an enhanced environment in video games that promote the acquisition of skills and knowledge through this play, an outcome that must be considered as this population enters the work force (Beck & Wade, 2004).

The third event is that as companies devise learning and development programs for those in leadership positions of their organizations, they will want to capitalize on the skills of the incoming Millennial Generation. Following an instructional design process similar to that presented by Foshay, Silber, and Westgaard (1986), the assessment of relevant characteristics of the incoming learner would be of significant value as they determine the appropriate learning design to provide the employee with the optimal learning experience in the shortest time. The opportunity presented is for companies to have individuals ready to assume leadership positions sooner and demonstrating adaptive leadership skills faster, thereby allowing companies to take advantage of opportunities in the marketplace quicker (Reeves et al., 2008).

Statement of the Problem

The premise of this study is that the Millennial Generation has had significantly more exposure to video games as compared to other generations due to the development and enhancement of the Internet and gaming technology. Survey results indicate that youth play on average nine hours of video games per week (Gentile, Lynch, Linder, & Walsh, 2004). Additionally, 21.4% of all college freshman play at least six hours per week (Cooperative Institutional Research Program, 2005) and 70% of all college students classify themselves as avid gamers (Weaver, 2003). This exposure to gaming has created an environment for this generation to potentially develop social, organizational, and leadership skills (Reeves et al., 2008). Video games present rapidly changing and evolving environments in which the players have to execute tasks to win the game. According to Billieux et al. (2011), this exposure to video games creates learning opportunities for participants, even though the games are being played as an entertainment activity. Whether playing individually in a stand-alone game or as a member of a larger group of players connected via the Internet, players learn not only to use the resources provided to them as part of the game, but also to use the strengths (or powers) of others playing the game with them (Billieux et al., 2011). It is through the playing of these video games that the members of the Millennial Generation may be developing social, organizational, and leadership skills sooner than members of earlier generations (Reeves et al., 2008). This skill development may be attributed to a player's ability to negotiate through various scenarios in video games, where consequences of a player's actions are limited to the game environment, rather than having consequences that would have larger implications in the business world (Reeves et al., 2008).

The exposure to the scenarios offered by video games may have provided learning opportunities that could ultimately have a positive effect on Millennials' ability to employ adaptive leadership skills. For the purposes of this study, video games include those that are simulation type games or world games (Gee & Hayes, 2011), such as a Massively Multiplayer Online Game, as well as games where individuals work towards accomplishing tasks or causal games (Gee & Hayes, 2011). "Simulations . . . are very context-specific, whereas games do not, necessarily, need to be context-specific; rather they can have very fantastical contexts, characters, scenarios, and so on" (Charsky, 2010, p. 179). Both types provide learning opportunities that may possibly allow Millennials to come into a leadership position with higher competency in regards to employing adaptive leadership skills. This study sought to examine if Millennials are bringing a different level of leadership competency to the workplace as they advance in the corporate structure than previously demonstrated by individuals of earlier generations. If so, in order to maintain the appropriate engagement with these new employees assuming leadership roles, businesses may need to adjust the emphasis of their training and development programs to better meet the needs of the learners. By designing learning solutions at the appropriate level, capitalizing on existing knowledge, and in a manner or style that is compatible with learner preference, individuals assuming leadership positions may potentially be more ready to perform in the roles they have assumed (Espinoza et al., 2010; Rothwell & Kazanas, 2008).

Coupled with the change in the nature of the learners is the current business need for employees in leadership positions who can exhibit more adaptive leadership skills in a fast paced business environment. This approach is counter to the great man approach to leadership where the traits of great political, social, and military leaders were studied in the belief that if an

individual studied these traits, they could possibly become a good leader (Bass & Stogdill, 1990). Stogdill (1948) determined that while these traits may be important, they must be relevant to the situation in which they would be used. Cojocar (2009) defined the leadership needs for today's businesses as being capable of solving complex problems in a collaborative, timely manner, using innovative solutions. The challenge for businesses will be to develop programs that can capitalize on the skills of the Millennial Generation in relation to the business need for adaptive leadership skills going forward (Reeves et al., 2008).

Purpose of the Study

The purpose of this study was to assess the relationship video gaming has had on the Millennial Generation's ability to learn and demonstrate adaptive leadership skills. Millennials are a significant portion of the population, and as the Baby Boomer Generation leaves the workforce, the need for these new leaders to have adaptive leadership skills will become even more important.

Research Questions and Related Hypotheses

With the above purpose, the following research questions and hypotheses are generated:

RQ1: Are individuals in leadership positions from the Millennial Generation demonstrating a higher degree of adaptive leadership skills than other generation leaders?

H1: Leadership positions occupied by members of the Millennial Generation do demonstrate enhanced adaptive leadership skills more than individuals in leadership positions from other generations, as measured using the Adaptive Leadership Competency Program survey.

RQ2: Do participant scores demonstrate enhanced adaptive leadership skills based on reported level of video game experience?

H2: Participants demonstrating enhanced adaptive leadership skills also have had higher levels of exposure to video games.

RQ3: Is there a relationship between the generation of the participants and video game experience of the participants?

H3: There is a strong correlation between video game experience and the generation associated with the player.

Rationale for the Study

As the Baby Boomer Generation retires and individuals in leadership roles from that generation are replaced, the next large population of employees who will move into these roles will come from the Millennial Generation. Like all generations preceding them, the Millennial Generation has been shaped by world events as they have matured (Espinoza et al., 2010; Welsh & Brazina, 2010). More specifically, the Millennial Generation has experienced advances in technology, cell phones, and a more nurturing parenting style (Espinoza et al., 2010). These advances in technology have enabled the proliferation of video games and have enhanced the impact playing video games has had on the Millennial Generation (Espinoza et al., 2010).

Concurrent with the increases of the Millennial Generation in the work force and the exposure to video gaming is the need for employees in leadership roles to exhibit more adaptive leadership skills versus employing a more traditional leadership style (Ross, 2000). To increase the probability of success, companies will need individuals who can do more than institute change within their organization; they will need individuals in leadership roles to help the

organization adapt in a sustained way, in a rapidly changing and complex business environment (Reeves et al., 2008; Tetenbaum, 2011). In view of these trends and events, the rationale for this study was to determine if there is a difference in the enhanced adaptive leadership skills of the Millennial Generation who have had increased exposure to video games as compared to earlier generations who have not had the same exposure.

Theoretical/Conceptual Framework

The theoretical framework of this study includes two theories: Social Cognitive Learning Theory and Adaptive Leadership Theory. The focus of this study centers on the question of whether players of video games are learning leadership skills. Social Cognitive Learning Theory presents the idea that learning occurs as a result of interactions in a social environment (Zimmerman & Schunk, 2003). Bandura (1986, 2001) described how learning is achieved through triadic reciprocality, defined as the interactions between individuals, the behaviors of the individuals, and the influence of the environment in which the individuals exist. "Learning is largely an information processing activity in which information about the structure of behavior and about environmental events is transformed into symbolic representations that serve as guides for action" (Bandura, 1986, p.51). In regards to this study, the interaction is between the player (learner), other players, and/or a computer, all with specific skills, powers, or abilities in a simulated environment. The environment is the video game scenario where each player reacts to given obstacles, tasks, or challenges. In this environment the participants learn how to coordinate, lead, or manage a team and its resources (Reeves et al., 2008). It is through this enactive and vicarious learning (Schunk, 2010) that participants are able to enhance their leadership skills. Players of video games are also able to learn by observing others or the actions

of other characters in the video game (Reeves et al., 2008). This modeling (Bandura, 1986) combined with self-regulated learning gives the participant a greater degree of personal agency (Zimmerman & Schunk, 2001).

The second theoretical concept impacting this study is Adaptive Leadership Theory, which has been described as a leadership approach that has evolved from situational, transformational, contingency, and complexity theories (Cojocar, 2009). Heifetz et al. (2009) wrote that increased interest in adaptive leadership will be generated as the effectiveness of this approach is demonstrated in the current, fast-paced, business environment. DeGenring (2005) supports the statement by Heifetz et al. (2009) in his discussion of how businesses will need to change their approaches, models, thinking, and leadership techniques in order to survive within the fast-paced, changing environment of today's business world. The need for an improved approach to develop individuals in leadership positions is presented by Mobbs (2004) in his discussion of the inabilities of current leadership theory to deal with the rapidly changing situations in which businesses find themselves.

Adaptive leadership is more than a leader-follower type of relationship as presented by Graen and Uhl-Bien (1991). Adaptive leadership implies a more complex, interactive type of leadership, which promotes the concept that as situations change, individuals with different skill-sets may rise to a greater leadership role (Lichtenstein et al., 2006). Situational leadership and transformational leadership provide opportunities for individuals to rise to greater leadership roles, yet focus more on helping the follower to achieve better results or perform to a higher standard within the established parameters of the organization (Blanchard, 1985; Kouzes & Posner, 2002). Adaptive leadership is based on the theory that as the organization's environment changes, the organization evolves to meet those changes (Heifetz et al., 2009). This adaptability

would include helping employees grow and perform to a higher level, while simultaneously allowing the organization to evolve to meet the changes of the new environment as opposed to growing within the established limits of the old organization.

Heifetz et al. (2009) provided a biological analogy to describe adaptive leadership, just as organisms adapt to their environment, so do organizations. A perception in many organizations is that when a need for change arises, the old way of doing things is thrown out and a new process is implemented. Adaptive leadership can help organizations strive to address new, difficult situations and, in turn, thrive going forward (Heifetz et al., 2009). Biological organisms exposed to the environment will adapt their physical structures to fit the environment, while maintaining their identity (Wheatley, 2001). Similar to how biological organisms react to a changing environment, organizations will need to keep the core essence of what they do or are, modify what needs to be changed, and then create a new process or organization that will meet the needs in the new environment (Heifetz et al., 2009). For example, if a plant's environment changes to one that is more arid, the plant may need to evolve how its root structure searches for water or reduce the number of leaves it produces to conserve energy and require less water in order to survive or thrive. Looking at an organization, such as a health insurance organization, to make the same connection as the plant example, the health care industry has changed to incorporate the legal requirements of the Patient Protection and Affordable Care Act. The insurance organization maintains its core essence of providing health care coverage, but must adapt itself through the reduction of expenses and addition of different products to remain competitive or to thrive.

The basic tenet of Adaptive Leadership Theory is that individuals in leadership positions adapt or learn from the changing environment in which they find themselves. This aligns with

Social Cognitive Learning Theory which also supports adapting or learning based on a particular environment and with the interaction of other learners (Bandura, 1986). This theory is applicable to the current study from two perspectives. First the environment has changed for individuals from the Millennial Generation to include exposure to video games during their development (Squire & Steinkuehler, 2005). Second, the video game itself is an environment that allows the participant to learn as the scenario changes in the game or as other players (or the computer itself) react to various conditions in the changing environment, thereby creating learning opportunities for the player(s).

With the above discussion as reference, Figure 1 depicts the conceptual framework for this study. Employees assuming leadership roles, who are new to their position or new to the company, have been identified along with the learning needs of future individuals assuming leadership positions. Impacting the learning needs from the left and right of the diagram are increased accessibility to technology and video games, as well as an impact of the changing needs of business for those in leadership positions to demonstrate adaptive leadership skills. Conceptually, this study is designed to assess if those individuals coming into the workforce from the Millennial Generation and assuming leadership positions already have increased adaptive leadership skills as a result of their exposure to technology and video games. If there is an indication of such increased skills, corporate learning organizations may need to adjust the leadership development curriculum (DeGenring, 2005; Mobbs, 2004) to reflect a different base line of knowledge and format than what is present and used with the Baby Boomer and Generation X leaders.

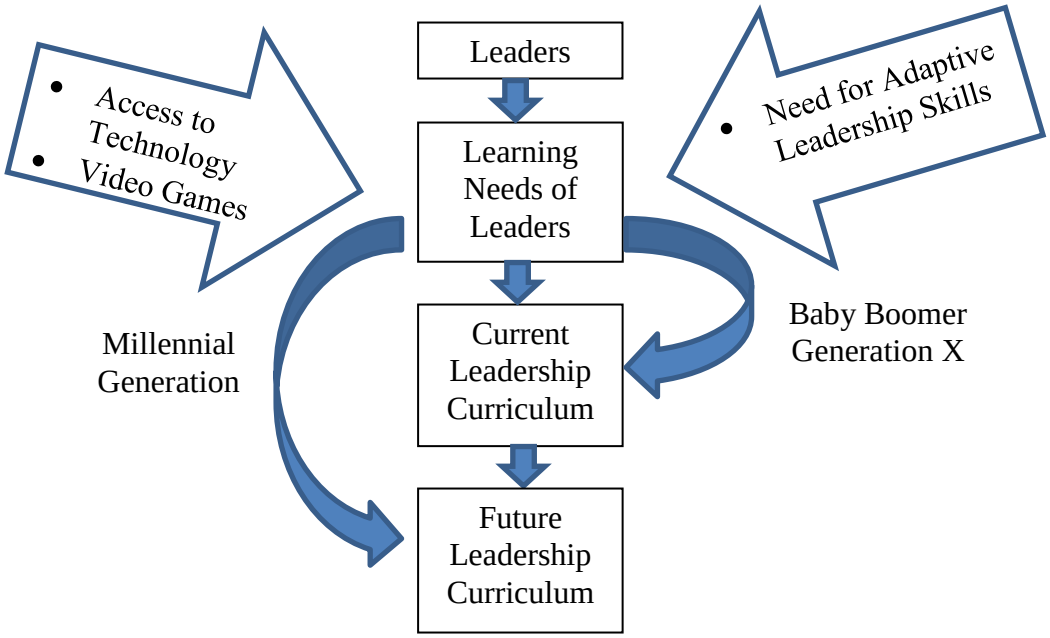

Figure 1 Theoretical Framework of the Study

Significance of the Study

The Baby Boomer Generation is departing the workforce and leaving vacancies in leadership positions that are being assumed by members of the Millennial Generation (Espinoza et al., 2010). As they move into their positions, learning and development activities should consider the skills of the learners in the instructional design of development programs (Rothwell & Kazanas, 2008). The individuals moving into these new leadership positions should focus on the ability to employ adaptive leadership skills; skills becoming more important as businesses work to remain competitive in the marketplace (Cojocar, 2009; Glover, Jones, et al., 2002). The results of this study could help businesses change and enhance their learning and development programs and to capitalize on the knowledge incoming individuals gained by playing video games. This study could provide a better assessment of the level of competence in regards to adaptive leadership skills and allow instructional developers to build on that knowledge.

Definition of Terms

The following terms and definitions will be integral in the subsequent discussion in this study.

Adaptive Leadership: A leadership approach that has evolved from situational, transformational, contingency, and complexity theory. It represents "leadership that is capable of tackling and solving complex problems and issues, with collective, collaborative, timely, effective, and innovative solutions" (Cojocar, 2009, p. 1).

Adaptive Leadership Competency Profile (ALCP): A macro leadership model questionnaire which includes 10 competencies that are based on grounded theory results from a National Science Foundation research study, readings, and observations. The ALCP is a performance assessment tool that can be used to improve leadership development programs, and focus leadership training programs (Sherron, 2000).

Baby Boomers: The generation of people born between 1946 and 1964. Historical influences on this group are the Vietnam War, Cold War, Civil Rights Movement, and the Women's Liberation Movement. This group finds much of its identity in work (Espinoza et al., 2010).

Generation X (Gen X): This generation is sandwiched between the Baby Boomers and the Millennials and they represent people born from 1965 to 1977. They make up approximately 38 million individuals and came of age during the Persian Gulf War, the explosion of the Challenger space shuttle, and AIDS proliferation. This generation of people grew up as personal computers and early stages of video games were being developed and marketed (Espinoza et al., 2010).

Massively Multiplayer Online Role-Playing Games/Massively Multiplayer Online Games (MMORPGs/MMOGs): Video games involving the interaction of multiple players in an online environment (Billieux et al., 2011).

Millennial Generation (Millennials, Gen Y): The generation of people born from 1978 to 1996. Members of this generation represent approximately 78 million persons and constitute 25% of the United States population. Influences on this generation have been "cell phones, text messaging, technology-based social networking, and a strong emphasis on social responsibility" (Espinoza et al., 2010, p. 7).

Passionate Affinity-Based Learning: Learning which occurs when "people organize themselves in the real world and/or via the Internet…to learn something connected to a shared endeavor, interest or passion" (Gee & Hayes, 2011, p. 7).

Passionate Affinity Space: A place, either real, virtual, or a combination of both, where people with a shared passion for a common endeavor or interest gather to explore this shared interest (Gee, 2007a; Gee & Hayes, 2010; Hayes & Gee, 2010).

Video Games: For the purposes of this study, video games include those that are simulation type games or world games (Gee & Hayes, 2011), such as a Massively Multiplayer Online Game, as well as games where individuals work towards accomplishing tasks or causal games (Gee & Hayes, 2011).

Methodological Assumptions

There are several assumptions in place for conducting this study. First, members of the Millennial Generation have different expectations than previous generations regarding how they want to work and what they expect from their managers (Espinoza et al., 2010). In addition to

the changing work environment and marketplace, these different expectations could further support the need for individuals in leadership roles to demonstrate adaptive leadership skills as more Millennials come into the work force. Second, the Millennial Generation has experienced an influx of technology that is unprecedented compared to past generations (Gorman et al., 2004; Hershatter & Epstein, 2010). This assumption is specifically centered on the amount of exposure to technology Millennials have had and their continued use of various forms of video gaming as a recreational outlet. Coupled with this assumption are the potential skills gained from the use of these video games (Billieux et al., 2011). The third assumption is that there is a need within the business community for employees in leadership positions who demonstrate more adaptive leadership skills (Cojocar, 2009). A fourth assumption is that employees attending a leadership orientation course with a large organization from the health care insurance industry will provide potential data that can be used to assess any change in adaptive leadership skills of Millennial Generation leaders.

Other assumptions to consider focus on the desire, ability, and motivation of individuals in leadership positions to learn adaptive leadership skills. The literature describes a business environment in which organizations need to fill leadership positions with employees that have adaptive leadership skills, and this study assumes that selected individuals will have the drive and ability to learn adaptive leadership skills, and employ them back in their individual workspaces. Additionally, it is assumed that the opportunities provided in video games are similar to the opportunities or scenarios someone in a leadership position will experience once back in the work environment. While destroying a fictional evil entity or acquiring a fictional prize as a part of a video game will not be applicable in the workplace, the orchestration of team actions, communication, planning, and delegation of tasks to other players should be applicable.

There are also several assumptions in regards to the survey instrument used by the company to gather the extant data. The first is that participants or respondents will answer the questions honestly in regards to how they demonstrate different aspects of adaptive leadership. Secondly, it is assumed that the self-reported frequency, intensity, and effectiveness of the respondents accurately reflect how they employed these competencies. The last assumption in regards to the survey instrument is that the 10 leader competencies measured by the survey are the necessary competencies for adaptive leadership.

A final overall assumption is that there will be exceptions to the generalization of individuals within the various generations. For example, there may be individuals who fall into the birth years designated for the Millennial Generation who do not or have not played video games. The assumption is that the majority of those who fall within the categorization of the specified generations will have had exposure to video games and will have played them in various degrees. While there will be outliers in all of the generation categorizations, the larger population should represent the description presented for their particular generation.

Delimitations of the Study

The delimitations inherent in this study follow.

- The data used for this study will be mined extant data already collected by the health care insurance company's learning and development organization.
- The data collected will be from participants who attended an orientation and development program for employees assuming leadership positions within a national health care insurance company. Each participant will have been selected for their new role and have a proven work record within the industry prior to attending the orientation program.

- The data will have been collected at the end of a three-day leadership orientation program.
- This study is limited to this one industry; generalizability to other industries may not be applicable.

Limitations of the Study

The following limitations may impact the results of this study.

- Due to the delimitation of collecting the data at the end of a three-day leadership orientation, responses to the instrument deployed by the participating company may not be well thought out or accurately reflect the actions of the participant due to fatigue in participating in an intense three-day interactive program.
- The data will represent members from multiple generations (Baby Boomer, Generation X, and Millennial generations), various technical backgrounds, work experience, education, geographic location, and gender.
- Attendees may include not just individuals new to their position, but also individuals who have been in their roles for an extended period of time. While experienced in their role, these individuals are just now getting the opportunity to attend this program. The result of this situation could be more participants taking the survey from Generation X or Baby Boomer Generation rather than the Millennial Generation. This may impact the critical independent variable of generation and not provide for an appropriate level of participation from the Millennial Generation.

- The number of attendees may not be maximized due to travel budget restrictions or other needs of the business. This may prevent classes from being at capacity and thereby reduce the number of participants.
- Data collected by the participating organization will be by informed consent and those not willing to participate could potentially reduce the number of data points.
- The results of the scoring of the survey may be impacted by non-generational factors:
    - The data may show individuals from the Baby Boomer Generation attaining high scores as a result of having significant video gaming experience.
    - The data may show Millennials attaining high scores as a result of significant work experience while having low video gaming experience.
- Video gaming experience may not be directly correlated to adaptive leadership.
- The exposure to advanced technology and communications, which cannot be controlled, may impact participants and their improvement of adaptive leadership skills. Along with video games, cell phone technology and computer technology have both enhanced communication and access to information previously difficult to achieve or acquire.
- The convenience sample may not be statistically representative of the population.
- Due to company policy, the data did not include any indication of gender or ethnicity. This may limit the analysis and applicability to a larger population.
- Due to the delimitation to one industry, generalizability to other industries may not be applicable.

CHAPTER II

LITERATURE REVIEW

Introduction

This literature review covers four main components: generations in the work force, video gaming, Social Cognitive Learning Theory, and adaptive leadership. While there may be other variables impacting this study, the focus will be on these four components and how they may impact the needs of individuals assuming leadership positions in the future as applicable to the development of leadership training. The intent is to first describe the generations currently in the workforce and how the Millennial Generation has assumed leadership roles in organizations in the corporate world. Following this discussion, the focus will shift to video gaming and how this technology presents learning opportunities for those exposed to video game play. The connection with video gaming and learning will help segue into a discussion of Social Cognitive Learning Theory and how this theory applies to the video gaming environment in which the Millennial Generation has been exposed. Finally, the literature review will focus on the impact of adaptive leadership on business in the future.

Generations in the Work Force

This study examined the impact of several factors on a group of people that is rapidly become a critical component of most businesses – the Millennial Generation. The Millennial Generation has been described as those individuals whose parents were part of the Baby Boomer

Generation (Welsh & Brazina, 2010). There are varying opinions as to the actual years defining the Millennial Generation. Espinoza et al. (2010) gave a range of birth years from 1978 to 1996. Others used 1980 to 1995 (Ng, Schweitzer, & Lyons, 2010), and some used the classification of "since the early 1980s" (Gorman et al., 2004, p. 255). In order to be as inclusive as possible, for the purposes of this study 1978 to 1996 will be used to define the Millennial Generation.

The Millennial Generation is beginning to impact society for two reasons: (a) the leading edge of this generation has graduated from college and joined the workforce starting in 2004 (Hershatter & Epstein, 2010) and (b) their parents, the Baby Boomer Generation (1946-1964), are at or reaching retirement age (Espinoza et al., 2010). To fully appreciate the impact of their generation's retirement, Baby Boomers hold leadership positions on multiple levels, from executives to mid-level leaders. Many lower level leaders have not retired due to economic factors. When they do retire, there will be a significant gap to be filled by the Millennials (Espinoza et al., 2010).

The Gen X Generation (1965-1977) is chronologically sandwiched between the Baby Boomer and Millennials, and is smaller in number than either of these generations (Espinoza et al., 2010). The delay of the departure of the Baby Boomers from the workforce, coupled with the size of the Millennial Generation, makes Generation X less likely to be a factor in the coming leadership gap (Bannon, Ford, & Meltzer, 2011; Espinoza et al., 2010), and the shift from Baby Boomer to Millennial will have a greater impact than just raw numbers of new employees. There is a dramatic difference in the Baby Boomers' and Millennials' expectations from work, dedication to work, and need to strike a good work-life balance (Espinoza et al., 2010). This change has been a result of the life experiences of the Millennials and factors that have impacted them as they grew up (Espinoza et al., 2010). Two major events have shaped the lives of the

Millennial Generation. These are (a) the increased access to information and technology, such as the Internet, Google, and cell phones that have the power of a personal computer and (b) the pro-child approach of parenting, where parents (of the Baby Boomer Generation) continue to play an active part of the lives of their children well into the college years and beyond (Welsh & Brazina, 2010).

With these events as background, the expectations of the Millennials in the workplace can be better understood. According to Ng et al. (2010) these expectations are centered on five themes: "work/life balance, good pay and benefits, opportunities for advancement, meaningful work experiences and a nurturing work environment" (p. 282). Work/life balance has taken a higher priority due to the impact of seeing how their parents put in long hours at work to protect their jobs when layoffs occurred during an economic downturn (Hershatter & Epstein, 2010; Loughlin & Barling, 2001).

The desire for good pay and benefits comes from the need for feedback (Espinoza et al., 2010). "The person with a high need [for achievement] is interested in money rewards or profits primarily because of the feedback they give him as to how well he is doing…the money reward is not the incentive to effort" (McClelland, 1965, p. 7). In the workplace, good pay and frequent pay increases provide that desired feedback on their performance as they seek confirmation and approval for their actions (Ng et al., 2010).

Similar to good pay and benefits is the need for promotions. This is another form of feedback that Millennials desire, yet they want the promotions with the minimal amount of expended effort (Corporate Leadership Council, 2005; Twenge, 2006). Ng et al. (2010) found that advancement opportunity was the most desirable work-related attribute a potential employer could have for Millennials. In that same report, two-thirds of the respondents "expect to be

promoted within the first 18 months in their first job" (Ng et al., 2010, p. 285). The desire for rapid promotion may stem from the need for structure and reassurance (Hershatter & Epstein, 2010). This need could be the result of being treated as special which was promoted through the rewarding of the Millennials as children for just showing up (Howe & Strauss, 2000; Werth & Werth, 2011). In the workplace this has evolved to needing increased reassurance and guidance from their manager (Hershatter & Epstein, 2010). Additionally, in a study of university students, Greenberger, Lessard, Chen, and Farruggia (2008) found that a sense of entitlement is prevalent in Millennial students. This was most notably evident in their expectation for good grades even when it was not related to actual demonstrated academic ability (Hill, 2002).

For Millennials, a meaningful work experience has two aspects. First, they want to be challenged in their work, providing the work helps them grow and broadens their horizons. Second, the Millennials want to work for a company that shares values that are close to their own. Many Millennials recognize the impact industry and the human race have on the environment, and likewise they want a company that respects and works to minimize that impact (Corporate Leadership Council, 2005; Twenge, 2006).

Finally, Millennials want a nurturing work environment. The Millennial Generation received a higher degree of attention than previous generations from family and friends (Howe & Strauss, 2000) and was the first generation to be "fully immersed in mentoring programs throughout their lives…starting in elementary school" (Hershatter & Epstein, 2010, p. 220). This nurturing environment continued as this generation grew up doing group projects and collaborative activities in school where group members were encouraged to support each other in the accomplishment of the project (Lowe, Levitt, & Wilson, 2008). The collaboration experienced in the school environment extended into play as a result of the capabilities of

enhanced video games due to improved technology. Collaboration is an element promoted in the play of video games, potentially allowing for a more diverse audience to collaborate than previously available (Kennedy-Clark & Thompson, 2011). Perkins-Gough (2009) discussed a national telephonic survey by the Pew Internet Project where 99% of boys and 94% of girls between ages of 12-17 play video games and 75% of them play these games with each other or with others in the same room. Collaboration occurs as a result of the structure of the game (in-game) or as a result of working together to perform better on individual game play (outside-game) using blogs, email postings, or texts to compete against a computer based game or an online game (Canadian Council On Learning, 2009). This collaboration in video game play is mirroring interaction and communication of everyday life (Corliss, 2011). Yee (2006) took this concept of collaboration and video game play further by stating "video games condition us to work harder, faster, and more efficiently" (p. 70).

Understandably, having been in a collaborative environment in school and while playing video games, the Millennial Generation expects the same type of environment in their work setting (Corporate Leadership Council, 2005). The collaborative activities they have participated in have promoted a social aspect of accomplishing tasks and this approach is being carried over to the workplace with expectation of having a fun environment with friendly co-workers (Lyons, 2003). The desired collaboration is not only with their peers and work mates, but includes having constant performance feedback from managers and supervisors (Hershatter & Epstein, 2010). Millennials desire managers that they respect and who they can be friendly with as they perform at work. This flat hierarchical social atmosphere promotes a nurturing environment at work where managers and co-workers are available to provide open feedback (Corporate Leadership Council, 2005).

With these expectations, the Millennials also bring different skills to the workforce. As a result of growing up with technology, such as cell phones, the Internet, and social networks, the Millennials have developed a special relationship with technology that has impacted the brain functions of this generation in comparison to other generations (Small & Vorgan, 2008). Research shows that Millennials have a significant difference in brain functions in regards to multitasking, sifting through information, and visual stimulation (Small & Vorgan, 2008). "While these pathways can be developed later in life, . . . a marked neurological difference exists between embracing it and embodying it" (Hershatter & Epstein, 2010, p. 212). Hershatter and Epstein (2010) called this exposure to, and relationship with, technology "digital immersion" (p. 212) and Millennials "digital natives" (p. 212). This immersion could make the Millennials less capable in face-to-face interactions or in understanding non-verbal cues (Hershatter & Epstein, 2010). The cause of this deficiency could be as a result of the Millennials' exposure to technology and lack of face-to-face interaction (Espinoza et al., 2010). However, this perceived deficit may be mitigated with further evolution of the business environment to one that is increasingly virtual (Zigurs, 2003).

Another benefit of the technical immersion is the Millennials' ability to adapt. With the rapidly changing technology that is an integral part of the Millennials' lives, they have become very comfortable with change and think of change as a normal part of life (Hershatter & Epstein, 2010). The Millennials have developed a unique competency as a result of the impact of technology on their lives. Gorman et al. (2004) defined this competency as "the ability to effectively utilize broadly networked digital communication technologies to quickly and seamlessly accomplish a wide variety of tasks" (p. 257). One drawback of this access to

information is a need to synthesize the information and view it in context to the task or issue at hand (Hershatter & Epstein, 2010).

Digital immersion has prompted questions about the overall impact of technology on the Millennial Generation. Gorman et al. (2004) highlighted an America Online/Roper Starch Cyberstudy (1999) where parents were asked to assess the impact of technology on the quality of their children's homework, written communication, and relationships with friends and family. In the study, 71% felt being online had a positive effect on the quality of homework, 64% of the parents surveyed thought that being online had improved their children's written communication, and 43% believed it had improved their children's relationships with others. Only 6% felt being online had a negative impact on their children (Gorman et al., 2004). Supporting the positive impacts reported in the Gorman et al. (2004) study, Howe and Strauss (2000); Tapscott (1998), and Zemke, Raines, and Filipczak (2000) further stated that Millennials who have been exposed to technology and online interactivity tend to work better collaboratively, gathering and sharing information more readily. Online learning by the Millennials is not limited to social networks and internet searches. Members of this generation will "accumulate nearly 10,000 hours of video game playing" (Canadian Council On Learning, 2009, p. 2) by the time they graduate from college.

Video Gaming

As previously mentioned, the Millennial Generation has been exposed to an increased amount of technology. One of the technologies is video games. Perkins-Gough (2009) reports that "according to a national telephone survey by the Pew Internet Project, 99% of boys and 94% of girls ages 12-17 play computer, Web, portable, or console games; and 50% play such games

daily" (p. 94). This age group matches the latter half of what is considered the Millennial Generation. Perkins-Gough (2009) also noted, from the same report, that the respondents to the survey acknowledged that even though they often play video games alone, they do look at it as a social experience. When asked, 75% of the respondents stated they sometimes play video games with others, either online or in the same room. Another study conducted during the same year, on the same age group in Canada, reported that "children ages 12 to 17 spent nearly three hours a day in front of a screen" (Canadian Council On Learning, 2009, p. 2).

With this considerable amount of time being spent with video games, a review of the literature to better understand video games and their impact is in order. Gee and Hayes (2011) discussed how video games are a progression in literacy from books, movies, and television. Zane (2005) supported Gee and Hayes (2011) with his discussion on how people in their mid-thirties and younger are spending time on video games that they had previously spent on television and to a lesser degree on movies and books. What makes video gaming different from other types of games without a technology or computer component is the ability to connect widely disparate groups of people and the immediate feedback mechanism which the computer or video console provides (Gee, 2005; Ricci, Salas, & Cannon-Bowers, 1996). Another differentiating aspect between video games and other types of play is the established rules of the video game in which the participant plays (Raphael, Bachen, Lynn, Baldwin-Philippi, & McKee, 2010). Rules applicable to all players limit actions, are precise and unambiguous, and are repeatable whether with one or multiple players (Salen & Zimmerman, 2004).

Types of Video Games

To further clarify what constitutes a video game, two descriptions initially became a point of discussion or difference of opinion. Groff and Haas (2008) separated video games from simulations. They describe simulations as "affording the user the opportunity to move within a digital space to explore new ideas and try tasks that they would otherwise not have the opportunity to do in the real world" (p. 12). Continuing, the authors went on to describe video or digital games as "scaffolded worlds where players must work together, striving to accomplish increasingly difficult tasks, in order to excel" (p. 12).

Somewhat counter to these definitions, Gee and Hayes (2011) included simulation games in their discussion of video games. Gee and Hayes (2011) classified games into two categories as well, but called them causal games and world games. Their definition of casual games is similar to the definition of video games given by Groff and Haas (2008). World games are more in line with the definition of simulations. Given the potential learning benefits of both types, for this discussion video games include those that are simulation types as well as games where individuals work towards accomplishing tasks. A significant reason behind this decision is that both types of games are "usually characterized by anonymity, media richness, real-time interaction, and lack of boundary" (Huang & Hsieh, 2011, p. 581).

In addition to the different types of games previously mentioned, games can be played either by a single player or with several players. Single player games have the human participant play against the computer whereas in multiple player games, the person plays against the computer or other persons (Gee & Hayes, 2011). This last characterization of games has a further derivative called Massively Multiple Online Game (MMOG) or Massively Multiplayer

Online Role Playing Game (MMORPG), which allows for multiple players from around the world to play together on varying servers (Gee & Hayes, 2011).

Video games that have the most potential for developing higher-level social skills, such as decision making, collaboration, and leadership are MMOGs or MMORPGs (Jang & Ryu, 2011). Play in these games or environments promotes learning not only through the use of tools or technology, but also as a result of interactions with others through the use of the technology (Billieux et al., 2011; Canadian Council On Learning, 2009). Weibel, Wissmath, Habegger, Steiner, and Groner (2008) discussed how the findings of Griffiths, Davies, and Chappell (2004) support this idea in their discussion of a key feature of MOOG game play which is not only the opportunity to play the game against or with others, but also the ability to chat with fellow players and engage in social interaction during game play.

Jang and Ryu (2011) reported that through the use of MMORPGs, players improve their online leadership skills, which in turn show a positive relationship to the players' offline leadership skills. The types of skills, which may be improved through this kind of game play, are assessing, recruiting, motivating, and retaining team members (Reeves et al., 2008) and coordination of resources to solve quests, missions, and achieving a shared goal (Jang & Ryu, 2011). To sum up the findings of the Jang and Ryu (2011) study, their empirical data show that "MMORPGs might have much potential in acquiring leadership skills and transfer [*sic*] them into real-life situations. Implications can be various from leadership education for students to leadership training for work employees" (p. 622).

Video Game Attributes

In discussing the attributes associated with video games, it is important to discuss the environment which each player experiences during game play. Video games provide for an epistemic framework for the players to learn by doing (Shaffer, 2004) in an environment occupied by individuals that have a strong affinity for participating in that particular game (Gee & Hayes, 2011). Additionally, the environment provides for a trial-and-error approach to playing the game and learning. If a player is unsuccessful in accomplishing the specific task at hand, the player can reset the game and attempt to employ different techniques, tactics, or strategies to accomplish the task with little to no harm done to the player or outside environment (Barab, Gresalfi, & Ingram-Goble, 2010; Kirriemuir, 2002).

The attributes shown in Table 1 were identified and further categorized by Wilson et al. (2009) as attributes of "serious games" (Pavlas, Bedwell, Wooten, Heyne, & Salas, 2009, p. 1999). Serious games are defined as "games [that] incorporate elements of fun and focus on play-based experiences rather than attempting to replicate a small slice of reality" (Pavlas et al., 2009, p. 1999). This definition could apply to most video games, but leads the reader to think more of fantasy based games. Additionally, these game attributes begin to reveal a connection to the potentially desired future adaptive leadership skills which will be investigated later.

Table 1 Video Game Attributes, Categories, and Definitions

Category	Attributes	Definition
Game Reality	Fantasy Mystery	The nature of the game's world and workings.
Environment	Location	The representation of the physical surroundings to which the player is exposed.
Conflict/ Challenge	Adaptation Challenge Conflict Surprise	The difficulty and pace of the game.
Assessment	Assessment Progress	The information provided as feedback to the player.
Rules/Goals	Rules/Goals	The degree to which the game has clear objectives and the reason for the player's actions in the game.
Action Language	Language Communication	The method by which the player interacts with the game world and communicates their intent to the game.
Immersion	Pieces or Players Representation Sensory Stimuli Safety	The temporary acceptance of the game world as real or meaningful by the player.
Human Interaction	Interaction (Interpersonal) Interaction (Social)	The degree to which there is interaction with another human, either face-to-face or via the game's features.
Control	Control Interaction (Equipment)	The degree to which the player's actions have a lasting effect on the game world as well as the amount of impact the player has on game interactions.

(Wilson et al., 2009)

In their paper, Pavlas et al. (2009) highlighted three attributes from the items in Table 1 that have relevance to our discussion. The first is game reality. Pavlas et al. (2009) discussed how fantasy based games provided "increased levels of learning as well as motivation" (p. 2001). The second attribute category is about conflict and challenge. Matching the skill of the player with a similar level of difficulty provides intrinsic motivation (Garris, Ahlers, & Driskell, 2002) and this pairing would therefore "result in higher levels of declarative knowledge and knowledge organization outcomes" (Pavlas et al., 2009, p. 2001). The final attribute is assessment. Pavlas

et al. (2009) discussed two types of feedback important for video games: in-process and completion. In-process feedback is "information about their performance and provides guidance when inappropriate actions are taken" (p. 2002). Completion feedback is provided at the end of a game and gives not only a score, but "information about which objectives were completed in each scenario. It is similar to an after action review in that it provides a global view of outcomes after performance" (Pavlas et al., 2009, p. 2002).

Weibel et al. (2008) described other video game attributes impacting this current study as presence, flow, and enjoyment in playing video games. Presence is a feeling of being immersed into a virtual environment where contents of the virtual environment seem real and the player's self-awareness is immersed into the virtual world (Draper, Kaber, & Usher, 1998). It has been described as "a sense of belief that one has left the real world and is now 'present' in the virtual environment" (Stanney & Sadowski, 2002, p. 791). Presence is enhanced through the use of technology to create virtual realities. These virtual realities are three dimensional environments that are responsive to the actions of the player and enhance the feeling of presence (Heeter, 1992). Lombard and Ditton (1997) indicated that the use of virtual realities increases the feeling of presence in players especially when other players are in the same virtual reality (van Dam, Forsberg, Laidlaw, LaViola, & Simpson, 2000). Through advances in technology, which have been applied to the video gaming industry, presence is increased through immersion and the feeling of involvement (Tamborini, 2000). Weibel et al. (2008) discussed presence and how immersion can be achieved when playing against a computer-controlled opponent. From the literature it appears that greater presence is achieved when other players are participating in the same virtual reality.

Flow is defined as "a state or a sensation that occurs when someone is participating in an activity for its own sake" (Weibel et al., 2008, p. 2277). Csikszentmihalyi and Csikszentmihalyi (1992) discussed flow as a state where the individual becomes totally immersed in what they are doing and feels energized, fully involved, and successful as they perform the activity. Sherry (2004) mentioned how this feeling of flow is extremely important to the video gaming industry and "Video games possess ideal characteristics to create and maintain flow experiences in that the flow experience of video games is brought on when the skills of the player match the difficulty of the game" (p. 328). Voiskounsky, Mitina, and Avetisova (2004) and Klimmt (2001) all agreed that it is flow that makes video gaming so attractive and successful. Given that these two concepts of presence and flow are very similar, Weibel et al. (2008) provided additional clarification of the two attributes as "presence describes immersion into a virtual environment, flow rather refers to immersion or involvement in a certain activity" (p. 2278). These two concepts are mutually supportive where an enhanced feeling of presence leads to an enhanced feeling of flow (Hoffman & Novak, 1996). Fontaine (1993) described the mutually supportive connection between flow and presence.

> Flow involves a narrow focus on a limited range of task characteristics, whereas presence involves a broader awareness of task ecology….Flow is associated with feelings of control, whereas presence has been associated with novel ecologies differences [*sic*] that make flow a state of consciousness most suitable for performance in familiar ecologies and presence in unfamiliar ones. (p. 4)

Enjoyment is the third attribute discussed by Weibel et al. (2008). Vorderer and Bryant (2006) found that video games enhance enjoyment through their competitive nature and interactivity. Ghani and Deshpande (1994) measured the feeling of flow with players playing against computer controlled opponents. The results of this study indicate that the higher the challenge presented to a player, the higher the flow, which results in higher enjoyment.

Enjoyment is enhanced by the social features of the MMOG type of games (Griffiths et al., 2004). The increased popularity of the MMOGs may be linked to the results discussed by Mandryk, Inkpen, and Calvert (2006) and those of Ravaja et al. (2006) in that playing MMOGs against other individuals provides more enjoyment than playing against a computer controlled opponent, as demonstrated by higher spatial presence, less boredom, and more excitement. The results of the study by Weibel et al. (2008) showed "Participants who played against human-controlled opponents enjoyed the game more and reported more experiences of flow than participants who played against a computer-controlled opponent" (p. 2287).

Positive and Negative Aspects of Video Gaming

The focus of this portion of the review will be to highlight not only the positive aspects of video gaming, but also to provide a balanced review of potential negative implications of video game play. Several studies addressing either positive or negative aspects of video game play will be mentioned in this section; however one in particular focused on both the positive and negative aspects of video game play in relation to participants' personal, educational, social, and work experiences. The study conducted by Thirunarayanan, Vilchez, Abreu, Ledesma, and Lopez (2010) focused on the responses of 203 participants made up of 59.9% males and 40.1% females at a public, urban research university located in the southwestern part of the United States. The focus of the study was to answer four research questions: (a) What are the personal, educational, social and work related negative consequences that arise as a result of playing video games?, (b) Are there statistically significant differences between males and females in relation to these negative consequences?, (c) What are the personal, educational, social, and work related skills that participants of the study acquired as a result of playing video games?, and (d) Are there any

statistically significant differences between males and females in terms of the acquired skills that participants gained as a result of playing video games? (Thirunarayanan et al., 2010).

The first research question focused on determining negative consequences in regards to "personal, educational, social, and work" (Thirunarayanan et al., 2010, p. 315). The respondents reported that they did not experience any negative consequences in regards to their personal, social or work related activities. There were mixed responses in regards to the impact on their educational activities indicating that while playing video games didn't make them a worse student or prevented them from pursuing their educational goals, the respondents did indicate that video game play did impact the time they spent doing school work or completing school work in a timely manner. In regards to work, 60.7% of the respondents indicated that video game play did not make them better employees (Thirunarayanan et al., 2010).

Research question two focused on determining if there was a statistically significant difference between males and females in regards to the negative consequences determined in research question one. With a chi-square statistic (4.679; $p = .031$) and Fisher's Exact Test (significant at $p = .037$), only one survey question showed a significant difference between male and female respondents. When asked to agree or disagree to the statement "Prevented me from pursuing my educational goals" (Thirunarayanan et al., 2010, p. 318), 11% of the males versus 3% of the females agreed with this statement.

Looking for any improvement as a result of playing video games, research question three again focused on the personal, educational, social, and work areas. From a personal perspective, the only skills found that improved were decision making in each respondents' daily life, improved typing, and improved texting skills. The other skills of drawing, dancing, and playing musical instruments were not reported as having improved. From an educational perspective,

more participants reported improvement in their ability to memorize information, think of multiple solutions to problems, and perform math calculations mentally, yet their arithmetic ability was not seen to improve. From a social perspective, the respondents reported that only in the area of texting had their communication abilities improved. The aspect of impact to each respondents' work abilities had mixed results. While the majority of the respondents reported video games not improving their leadership abilities, they did report that they learned how to be better team members, followers, and an improved ability to give direction to others as a result of playing video games (Thirunarayanan et al., 2010).

Finally, research question four sought to determine if the skills investigated for research question three were statistically different between males and females. The results showed significantly larger impacts for males playing video games in regards to personal, social, and work related skills and no significant difference in regards to educational items. Additionally, there was a larger number of males that "reported improving skills related to coordination, functioning as a team member, and giving others directions, than females" (Thirunarayanan et al., 2010, p. 323). The results were very positive in regards to these four areas with the findings that "this study has found that playing video games has both positive and negative consequences. However, the positive consequences of playing video games and the skills participants learned seem to outweigh the negative consequences" (Thirunarayanan et al., 2010, p. 324).

Barlett, Anderson, and Swing (2009) added to the discussion on the effects of video games from not only a positive and negative aspect, but also from a confirmed, suspected, and speculative point of view. Confirmed effects begin with a discussion of three areas which they proposed indicated a correlation with aggressive behavior – physiological arousal, aggressive feelings, and aggressive behavior (Barlett et al., 2009). These authors used a General Aggression

Model to delineate the causal links of an individual's aggressive behavior and the "thoughts, feelings, or physiological arousal" (p. 379) that can mitigate such behavior. Given the difficulty of measuring thoughts and feelings, Barlett et al. (2009) focused on the physiological impact of games. What the research presented was that many different types of studies found exposure to violent video games does increase physical aggression (Anderson et al., 2003; Anderson & Bushman, 2001; Anderson et al., 2004; Anderson, Gentile, & Buckley, 2007). However, the increases were indicated by an initial increase in heart rate and were "short term and [had] no evidence of long term effect" (Barlett, Harris, & Baldassaro, 2007, p. 494) Other researchers validated the effects of violent video games on players as causing higher heart rates (Fleming & Rickwood, 2001) and higher blood pressure (Ballard & Wiest, 1996). Carnagey and Anderson (2005) reported that physiological arousal was promoted by the fun and challenge of a video game regardless of the video game content. However, increased arousal is generally produced by violent games as opposed to non-violent games (Anderson & Bushman, 2001).

Citing several studies, Barlett et al. (2009) concluded that "exposure to violent video games leads to increased physical aggression" (p. 382). Finally, the authors presented a discussion on a number of meta-analyses which had been conducted on the impact of violent video games and aggression (Anderson, 2004; Anderson & Bushman, 2001; Anderson et al., 2004; Sherry, 2001). While there was an effect noted by these analyses, the effect was small. Sherry (2001) went even farther stating that "there is a trend suggesting that longer playing times results in less aggression" (p. 427). Funk et al. (2002) supported the findings of Sherry (2001) stating that in their studies there was a "failure to find the expected relationships between a preference for violent games and aggressive, externalizing behaviors" (p. 141). Durkin and Barber (2002) further supported the position of Funk et al. (2002) by stating that they had seen

"no evidence …of negative outcomes among game players" (p. 373) and that there were positive scores from game players in the areas of "family closeness, activity involvement, positive school engagement, positive mental health, substance use, self-concept, friendship network, and disobedience to parents" (p. 373).

Billieux et al. (2011) discussed the potential negative aspects of video game play from an addiction perspective. They defined an addiction as "the tendency to spend an excessive amount of time on online games while displaying several symptoms of pathological behaviors, such as loss of control, cravings, and intrapersonal/extrapersonal problems" (Billieux et al., 2011, p. 166). Impacts of addictive use of video games are less time spent on school work, impact on academic achievement, impacts to individual and social quality of life, and an increase in aggression (Billieux et al., 2011; Canadian Council On Learning, 2009). While more research is necessary to clarify these impacts, based on the above cited study, the general consensus is that overuse of video games and use of violent video games is not good for players. Results have been poorer health, worse sleep quality, and reduced social interaction with others outside of the video game environment as a result of spending time playing a game (Smyth, 2007).

Positive impacts of playing video games are indicated in several areas, most notably in experiential learning (Gee, 2007a; Gee & Hayes, 2011; Squire, 2006) and leadership (Kirriemuir & McFarlane, 2004; Reeves et al., 2008; Thirunarayanan et al., 2010). Experiential learning is gained when, as a result of playing a video game, players get the opportunity to develop collaborative problem solving skills as they prioritize tasks to achieve specific objectives (Bailenson et al., 2008; Beavis & Charles, 2007; Kennedy-Clark & Thompson, 2011; Squire, 2007; Taylor, 2003). These skills are developed while accomplishing tasks (and failing at tasks) without the significant impact to resources, customers, other employees, or infrastructure (Groff

& Haas, 2008; Squire, 2006). This kind of thinking and interaction can drive skill development in weighing options, defining situations, and making decisions for the team to implement (Groff & Haas, 2008; Reeves et al., 2008).

This trial and error approach with minimal consequences supports learning and development of leadership abilities. The acceptance of such an approach in the corporate world will require a culture change to allow failure with the goal of improvement and growth (Reeves et al., 2008). Additionally, learning by failing with minimal risks can be enhanced with coaching or feedback from other players (Charsky, 2010). The downside to being able to make decisions in a risk free game environment could be the extension of the same decision making into the real world. However, the literature indicates that the positives for trial and error learning and relatively risk free implications far outweigh the negative.

> Frequent risk taking allows players to practice the art of weighing odds calmly in uncertain environments. Confronting risk routinely and with a level head will be an important leadership skill as the real-world business environment becomes more uncertain and as success comes to depend more on innovation than on execution. (Reeves et al., 2008, p. 62)

More statistically significant positive impacts on leadership ability were reported for males versus females in the same study by Thirunarayanan et al. (2010). The linkage to leadership skill development is further reinforced by Kirriemuir and McFarlane (2004) in their report where skill development in strategic thinking, planning, communications, application of numbers, negotiating, group decision-making, and data-handling were all reported by parents and teachers as a benefit of playing computer games.

"Some are tempted to think of life in cyberspace as insignificant, as escape or meaningless diversion. It is not. Our experiences there are serious play. We belittle them at our risk" (Turkle, 1995, p. 268). Play is defined for our purposes as playing video games. However,

the definition of play is more than just an action of playing a video game. It is a powerful learning tool where individuals can experiment with different solutions or approaches to solving problems, whether in a virtual environment or not (Huizinga, 1971). This definition supports our research into the impact of video games in that video games "are ways of engaging in complicated negotiations of meaning, interaction, and competition not only for entertainment, but also for creating meaning" (Thomas & Brown, 2011, p. 97). Video games require a significant amount of time in learning to play them, allow learners to explore and experience various environments, and promote a try and fail environment to accomplish tasks (Thomas & Brown, 2011).

The above mentioned studies indicate that gaming does impact learning social and leadership skills, which is a critical element for this study. Clark (2007) highlighted the ability of games to provide learners with varying environmental cues to improve their individual and team abilities to react to changing situations. The Jang and Ryu (2011) study also indicated a connection between the development of offline leadership skills from online leadership experiences. The outstanding questions are: will these experiences be applicable to the needs of an evolving business world of uncertainty and rapidly changing requirements and does the video gaming environment promote the development of leadership skills businesses need? The potential impact of video gaming on learning and leadership skill development warrants a review of the literature in regards to Social Cognitive Learning Theory, one of the main theoretical concepts for this study. More specifically we will examine how video games may support that theory.

Social Cognitive Learning Theory

Social Cognitive Learning Theory states that learning occurs "in a social environment. By observing others, people acquire knowledge, rules, skills, strategies, beliefs, and attitudes. Individuals also learn from models the usefulness and appropriateness of behaviors and the consequences of modeled behaviors" (Schunk, 2010, p. 118). Bandura (1977, 1986, 2001) discussed triadic reciprocality where individuals learn based on the interactions with other individuals, the environment, and the observation of others in the same environment. As mentioned earlier, the interactions during the play of a video game are of interest for this study. These interactions will be between the primary player, the environment simulated in the video game, and other players (including playing against the computer). During the video game, each participant must react in the simulated environment and thereby has to coordinate, lead, or manage a team and resources in the accomplishment of tasks. With triadic reciprocality as the basis of Social Cognitive Learning Theory, we will next look at the three portions of the triad as it applies to the participation in playing video games.

Video Game Environment

The virtual video gaming environment provides players with opportunities to experience a multitude of different scenarios that were previously not possible due to the limitation of our human bodies (Gee, 2007a, 2007b). Video game environments are "expansive, world-like, large-group [environments] made by humans, for humans, and which [are] maintained, recorded, and rendered by a computer" (Castranova, 2005, p. 11). Gee and Hayes (2011) described this environment as a passionate affinity space. This space can be either real or virtual, but must have individuals associated with the space that have a shared passion for a common purpose or

endeavor. Passion affinity spaces are in fact interest-driven groups of individuals (Ito et al., 2010). Not everyone has to have the same level of passion for the subject of the space, but they do have to recognize it, respect it, and value the passion to some degree (Gee & Hayes, 2011). In regards to this discussion, participants in an online video game would be members of a passionate affinity space.

Gee and Hayes (2011) continued their discussion on how these affinity spaces allow participants to share knowledge and experiences while pursuing a common interest. Leadership is often flexible and shared, some individuals lead for a portion of the interactions and then others take on the leader role as their strengths become more important to the situation in the passionate affinity space (Gee & Hayes, 2011). Video games provide but one version of affinity spaces. These spaces or environments are extremely important to this discussion. Video games create an environment where individuals can join other individuals with similar interests, share ideas, share experiences, and mentor each other in a virtually risk free environment. Players can attempt to complete a task, using any approach or technique they think appropriate, and if they fail can restart the task from the point where they had been last successful (Charsky, 2010). In fact, most games encourage players to experiment, explore new ways of accomplishing tasks, and promote using a trial-and-error approach to solving tasks (Barab et al., 2010; Kirriemuir, 2002). Failure is part of the game, it "allow[s] players to take risks and try out hypotheses . . ." (Gee, 2007a). The affinity spaces created by the gaming environment also incorporate numerous learning principles which can impact the player. Table 2 lists and briefly describes the learning principles present in the gaming environment.

Table 2 Learning Principles Associated with Video Games

Learning Principle	Description
Identity	The selection or creation of an identity in the game helps players become committed to the game and learning.
Interaction	The game provides interaction or feedback once the player makes a move or takes an action. This interaction helps the player learn.
Production	Through their actions in the game, players influence how the game proceeds.
Risk Taking	Players can take risks and experiment with approaches without fear of real world consequences. If they fail, the player can resume play at the point where they made the previous decision.
Customization	Players can, in most cases, adjust the play of the game based on their level of experience, desired degree of difficulty, and allow for multiple solutions to the problem presented.
Agency	Based on the above principles of the game, players feel a sense of agency, control, and ownership over what they are doing.
Well-Ordered Problems	Players are provided ordered problems that tend to build on themselves. This leads to solutions which can be used on more difficult problems.
Challenge and Consolidation	Certain games allow players to develop near automatic responses to certain challenges. Once mastered, different challenges are require re-thinking of their solution, promoting integration of new solutions.
Just-in-Time and On Demand	Games provide information to players when they need it or upon request rather than presenting all the information up front in a text or document. It is provided at the moment of need.
Situated Meanings	Words which a learner may understand but not fully appreciate the meaning of the words become more clear when associated with an experience, such as a scenario in a game.
Pleasantly Frustrating	Games stay challenging enough yet doable. This provides motivation for the learner to continue the challenge and learn.
System Thinking	Players must think about how their actions will impact future actions or impact other players in the game.
Explore, Think Laterally, Rethink Goals	Players are encouraged to think through their actions both laterally as well as linearly, to test various options and adjust their goals.
Smart Tools and Distributed Knowledge	The avatars players use in games become smart tools via their assigned skills and knowledge.
Cross-Functional Teams	Multiple player games require each player to understand not only their own skills and strengths, but also the skills of their team.
Performance before Competence	Players can play the game before they master the skills of the game.

(Gee, 2005)

Another aspect of the video gaming environment which can provide new opportunities to participants is the use of avatars to represent themselves or characters they manipulate during the game. An avatar is a "self-created digital character" (Steinkuehler, 2006, p. 40) with selected strengths and attributes used in playing a video game. While these avatars provide anonymous identities for the players with specific skills and powers, the players can also incorporate their own goals, desires and intentions (Gee, 2008). Avatars provide each participant with the opportunity to create an anonymous identity with which to participate in the game. The use of an avatar in the game environment reduces individual and group inhibitions during the conduct of the game (Beavis & Charles, 2007; Taylor, 2003).

Gee and Hayes (2011) described a situation where a male and a female player, husband and wife, playing the same online game both selected female avatars. By choosing to play the game as a female avatar, the male player was able to experience the game as a female. This entailed not only having different skills and powers, but also allowed the male player to experience how others treated his female avatar. During play, another avatar, which was male, began flirting with the male's female avatar. He was not used to this type of interaction and had to ask the advice of his wife on how he should act (Gee & Hayes, 2011). This is an example of a very powerful component of video games, which is the ability to work in teams, and gain experiences in an environment that may be completely opposite to your real world cultural, generational, and gender position.

Finally, the use of avatars allows players to have multiple personalities in the game. In some games, individuals are not limited to having just one avatar with specific powers or skills. These types of games allow players to assume the role of multiple avatars and employ them as

the situation dictates. When not guiding a specific avatar, the computer will take over control and play the role of the avatar while the live player is employing another avatar (Charsky, 2010).

The digital environment in video games provides an opportunity for players to experience more than just fantasy avatars as described above. It also provides "groups of people from around the world [the opportunity to] solve problems with an array of information, digital tools, resources, screen shots, and arguments" (Squire & Steinkuehler, 2005, p. 39). In describing a popular massively multiplayer online game, Gee and Hayes (2011) described an environment with various fantasy avatars, which sounds very similar to the work environment many would experience today, especially in the diversity of skills, talents, motivation, team work, and collaboration.

Yee (2006) provided an example of how these two environments are similar. The author describes game play of one MMORPG that involves players selecting careers, such as pharmaceutical manufacturing, that requires the players to make decisions about product lines, acquisition of raw materials, either by third party vendors or self-development, and supply-chain management. Once the products are manufactured, the players must then sell their products to other players in the avatar environment. These decisions include "how broad or narrow their product line should be, how to price and brand their products, where and how much to spend on advertising, whether to start a price war with competitors or form a cartel with them" (Yee, 2006, p. 69). Yee (2006) suggested that even in fantasy games the tasks are just as complex and possibly more stressful given that players have to coordinate actions of 20 to 30 other players to address frequent crises within severe time constraints.

Finally, Yee (2006) further elaborated on the similarities of video gaming environments and the work environment, when referring to players he stated that "every day, many of them

[players] go to work and perform an assortment of clerical tasks, logistical planning and management in their offices, then they come home and do those very same things in MMORPGs" (p. 69). As video games become more interactive and connected "video games are inherently work platforms that train us to become better workers" (Yee, 2006, p. 70).

Reeves et al. (2008) made a similar assertion about video games and the business world in regards to leadership development. They highlight how tomorrow's business world will "feature the fluid workforces, the self-organized and collaborative work activities, and the decentralized, non-hierarchical leadership that typify games" (p. 61). Additionally, they state that "we found several distinctive characteristics of leadership in online games that suggest some of the qualities tomorrow's business leaders will need in order to achieve success" (p. 61). This assertion was supported by a survey conducted by IBM of 135 of its employees who had previously led business teams. These same employees had also participated in a multiplayer online game in leadership roles or members of a guild in the game. A guild, as used in this context, is a social unit organized within a multiplayer game to accomplish tasks or goals (Niman, 2013). Overall, the players found that the games were "surprisingly relevant to their day-to-day work. Three-quarters…said that environmental factors within multiplayer games could be applied to enhance leadership effectiveness in a global enterprise" (Reeves et al., 2008, p. 66).

Playing video games "cultivate collaborative problem-solving skills as well as . . . the ability to determine objectives and prioritize them. They demand numerous other thinking skills such as weighing evidence, analyzing situations, and decision-making" (Groff & Haas, 2008, p. 14). Similar to employees and individuals in leadership roles in the business world, "players must each master their own specialty…but they also must understand enough of each other's

specialization to integrate and coordinate with the others [players]" (Gee, 2005, p. 37). Finally, leadership roles in the business world face the same challenges as leadership roles in video games: recruiting and retaining talented team members, using the teams competitive advantage for the betterment of the team, and analyzing multiple inputs of constantly changing data to make rapid decisions that can have significant and long-lasting impact (Reeves et al., 2008).

Players/Learners Actions and Observations

Players are encouraged to test hypothesis, execute plans in a trial-and-error fashion, and learn by failing in video game play (Barab et al., 2010; Charsky, 2010; Gee, 2007a; Kirriemuir, 2002). With this philosophy of play, players get immediate feedback from the game or other participants, are actively engaged in the play with high levels of interactivity, and tend to exhibit high degrees of retention of information (Ricci et al., 1996). Ncube (2007) and Aldrich (2005) described this degree of interaction as learning by doing and experiential learning. This type of learning is provided to the players with infinite opportunities to practice with the information they learn in a structured environment (Davidson & Squire, 2005). In addition to having infinite opportunities to practice, players can join a game at any level of experience or expertise. This benefit of gaming allows a player to learn by doing or gives them the opportunity to join knowledge groups within the gaming environment (affinity space) for tutoring, research, problem solving, or discussion to learn potential nuances of the game and the expectations of those playing the game (Gee & Hayes, 2011). A functional epistemology of video games, promotes a learning by doing or performance experience for each player (Shaffer, 2004).

In addition to having multiple opportunities to attempt a specific task, there are several other critical skills which can be enhanced through the play of video games. One of the basic

and possibly counterintuitive skills is communication. Video game play has been accused of undermining communication and literacy (Solomon, 2004). Yet, reading and writing are essential elements of video gaming (Gee & Hayes, 2011). The reading and writing video gamers perform are more technical in nature to help themselves and their teammates successfully negotiate the game (Lenhardt & Madden, 2005). Players are looking for ways to overcome issues for their progression in a game from resources on the internet, with other players in the same game, or with team members playing the game (Ho & Huang, 2009). Wang and Chen (2004) discussed the various forms this communication can take as ranging from "text-based tools such as newsgroups, bulletin board services (BBSs), and mailing lists to more user-friendly and multimedia-based Internet Relay Chat (IRC), instant messages (IMs), and the World Wide Web (Web)" (Ho & Huang, 2009, p. 761).

Gee and Hayes (2011) discussed how communication, or more specifically literacy, has evolved to a point where contemporary gamers and others that use digital devices are developing digital literacy. Their discussion began with how oral literacy was very local, provided the receiver of any oral information the opportunity to challenge the information received and to understand the information as the transmitter intended. Gee and Hayes (2011) continued by describing how literacy evolved with the advent of the written word and printing. This form of literacy allowed more people to receive the communication but in a static and not necessarily contextually accurate manner. There was no challenging of the information except through other written forms which often took long periods of time to arrive at the transmitter. Now digital literacy provides not only for rapid dissemination of information to a very large audience, but also the mechanism to rapidly challenge or respond to that communication. "Digital media allow people to use written language in ways that resemble how people use face-to-face oral language.

People can communicate at great distances in real time through the Internet and various sorts of social media" (Gee & Hayes, 2011, p. 125). The Millennial Generation's concept of communication has been influenced by the incredible amount of information available via the advent of the Internet. This generation thinks that near immediate access to information via the Internet or through social networks is the norm while previous generations look at the near instant communication and social networking as something of a distraction (Ng et al., 2010; Squire & Steinkuehler, 2005). The Millennials see the same access as necessary and a requirement to function successfully in the work environment (Squire & Steinkuehler, 2005).

Another aspect of the Social Cognitive Learning theory that video gaming can replicate is the social aspect of the theory. Squire and Steinkuehler (2005) discussed the social interaction for multiple player games in which players decide roles of individual members of the group, establish acceptable norms for game play, negotiate any disagreements between members, and work together to develop strategy for game play. This social interaction continues outside the play of the game through blogging about successes the group has had in the game, providing hints to others for game success, and searching databases to help the team gain additional advantages for future play.

The social aspect of the gaming environment can also be seen in guilds (Niman, 2013) developed by players of certain games or in virtual communities (Ho & Huang, 2009), which can meet the definition of passionate affinity spaces (Gee & Hayes, 2011). Schulzke (2011) described the positive social aspect of video gaming that "among the greatest strengths of gaming is the way that it realizes the goals of associational life. Gaming has a remarkable power to bring disparate individuals together, regardless of their ideological differences and vast geographical separation" (p. 358). Finally, in regards to the social aspect of video gaming,

Steinkuehler (2006) discussed how gamers participate and gain from the collaboration as part of game play through debates, creating models and testing those models for use in the game, and discussing how the spoils of the game should be distributed in a fair and equitable manner, all in an attempt to create and maintain social relationships among team members. The author goes on to say that game play is "definitely collaborative and, at it's [*sic*] root, social in function" (Steinkuehler, 2006, p. 47)

The final concept of Social Cognitive Learning Theory that is applicable to this study is the concept of self-regulation. Self-regulation is a process where individuals think, act, and behave in a manner that will allow for the achievement of goals (Zimmerman & Schunk, 2001). Self-regulation assumes that individuals want the ability "to control the events that affect their lives" (Bandura, 1986, p. 1) or have personal agency. Video games provide players with opportunities to exercise personal agency towards the accomplishment of a particular goal or set of goals. Given the strengths or powers of each player, or of the computer, the player will make decisions to achieve the desired end result.

The virtual environments provided by video games allow players multiple perspectives and can bring together large groups of individuals in a collaborative setting, which can be difficult to replicate in a normal classroom or learning environment (Bailenson et al., 2008; Squire, 2007). It is in this environment where players can experience their own interaction with the game if playing single-player or with others in the virtual environment, and they can observe the actions of others. Players of video games are also able to learn by observing others or the actions of other characters in the video game. This form of modeling (Bandura, 1986) supports the three key functions Bandura highlighted of response facilitation, inhibition/disinhibition, and observational learning. Response facilitation refers to social prompts for observers to understand

how to behave appropriately. Inhibition/disinhibition is indicative of punishment or reward for performing certain actions. Observational learning occurs when learners demonstrate a behavior after it has been modeled that without modeling would have very low likelihood of success. Johnson (2005a, 2005b) supported this concept indicating games and other popular forms of culture are important learning opportunities if they prepare the player for future success.

The literature supports the viewpoint that video games apply the concept of Social Cognitive Learning Theory as described in triadic reciprocality where players learn through their own experiences, the interaction with the environment, and by observing others playing or the computer's actions while playing the game. Having discussed how video gaming can potentially be supportive of the Social Cognitive Learning Theory, and that the Millennials have had access to an increase in access to video game technology, the next area that needs addressing is the need for a new approach to leadership to meet the future needs of business. The next section will cover how the need for a new leadership approach may be supported by the playing of video games.

Leadership

The approach used for the literature review regarding adaptive leadership was first to look at the need for a new type of leadership. The Warwick 6 C Leadership Framework (Hartley & Benington, 2011) will be used to assist in the discussion regarding the need for adaptive leadership. Following this discussion, a closer look at adaptive leadership as described by Heifetz (1994) and Glover, Jones, et al. (2002) will be conducted. Finally, a brief review of the impact of video gaming on leadership will be presented.

New Approach to Leadership

Mobbs (2004) discussed the inabilities of current management theory to deal with the rapidly changing situations in which businesses find themselves. DeGenring (2005) supported Mobbs (2004) in his discussion on how businesses will need to change their approaches, models, and thinking to survive. "One of the distinctive features of this current wave of technological, ecological, political, economic and social changes is that they are taking place simultaneously. . . . [this] amounts to a seismic shift in the tectonic plates of western industrial society" (Hartley & Benington, 2011, p. 16). To help review the literature regarding the potential need for a new leadership approach, Hartley and Benington (2010) developed the Warwick 6 C Leadership Framework. The framework (Figure 2) is made up of six components, all relating to or impacting the leadership process. The purpose of the framework is to better organize the evidence regarding the six components of concepts, context, characteristics, challenges, capabilities, and consequences in relation to leadership. Each section of the framework will be used in subsequent paragraphs to discuss leadership needed in the new business environment.

Figure 2 The Warwick 6 C Leadership Framework (Hartley & Benington, 2010)

The first component, concepts, refers to the definition of leadership or how leadership is viewed (Hartley & Benington, 2011). For example Edmonstone (2009) commented on how past emphasis in regards to leadership has been on individual leadership traits without consideration of how skills and behaviors may have to vary depending on the situation and with varying strengths or areas of expertise needed in any given situation. Hartley and Allison (2000) discussed leadership in terms of the individual, the role, and the process in which an individual in a leadership role must operate. Heifetz (1994) described his concept of leadership as someone that may have to go beyond the established formal structure or power of the position and become more of an influencer. He further elaborates, "To capture these uses of the term in a definition, we can use the word 'mobilize', which connotes motivating, organizing, orienting and focusing attention" (p. 20). Hartley and Benington (2011) also discussed the need to look at leadership differently.

> There is a need to think about leadership not just as the personal qualities of an individual in a formal leadership position, but also as a dynamic interactive collaborative process, which takes place between different groups of people in a continuously changing context, with the leadership roles shifting between different people at different times. (p. 14)

The literature, as described above, moves the thought of leadership from a single-person concept to a process concept capable of addressing a multitude of challenges in an ever-changing environment.

The context in which leadership is occurring is changing as previously highlighted by Cojocar (2009). Not only is the rapidly changing technology making demands on those in leadership positions (DeGenring, 2005; Hartley & Benington, 2011; Mobbs, 2004), but the organizations are also changing into more interconnected and interacting parts (Marion & Uhl-Bien, 2001; Uhl-Bien & Marion, 2009). The problems and challenges individuals in leadership positions are now facing "need to be seen as part of a complex interactive and adaptive system" (Hartley & Benington, 2011, p. 18). The new types of problems which organizations will be facing are called "wicked or adaptive problems and they require a different leadership approach from the tame or technical problems" (Hartley & Benington, 2011, p. 18). Through the literature review so far the concept of leadership has been discussed as changing and the context in which it must function is changing. The next portion of our framework will discuss the characteristics of this new approach to leadership.

Hartley and Benington (2010) discussed how the types of leadership changes based on the role and resources available to the individual. They go on to describe how different types of leadership will have characteristics which will be dependent on whether the situation is formal or informal, direct (as in face to face) or indirect (remote workers or leading by influencing), professional or managerial type of leadership, and the impact of political versus managerial influences on leadership. Heifetz (1994) discussed the characteristics of leadership by

highlighting the difference between leadership being exercised through positional authority and without positional authority. Positional authority differs from non-positional authority in that rather than assuming or being appointed to a leadership role, authority is given through recognition from peers or subordinates or through developing collaborative groups from different organizations to achieve a common purpose (Benington & Moore, 2011).

Heifetz et al. (2009) continued the discussion about authority and highlighted the need to separate the terms leadership and authority. They say that we should,

> view leadership as a verb, not a job. Authority, power and influence are critical tools, but they do not define leadership. This is because the resources of authority, power, and influence can be used for all sorts of purposes, and tasks that have little or nothing to do with leadership. (p. 24)

With the recognized characteristics of leadership evolving and given our previous discussion of the changing context in which individuals in leadership roles must function, Denis, Lamothe, and Langley (2001) highlighted the need to consider leadership as groupings that allow the role to pass between individuals as the situation dictates, to those with the requisite or higher degree of skills, all depending on the stage or progress of the project or activity.

The next element to be considered is the difference in the challenges leadership roles are facing. Heifetz (1994) described the types of challenges as being either technical or adaptive. Technical challenges are those which have been encountered before and existing processes are in place to address them. This doesn't mean the challenges are easy, but are potentially solvable using existing processes or resources. The second type of challenge, adaptive challenge, typically is one where there is no clear cause or response to the challenge. Additionally,

> adaptive problems often require changes in values, attitudes and/or behaviors among those who are involved in the problem field – they may be unwittingly or wittingly contributing to the problem along with other people…[it] may require a painful recognition by leaders and stakeholders that they are part of the problem. (Hartley & Benington, 2011, p. 25)

As highlighted in the section regarding context, adaptive challenges may also be occurring in cross-sectional organizations. Problems in this newer type of organization lend themselves to a different type of leadership approach where the "means nor the outcomes are clear or agreed upon" (Hartley & Benington, 2011, p. 26). Adaptive problems require individuals in leadership positions to abandon the original thinking that they had to have the answer to any particular situation and embrace the concept that all the members of the organization must become involved in finding a solution to the problem at hand. "The leadership challenge in these circumstances is to confront the complexity of the problem and seek to orchestrate the work of a range of people to address it" (Hartley & Benington, 2011, p. 26). Hartley and Benington continued stating "Heifetz's (1994) framework for adaptive leadership is increasingly recognized as an effective strategy for tackling complex . . . problems . . . it emphasizes the value of leaders asking critical probing uncomfortable questions, not just providing easy solutions for others"(Hartley & Benington, 2011, p. 30). From that framework, Heifetz (1994) provides seven principles for individuals to more effectively employ adaptive leadership, as shown in Table 3.

Table 3 Heifetz's Seven Principles of Adaptive Leadership

Principle	Description
Identify the adaptive challenge	The leader needs to identify any underlying challenges and if the problem is a technical or adaptive challenge. If changes in thinking and/or behavior are required, adaptive leadership may be necessary.
Give the work back to the people faced by the problem	Engage those involved with the challenge and avoid the urge to solve the problem alone. Allow those involved to take ownership of finding a solution for the challenge.
Regulate the distress necessary for adaptive work	Keep the level of stress at the appropriate level to keep the team working on a solution yet not allowing the situation to become damaging or repressive.
Create a 'holding environment' in which the painful adaptive work can be done effectively.	Allow for a physical and possibly a psychological space for those involved to work on and solve for the adaptive challenge. This space will provide safety as well as the ability to challenge existing processes.
Maintain disciplined attention to the issues	Maintain focus of the primary task to solve for the adaptive challenge.
Protect the voices from below or outside	Make sure all voices are heard, viewpoints considered, and any dominant views challenged.
Move continuously between the balcony and the dance floor.	The balcony view allows the leader to have a broader view of the situation and any potential long-term issues. The dance floor view allows the leader to regulate stress and gain empathy and understanding of the work done on the adaptive challenge.

(Heifetz, 1994)

The discussion regarding capabilities assumes a different perspective when considering the adaptive leadership approach. The term capabilities is used by several authors synonymously for competencies (Hartley, 2002; Hartley & Pinder, 2010). In the framework of leadership as a process versus capabilities of one individual, capabilities can be a hindrance if one individual attempts to apply their strengths or capabilities without considering the context of the challenge. If leadership is accepted as a process then the capabilities must be considered for the entire team

and not just the capabilities of one individual (Bolden & Gosling, 2006; Burgoyne, Pedler, & Boydell, 2005). Day (2000) and Benington and Hartley (2009) asserted that in looking for opportunities for leadership development, the entire team should be considered and included, not just the individual. Adaptive leadership with its inclusivity provides benefits that previous leadership theories do not. As mentioned above, depending on the context of the challenge or project or organization, transactional and transformational leadership may both be necessary to meet a particular situation (Edmonstone & Western, 2002; Peck, Dickinson, & Smith, 2006). It appears from the above discussion that capabilities or competencies need to be considered in the whole team as described in the discussion of adaptive leadership and not just in one individual on the team.

When looking at the final element of the framework, consequences, a definitive measure is elusive. Hartley and Benington (2011) highlighted the fact that there are relatively few studies which address the measurement of successful leadership and in fact those that are present tend to focus on what happened and not why. Hartley and Tranfield (2011) presented arguments for a more realistic approach to assessing leadership by including not only the outcomes of a someone's actions, but also review the circumstances or mechanisms which impacted the outcomes under which that individual in a leadership role had to function. Hartley and Benington (2011) concluded their argument on consequences with a simple statement encapsulating their recommended approach to measuring leadership consequences, "examine what works, for whom, in what circumstances, and why" (p. 36). Hartley and Benington (2011) have provided a lens through which the observer can see how leadership has evolved to a place where rapidly changing context, challenges, capabilities, and consequences are driving changes in characteristics and concepts.

Adaptive Leadership Theory

Adaptive Leadership Theory has been described as a leadership approach that has evolved from situational, transformational, contingency, and complexity theories (Nastanski & Berkey, 2002). It represents "leadership that is capable of tackling and solving complex problems and issues, with collective, collaborative, timely, effective, and innovative solutions" (Cojocar, 2009, p.1). Adaptive Leadership Theory is a more successful approach for business to follow given the current environment with its process of encouraging debate, rethinking entrenched ideas, and using social learning processes to implement new ideas and approaches (Cojocar, 2009). Glover, Jones, et al. (2002) further expanded this thought about adaptive leadership by describing individuals practicing adaptive leaders as those individuals who make decisions with the thought of the impact of their actions over space and time and not just for a particular event or setting. Additionally, adaptive leadership is more than a leader-follower type of relationship. Adaptive leadership implies a more complex, interactive type of leadership. As situations change, different individuals with different skill-sets may rise to a greater leadership role as opposed to the traditional one-person leadership approach (Lichtenstein et al., 2006).

Hall (1976) described how the problems individuals and organizations are currently facing are a result of our social and technical innovations. As we move beyond the capabilities of humans, we move into an arena where leaders must make decisions that are more adaptive in nature for the long-term versus the short-term. "Adaptive leaders must make fundamental changes in their basic perspectives, values, and behaviors involving the way they manage information and people" (Glover, Jones, et al., 2002, p. 21). Glover, Jones, et al. (2002) went on further to discuss how adaptive leaders will need to understand the impact of culture on organizations and how to cope with cultural differences. Additionally, they discuss how

individuals in leadership roles will need to assimilate incoming information and help their organization accommodate change. "Adaptation is not a process of adding more to what we are currently doing. . . . it requires a fundamental change in how we see the world and the systems we have in place to respond to it" (Glover, Jones, et al., 2002, p. 22).

Glover, Rainwater, Jones, and Friedman (2002) discussed their concept of adaptive leadership as getting its foundation from the developmental and learning works of Piaget (1952). Additionally, De Geus (1997) used the insights of Piaget (1952) on learning to "help us better understand the dynamics of adaptive leadership" (Glover, Jones, et al., 2002, p. 23). Piaget (1952, 1971) discussed three elements of human development: assimilation, accommodation, and equilibration. Applying these three elements to adaptive leadership, Glover, Rainwater, et al. (2002) described assimilation as "taking in information for which learners already have cognitive structures in place, enabling them to recognize and attach meaning to the information being received" (p. 19), accommodation as "an internal change in the structure of his or her beliefs, ideas, or attitudes. . . . Experiential learning . . . typically is more of this sort" (pp. 19-20), and equilibration as the "dynamic of assimilation and accommodation as we interact with our environment" (p. 20). This final element is what Piaget (1971) called the critical element for organizations to be successful in adaptation. While Piaget (1952, 1971) discussed the impact of assimilation and accommodation in regards to how children learn, Glover, Rainwater, et al. (2002) asserted that the same concepts apply to organizations as well as the individuals of the organization.

Further, in describing how assimilation and accommodation interact as change impacts an organization, Glover, Jones, et al. (2002) described four scenarios where assimilation and accommodation are employed in varying degrees and these are shown in Figure 3. With low

levels of assimilation and accommodation, the resultant response is a Maladaptive Cultural Trap. In this scenario, individuals in leadership positions and the organization are "closed to options other than the status quo. Information from the environment is either not accepted or not processed. There is no desire or awareness of the need to modify how things are currently being done." (Glover, Rainwater, et al., 2002, p. 20). According to Glover, Jones, et al. (2002), with this response equilibration cannot be achieved and changes in the environment are not addressed.

			Assimilation	
			Low	High
Accommodation	Low		Maladaptive Cultural Traps	Natural Selection
	High		Serendipity	Maximum Adaptive Potential

Figure 3 Leadership Responses to Change (Glover, Jones, et al., 2002, p. 24)

High levels of assimilation and low levels of accommodation result in a response called Natural Selection. In this scenario, equilibration is not achieved. According to Glover, Jones, et al. (2002), the individual in the leadership role is receiving a significant amount of information but is either "unwilling or unable to make any real changes to the way things have been done in the past" (p. 21) which is necessary to fulfill the component of accommodation.

High levels of accommodation coupled with low levels of assimilation result in a response titled Serendipity. With this approach, individual in the leadership role "proceeds with making substantive change in the organization, but fails to take in important information regarding the initiative from the environment" (Glover, Rainwater, et al., 2002, p. 21). With this

scenario, equilibration is not achieved and any success can be ascribed to luck versus basing the decision on known facts.

The final response from Figure 3 is Maximum Adaptive Potential. Equilibration is achieved through high levels of assimilation and high levels of accommodation. "Leaders make decisions and create accommodative changes based on careful and continuous review of information they receive from the environment. . . . [Leaders] do not (*sic)* change for the sake of changing. Change is appropriate to the context, stakeholders, and organizational need" (Glover, Jones, et al., 2002, p. 27). The authors proposed that individuals in leadership positions desiring to maximize their ability to be adaptive must strive to achieve the equilibration of assimilation and accommodation through continuous learning, commitment, experimentation, and practice (Glover, Rainwater, et al., 2002).

Glover, Rainwater, et al. (2002) presented four principles that will help individuals in leadership roles develop their adaptive skills: "cultural competency, knowledge acquisition and use, creating synergy from diversity, and holistic vision" (p. 24). These same skills are highlighted by Reeves et al. (2008) as skills needed to be successful in leading teams playing video games. An individual in a leadership role must address three steps to gain cultural competency: gain an awareness of cultural differences, respect any identified differences, and reconcile the identified difference with their own culture (Trompenaars & Hampden-Turner, 1997). Given the globalization of today's business environment, cultural competency may have a greater impact on the success in changing or leading an organization than in times prior to the growth of technology and communication capabilities. As it relates to adaptive leadership skills, cultural competency will allow for an individual in a leadership position to implement adaptive

change in a more efficient manner than in an environment where a proposed change does not agree with the cultural expectations of the stakeholders (Glover, Rainwater, et al., 2002).

Knowledge acquisition and use have become incredibly important in the global marketplace. Adaptive individuals in leadership positions must develop processes and tools that allow them to "sense and respond" (Glover, Rainwater, et al., 2002, p. 29). This principle stipulates an individual must not only acquire information, which with today's technology is easier than it has been ever before, but must also develop and implement a response to the information that will help the organization remain more relevant or competitive. Haeckel (1999) described this action as a continuous cycle where an organization senses and responds to information and change to remain in touch with the environment in which it is functioning.

The third principle is creating synergy from diversity. What Glover, Rainwater, et al. (2002) proposed is that given the cultural complexity of today's organizations, individuals practicing adaptive leadership must strive to lead groups with "seemingly opposing values" (p. 30). The authors proposed that these individuals in leadership positions must work to incorporate the cultural differences into adaptive solutions without losing the vision or focus of the organization. The goal is to have a blended solution that builds on the strengths of opposing views without weakening the organization's ability to remain competitive in the marketplace.

The final principle proposed is to have a holistic and sustainable vision. "Adaptive leaders must be able to scan their horizons and to think beyond the obvious, beyond what is known about their world. . . . anticipating future conditions and situations that affect sustainability" (Glover, Rainwater, et al., 2002, p. 32). The authors discussed how scenario planning can be an effective tool for individuals in leadership positions to employ as they determine the choices to consider in adapting an organization. Reeves et al. (2008) discussed

how video games allow players to replay tasks using various options and how this trial-and-error capability of video games helps players develop risk taking abilities in uncertain environments.

Another representation of adaptive leadership is presented by Heifetz et al. (2009) through a biological analogy. Organizations, like organisms, must evolve (adapt) to their environment. By employing an adaptive leadership approach, organizations strive to address new, difficult situations and in turn thrive going forward (Heifetz et al., 2009). The connection with biology is made here with the thought of thriving. Instead of doing away with all the old processes in lieu of new processes, organizations, like biological organisms, keep the core essence of what they do or are, modify (rearrange or repurpose) what needs to be changed, and then create a new process or organization that will meet the needs in the new environment. The environment may include new or growing technology, changing resources (people or materials), or a need for increased speed of delivery of products or services.

Heifetz et al. (2009) continued with six descriptors for how adaptive leadership impacts an organization. First, adaptive leadership promotes the concept of thriving, not just surviving. Second, this approach to leadership builds on the strengths of the organization and does not eliminate what is no longer useful; it builds on the past. Third, the only way an organization can evolve to thriving is through experimentation. The authors use the analogy of pharmaceutical companies that are willing to experiment and have failures in order to discover what does not work so they can fully develop what does work. Fourth, to develop an organization that can be adaptive, there must be diversity within the organization. Many differing views can provide multiple solutions, which can help the organization thrive. Fifth, as previously mentioned, an adaptive approach does not discount old ways but builds on them. This fifth point highlights that when a successful adaptation is achieved, some losses do, in fact, happen. Sixth, it takes time for

an evolution to occur. An adaptive approach can be beneficial to an organization to stay relevant, yet it can take time (Heifetz et al., 2009).

Leadership Skills and Video Games

Throughout this literature review there were several instances where topics overlapped or were discussed together as opposed to fitting neatly into a particular category. Leadership skills and video games are two such topics. In the review regarding adaptive leadership, Glover, Jones, et al. (2002) discussed how "leaders must be able to interact with a variety of people who do not always share their way of seeing the world or their view of how to organize and manage" (pp. 21-22). Reeves et al. (2008) and Jang and Ryu (2011) also highlighted this coming requirement of future individuals in leadership positions and how massively multiplayer online role-playing games "in many ways resemble the coming environment…and open[s] a window onto the future of real-world business leadership" (Reeves et al., 2008, p. 60). They go on to state how the work "environment can be expected to feature the fluid workforces, the self-organized and collaborative work activities, and the decentralized, non-hierarchical leadership that typify games" (Reeves et al., 2008, p. 61).

In addition to a change in the work environment, a conclusion from the literature may indicate there will be a change in how leadership is executed in the future. Denis et al. (2001) described how leadership in the future will be a grouping of individuals instead of the designation of a single person as a leader. Leading a team may rotate among the members of this grouping to the one individual who has the requisite skills to perform the tasks necessary. This concept is also being exercised in video games where "leaders naturally switch roles, directing

others one minute and taking orders the next. . . . leadership in games is a task, not an identity" (Reeves et al., 2008, p. 62).

One of the most impacted areas found in the literature review is in regards to experiential learning. As previously discussed, Glover, Jones, et al. (2002) used the concepts of assimilation and accommodation as presented by Piaget (1952, 1971) to better understand the dynamics of adaptive leadership. Gaining experience, which is equated with accommodation (De Geus, 1997), and the opportunity for trial-and-error is an important factor for developing adaptive leadership skills (Bolden & Gosling, 2006; Glover, Jones, et al., 2002; Mumford, Zaccaro, Connelly, & Marks, 2000; Tetenbaum, 2011). Charsky (2010) described how video game play "allows learners to explore the game space, test hypothesis, and fulfill goals in a variety of unique, sometimes, unanticipated ways"(p. 184). The multiple possible paths a player may take in playing a video game helps the players develop a base of knowledge, which can be applied to any number of real word situations (Koster, 2005; Spiro, Feltovich, Jacobson, & Coulson, 1991, 1992). In addition to having the possibility of a trial-and-error approach to playing and learning in a video game, as players achieve success and advance in a game the difficulty level typically increases and the players have to address and ultimately learn how to deal with more complicated situations or situations in different context (Aldrich, 2004).

One final area of mutual influence is in the realm of the environment in which an individual in a leadership position will have to function. Glover, Rainwater, et al. (2002) discussed how the culture of organizations is changing, in many cases as a result of the influx of new technology. As previously reviewed, the Millennial Generation is bringing very different expectations into the workplace ranging from how they like to work, how they want to be communicated with, and the desire for transparency (Heifetz et al., 2009). With the influx of

technology and the changing expectations of the employees, the culture or environment in which a person in a leadership role has to function is also changing.

Video games are reflecting that same environment as a part of video game play (Gee & Hayes, 2011; Yee, 2006). The culture or environment of an organization implementing adaptive leadership skills will require individuals to be culturally competent to be successful (Glover, Rainwater, et al., 2002). This point of overlap is very pronounced in the literature in that the expectations of individuals in leadership positions and players of video games are very similar to the expectations of leadership positions in real world organizations. In the environment of an adaptive organization and video game, assimilation and accommodation are necessary (Gee, 2008; Gee & Hayes, 2011; Glover, Rainwater, et al., 2002; Ho & Huang, 2009), rapid communication in multiple formats is essential (Glover, Rainwater, et al., 2002; Ho & Huang, 2009), and the environment is made up of many different participants or players who require cultural competence of leaders (Glover, Rainwater, et al., 2002). The connection or similarity between the literature regarding adaptive leadership and video gaming relates very closely.

Many key points can be derived from the literature regarding adaptive leadership. The environment in which organizations now must function is extremely diverse and infused with technology enhancing communication. Organizations, like biological organisms, must evolve, keeping the essence of their values while adapting to meet the changing environment. Individuals in leadership positions must establish mechanisms that will help assimilate information and accommodate a learning environment so the organization can change to meet the adaptive nature of the marketplace. Finally, adaptive leadership is more than a change initiative; it is a different way of making decisions and remaining relevant in the marketplace.

Summary

This chapter has provided a literature review of the four main components impacting this study. First, an overview about the generations in the workforce was presented. The literature indicates that the Millennials are coming into the work place assuming leadership positions with different expectations and skills, driven by the impact of several events during their maturation. Next, a review of video games was presented describing this technology and how the Millennial Generation has been influenced by the exposure to and playing of video games. Video games have allowed players to interact with a much broader diverse group of individuals in a safe virtual environment. The attributes of these games have many similarities with many recognized learning principles. The discussion then transitioned to a review regarding Social Cognitive Learning Theory, triadic reciprocality as discussed by Bandura (1977, 1986, 2001), and how learning can be supported in the play and organization of video games. While there are potential negative impacts to playing video games, the literature indicates that the positive aspects outweigh the potential negative impacts. Finally, this review presented a discussion about the growing need for adaptive leadership skills and how these skills are becoming more imperative in the rapidly evolving business environment where communication, globalization, and cultural competence are shown as critical drivers for the current business environment. This literature review also discussed how the collaborative nature of video games and their virtual environment provide a robust platform for developing adaptive leadership skills.

CHAPTER III

METHODOLOGY

Introduction

This chapter explains the methodology that was used in completing this study regarding the potential impact of video gaming on leaders from the Millennial Generation. The general approach was to use existing data collected by the participating company regarding the adaptive leadership skills of employees attending an orientation course for individuals in leadership positions. The extant data developed as a result of the company deployed survey was then used to assess if the adaptive leadership skills of the Millennial Generation participants were different than those of other generations within the sample. The next step was then to assess the impact of playing video games and length of time playing video games on the adaptive leadership skills across each generation. Finally, an assessment of any relationship between generations and game experience was completed. The data collected represents a very narrow audience and may not be viable for generalization.

Research Design/Perspective

The design or perspective of this research consists of using a quantitative descriptive approach to first assess the adaptive leadership skills of individuals in leadership positions from the Baby Boomer, Generation X, and Millennial Generation. The intent was to identify any indication of higher scores within a particular generation. From the data, those participants

scoring high adaptive leadership scores were also reviewed to assess if they also had high amounts of video game play. The next area of analysis was to assess any relationship between video game experience and the generational grouping of those in leadership positions who participated in the company deployed survey. The extraneous variables listed in the Variables Analysis (Appendix A) were gathered to identify any potential characteristics which may impact the analysis of the mined data gathered from the participating organization.

Research Context

The study used data generated from participants in an orientation program for employees that have assumed a new leadership position. This orientation course was conducted by a health care insurance company which agreed to provide this extant data. The course is mandatory for all employees who have assumed a leadership position and is conducted normally on a monthly basis, with some instances of multiple presentations within the same month depending on demand and funding. The program consists of three days of instructor-led training, with the goal of helping participants become better oriented to leading within the company's structure, as aligned with the company vision. The study used data already collected by the learning and development organization of the participating company from the participants in the three-day orientation course. The course was conducted at the home office in Connecticut, as well as at other locations across the United States. Verbal and written agreement from the health care insurance company was provided for the use of the data collected as a part of this course (Appendix B). Participation in the company survey was voluntary and confidential. Due to company policy, gender and ethnicity data were not captured as a part of the deployed instrument and this demographic information was not available for analysis.

Research Population and Sample

With Institutional Review Board (IRB) approval of the approach for this study (Appendix C), the population for this study consists of individuals in leadership positions from multiple generations - Baby Boomer, Generation X, and Millennial Generation. The sample frame for the instrument was a smaller subset of the general population of the three generations from approximately 4,500 leadership roles within the company used for the research. Convenience sampling is the method that was used to conduct this research using individuals attending an orientation course within a large health care insurance company for individuals in leadership positions. Each class has a diverse representation in terms of the following groups: generations, genders, education levels, and geographic locations from across the United States. The instrument was implemented in classes which began in April of 2015 and continued over a five month period, which resulted in data gathered in 10 courses from 270 participants.

Variables Analysis

The Variables Analysis for this study is shown in Appendix A and a summary of the independent, dependent, and extraneous variables is shown in Table 4. The dependent variable for this study is an Adaptive Leadership Score. The Adaptive Leadership Competency Profile (ALCP) questionnaire developed by Sherron (2000) was used by the participating organization to determine the scores for this variable (Appendix D). The score for each participant completing the questionnaire consisted of a combination of scores assessing the frequency and intensity of adaptive leadership as reported by the participants in the new leader orientation course. The research questions and hypotheses centered on the supposition that the exposure to gaming and technology has provided the Millennial Generation with additional adaptive leadership skills.

The ALCP is discussed below in the Instrumentation section. In brief, the ALCP shows the frequency an individual reports demonstrating 10 identified competencies associated with adaptive leadership (ranging from never performs = 0 to performs daily = 4) and the intensity of the competency (from not intense = 0 to extremely intense = 4). Finally, the ALCP allows the participant to express the level of effectiveness of the use of the competencies (not effective = 0 to extremely effective = 4). The result provides a composite score for each respondent on the 55 items from the survey.

Table 4 Variables for the Study

Variable	Scale of Measurement
Dependent	
Adaptive Leadership Score	Scale
Independent Variables	
Generation	Nominal
Video Gaming Experience	Ordinal
Extraneous Variables	
Education Level	Ordinal
Company Experience	Ordinal
Management Experience	Ordinal

There were two independent variables considered during the investigation of the research questions for this study. The first variable was the generation into which the individual fell. The expectation was that there would be three generations in the data set: Baby Boomer, Generation X, and Millennial Generation. This variable would help determine if there is a difference, from an adaptive leadership skills perspective, between the earlier generations (Baby Boomer and Generation X), who did not have the exposure to gaming and the Millennial Generation, which has been exposed to gaming.

The second independent variable was the level of gaming experience reported by each participant of the study. The degree of experience is an attribute variable with five measures indicating the level of exposure to video gaming ranging from never played video games (0) to played video games 1-2 times a day (4), (Table 5). The use of this variable helped determine a degree of game play and allowed for an analysis to see if game time and adaptive leadership skills have positive relationship. For the purposes of this study, game play includes all types of video gaming from individual game play to multiple massive online role play games (MMORPGs) or multiple massive online games (MMOGs). The literature review indicates that while certain games can provide more enhanced skill attainment, all gaming provides some degree of adaptive leadership skills development opportunity.

Table 5 Demographic Data and Potential Responses

Education Level	1= High School	2= Associate Degree	3= Bachelor Degree	4=Masters	5= Doctorate
Company Experience	1= 0-36 months	2= 37-60 months	3= 61-96 months	4= 97+ months	
Total Management Experience	1= 0-36 months	2= 37-60 months	3= 61-96 months	4= 97+ months	
Birth Year	1= 1946 to 1964	2= 1965 to 1977	3= 1978 to 1996		
Gaming Experience Growing Up	0= Never Played Video Games	1= Played Video Games 1-2 times a month	2= Played Video Games 1-2 times a week	3= Played Video Games 1-2 times a day	1= Played Video Games more than 1-2 times a day

The third research question was addressed by analyzing the relationship between generational groupings and video game experience. This analysis helped determine if there was any support to the hypothesis that video gaming had changed the generations in the work force.

This final research question was used with the results from the first two questions to assess how the generations have been impacted by the play of video games in regards to the generations' ability to demonstrate adaptive leadership skills. No extensive analysis was made of the degree of video game play by generation beyond descriptive tabulation.

Instrumentation

The participating organization used the Adaptive Leadership Competency Profile (ALCP) questionnaire (Sherron, 2000) to assess the adaptive leadership skills of the participants of the leadership orientation course. The ALCP (Appendix C) measures the frequency and intensity of 10 macro leadership competencies. Each competency contains a varying number of items to provide the researcher with indicators of the use of that particular competency. Table 6 shows a breakdown of the 10 macro competencies with the associated number of items per competency that will be used in the instrument. Demographic information was collected as a part of the instrument and this information will be used to assess if there are other factors that may be impacting the outcome of the study. Confirming informed consent was a part of the survey instrument at the new manager's orientation course.

Table 6 ALCP Competencies with Descriptions

Competency Number	Competency Description	Number of Items
1	Influencing and Motivating	5
2	Learning	5
3	Managing	7
4	Envisioning	4
5	Teaming	5
6	Ethics	6
7	Developing of Human Capital	6
8	Communication	4
9	Decision Making	5
10	Change	6

(Sherron, 2000)

The ALCP "is eclectic and rooted to situational leadership, servant leadership, contingency theory, transformational leadership, new science theory, and 600 interviews with organizational employees that defined effective leaders and leadership" (Sherron, 2000, p. 6). The author of the ALCP validated all 10 competencies, shown in Table 6, and all 55 items on the survey using subject matter experts, through the implementation of the survey using volunteers generated from multiple media activities, and coordination with the American Society of Training and Development. Additionally, the author used the Rasch rating scale measurement model to check for validity and reliability of all items on the ALCP scales (Sherron, 2000).

Competency and Item Development

The author of the ALCP (Sherron, 2000) initially identified 13 leadership competencies and 130 scale items from the National Science Foundation data base describing effective leadership behaviors / competencies. Using seven subject matter experts, the 130 scale items were then reviewed and placed into one of the 13 categories of identified competencies. Using Statistical Package for the Social Sciences (SPSS) 10.0 to analyze the data generated and using criteria of 70% agreement among the subject matter experts, the author narrowed down the 13 competencies to 11 competencies and 65 items addressing the competencies. With the competencies and the items to measure the competencies identified, two scales were established to measure the frequency and intensity of the 11 competencies. Table 7 shows the scales for these two areas for each competency.

Table 7 ALCP Scales

Competency	Scale	Description
Frequency	0	Never Performs This Task
	1	Performs This Task Yearly
	2	Performs This Task Monthly
	3	Performs This Task Weekly
	4	Performs This Task Daily
Intensity	0	Not Intense
	1	Somewhat Intense
	2	Moderately Intense
	3	Highly Intense
	4	Extremely Intense
Effectiveness	0	Not Effective
	1	Somewhat Effective
	2	Moderately Effective
	3	Highly Effective
	4	Extremely Effective

(Sherron, 2000)

Sherron (2000) then gathered responses from the recruited organization to run the survey and test how well the 65 items fit with each identified competency. Sherron (2000) performed a reliability coefficient analysis for both frequency and intensity measures and subsequently validated that 10 of the original 11 competencies and 55 of the original 65 items used to assess each competency were statistically valid. After conducting this analysis for each item associated with each competency, the author then conducted a multinomial-ordered nonlinear probability model with the independent variable a composite behavioral competency measure for each of the 10 competencies and the dependent variable being the ordered response for effectiveness. The result was a likelihood ratio index and a frequency of correct prediction score that provided evidence for "predictive validity and demonstrates that the competencies of the ALCP are valid and critical to the measurement of specification of effective leadership. . . . Essentially, high leadership competency scores on the ALCP are indicative of leadership effectiveness. . . . " (Sherron, 2000, pp. 90-91). The ALCP design considers both frequency of a behavior as well as the intensity of the behavior in a manner that ultimately provides a "summative composite measure of behavior. This composite measure is a new competency measure and significantly adds to the explained variance of leadership behavior" (Sherron, 2000, p. 93).

Procedure and Analysis

Permission to mine the extant data within the health care insurance company was given by the Leadership College Director (Appendix B). The data were gathered from attendees of a leadership orientation course for a large health care insurance company over a five month period. The course occurred approximately once a month at various corporate locations and consisted of 16-32 participants per class meeting. Each class was given the instrument at the end of the three

day course to collect the adaptive leadership skills scores of the participants. Initial estimates at the number of potential candidates participating in the new leader orientation course were between 275-325, but due to reduced travel expenditures mandated by the subject company and business demands, the actual *n* achieved was 270. Participation in the survey was optional. Each participant who elected to complete the survey wrote their individual employee identification number on the survey in case there was a need to follow up on any missing data or confusing responses. Upon gathering the data, the author of this study inserted the responses into the SPSS program for analysis. In the following paragraphs a description by research question (RQ) of the initially planned approach for statistical analysis provides a better understanding of the methodology.

Research Question 1: Are individuals in leadership positions from the Millennial Generation demonstrating a higher degree of adaptive leadership skills than other generation leaders? The two variables associated with this research question were the dependent variable of ALCP composite scores and the independent variable of Generation. The ALCP scores are composite scores for each respondent to the survey collected by the participating organization. These composite scores are composed of responses to two questions using a Likert scale. This variable was ordinal in scale of measurement since the data are "not only mutually exclusive categories…but also the categories are ordered from low to high" (Gliner, Morgan, & Leech, 2009, p. 136) and are continuous. Uebersax (2006) stated that these types of data should be considered "discrete visual analog scale (DVAS)" (p.1) and as composite values allow for the use of a one-way analysis of variance (ANOVA). The Generation data were nominal in scale of measurement given that the "numerals assigned to each mutually exclusive category stand for the name of the category but have no implied order or value" (Gliner et al., 2009, p. 136) and have

three levels of measurement – Baby Boomer, Generation X, and Millennial. Considering the independent variable had more than two categories and the dependent variable was ordinal and the analysis conducted was between groups, the one-way ANOVA was determined appropriate (Gliner et al., 2009, p. 292), considering that the variables met the homogeneity criteria of Levene's test. If the data had indicated a statistical significance from the Levene's test, then the data would not have been homogenous and a violation of the assumptions of a one-way ANOVA would have occurred. The option to continue the analysis would have been to use the Kruskal-Wallis test. Since homogeneity was validated, a one-way ANOVA was conducted. If there had been a significance noted in the *F* value, a Tukey honestly significant difference (HSD) test would have been conducted as a post hoc comparison.

Research Question 2: Do participant scores demonstrate enhanced adaptive leadership skills based on reported level of video game experience? The two variables impacting this research question are ALCP composite scores and video gaming experience. As with RQ1, the ALCP composite score was the dependent ordinal variable. The video gaming experience was the independent variable for this question and was ordinal with five categorical levels of measure. Again, as with RQ1, the independent variable has more than two categories, the dependent variable was ordinal, and the analysis was conducted between groups, the one-way ANOVA was deemed appropriate (Gliner et al., 2009, p. 292), given that the two variables met the homogeneity criteria of Levene's test. If the data from the one-way ANOVA had indicated a statistical significance in the *F* value, a Tukey HSD test would have been conducted as a post hoc comparison. This approach allowed the researcher to determine if there is any correlation between the amount of video gaming experience and the scores on the ALCP.

Research Question 3: Is there a relationship between the generation of the participants and video game experience of the participants? For this research question the two variables involved were the nominal Generation categorization with three levels of measurement and the ordinal Video Gaming Experience variable with five levels of measurement. Given that the Generation variable was the new independent variable and the Video Gaming Experience was the dependent variable, based on the question to determine if there is a difference between the generational categories, the nonparametric chi-square test with greater than one degree of freedom was appropriate for this analysis. This approach allowed for an analysis of the three generational categories in relation to the amount of time the participants indicated they spent playing video games.

Summary

The extant data collected by the participating company were gathered using the ALCP survey of a convenience sample of attendees at a leadership development course at a large health care insurance company. The company's deployment of a survey to gather data regarding the adaptive leadership skills of its participants began in 2015. The goal of this study was to achieve a sample of the total population of individuals in leadership positions in the health care insurance company with an expected *n* of 275-325 participants. Due to budgetary constraints which reduced travel expenditure and smaller classes, the actual *n* achieved was 270. A quantitative descriptive approach was used to first assess the adaptive leadership skills between participant generations and then assess the impact of the time spent playing video games by those participants with higher adaptive leadership skills scores. The intent of this study was to

describe any generational impact of video gaming on the Millennial Generation as compared to other generations in leadership roles.

CHAPTER IV

FINDINGS

The premise of this study was that the Millennial Generation has had significantly more exposure to video games as compared to other generations due to the development and enhancement of the Internet and gaming technology. This exposure to gaming has created an environment for this generation to potentially develop social, organizational, and leadership skills (Reeves et al., 2008). It is through the playing of these video games that the members of the Millennial Generation may have developed social, organizational, and leadership skills sooner and differently than members of earlier generations (Reeves et al., 2008). The purpose of this study was to assess the relationship video gaming may have with the Millennial Generation's ability to learn and demonstrate adaptive leadership skills. Millennials are a significant portion of the population, and as the Baby Boomer Generation leaves the workforce, the need for these new leaders to have adaptive leadership skills will become even more important.

In Chapter III, the methodology of how extant data were mined from the participating organization and a description of the instrument used by the organization was presented. The participants were attendees of a leadership orientation course for a large health care insurance company over a five month period. The mined data were used to address the three research questions and related hypotheses presented in Chapter I. The findings will be presented in relation to those three research questions following a brief discussion of the demographics of the participants.

Sample Demographics

Participants from the company provided an *n* sample size of 270. As discussed in Chapter III, the demographics collected by the participating organization included: education level, company experience with the health care insurance company, total management experience, birth year (generational grouping), and video gaming experience

The education level for the participants (Table 8 and Figure 4) indicates nearly half of the respondents as having a Bachelor's degree with 5.2% of the respondents holding a doctoral degree.

Table 8 Education Level

Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	27	10.0	10.0	10.0
	Associate Degree	30	11.1	11.1	21.1
	Bachelor Degree	128	47.4	47.4	68.5
	Masters	71	26.3	26.3	94.8
	Doctorate	14	5.2	5.2	100.0
	Total	270	100.0	100.0	

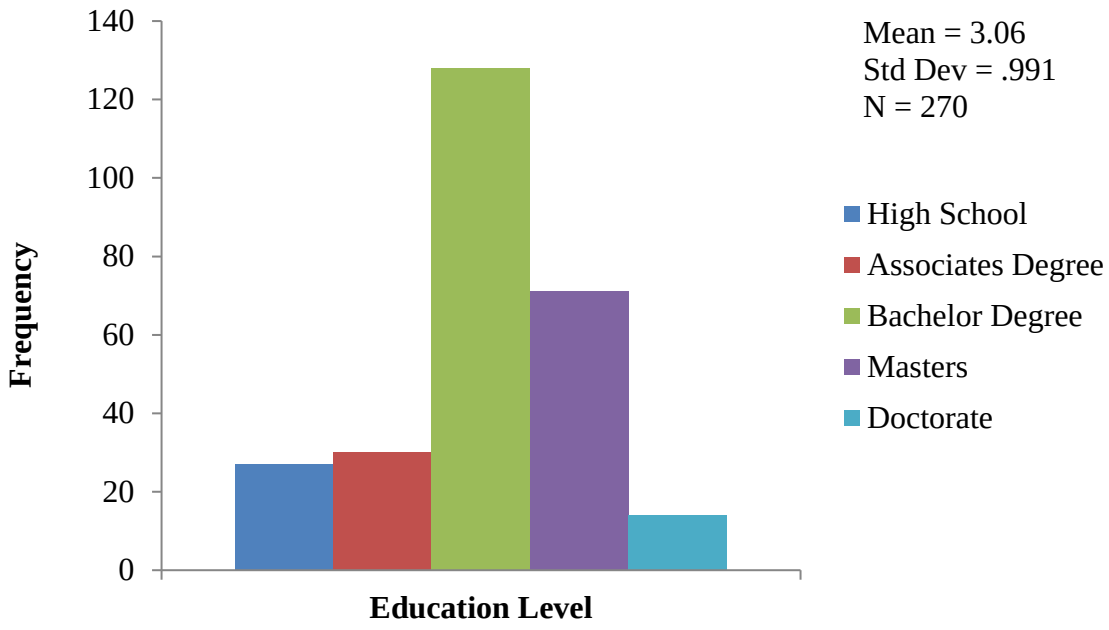

Figure 4 Education Level Bar Graph

Participants' experience with the company (Table 9 and Figure 5) indicates a large number of the respondents (41.50%) have been with the company for over 97 months (8 + years). In looking at the bar graph of the data it appears the majority of the respondents (66.90%) has either been with the company for more than 97 months or has recently joined the company in the last 36 months (3 years).

Table 9 Company Experience

Company Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-36 Months	68	25.2	25.2	25.2
	37-60 Months	41	15.2	15.2	40.4
	61-96 Months	48	17.8	17.8	58.1
	97+ Months	113	41.9	41.9	100.0
	Total	270	100.0	100.0	

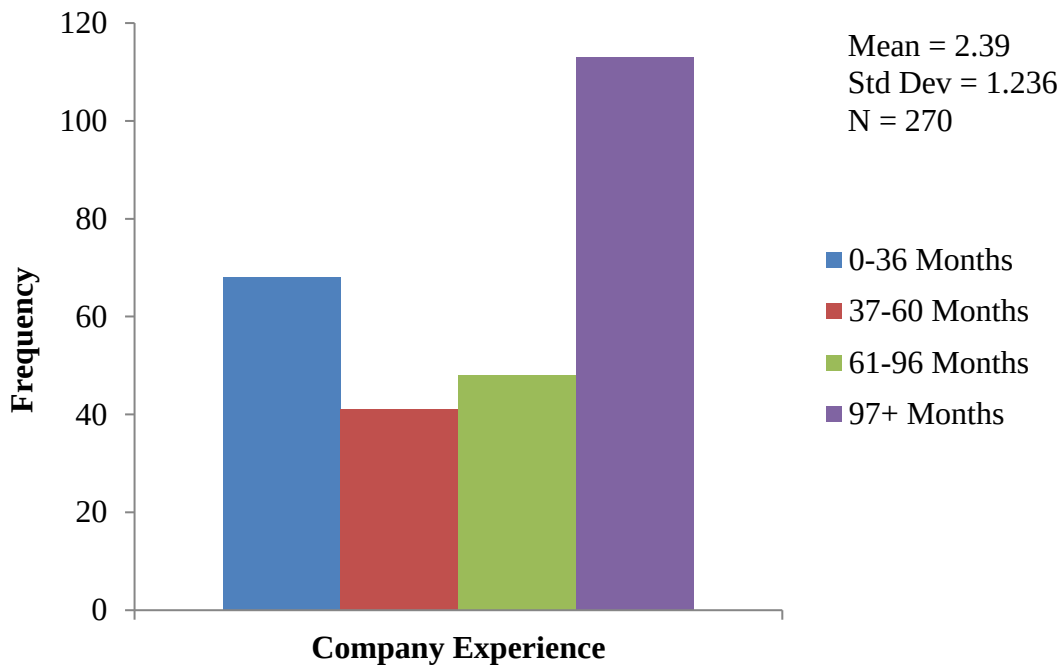

Figure 5 Company Experience Bar Graph

Total management experience (Table 10 and Figure 6) from within the participating company or at other companies, indicates that nearly 40% of the respondents have less than 36 months total time as management experience and another 30.15% have over 97 months total time of management experience. The remaining 31.26% have between 37 and 96 months of managerial experience.

Table 10 Total Management Experience

Total Management Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-36 Months	105	38.9	38.9	38.9
	37-60 Months	37	13.7	13.7	52.6
	61-96 Months	46	17.0	17.0	69.6
	97+ Months	82	30.4	30.4	100.0
	Total	270	100.0	100.0	

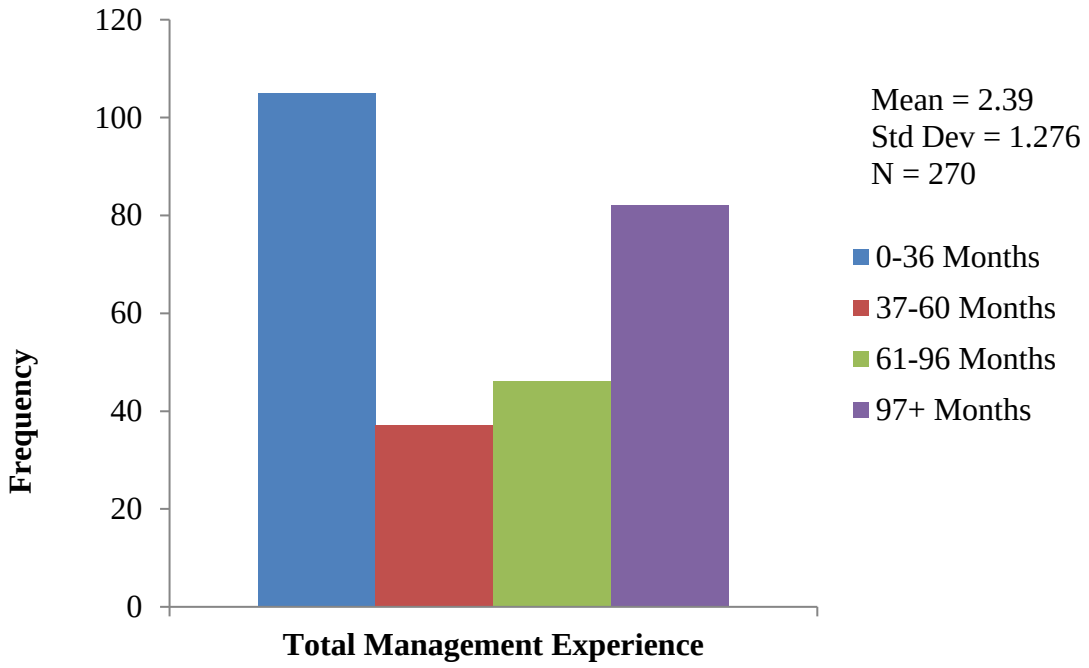

Figure 6 Total Management Experience Bar Graph

The distribution of respondents by birth year (generation) across the three generations is shown in Table 11 and Figure 7. Participation in the study by members of the Millennial Generation was larger than expected due to the fact that many are just coming of age where they

would be in a position to assume a leader role. Members from Generation X and Baby Boomer Generation were also well represented in the study.

Table 11 Birth Year (Generation)

Birth Generation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Baby Boomer	57	21.1	21.1	21.1
	Generation X	118	43.7	43.7	64.8
	Millennial	95	35.2	35.2	100.0
	Total	270	100.0	100.0	

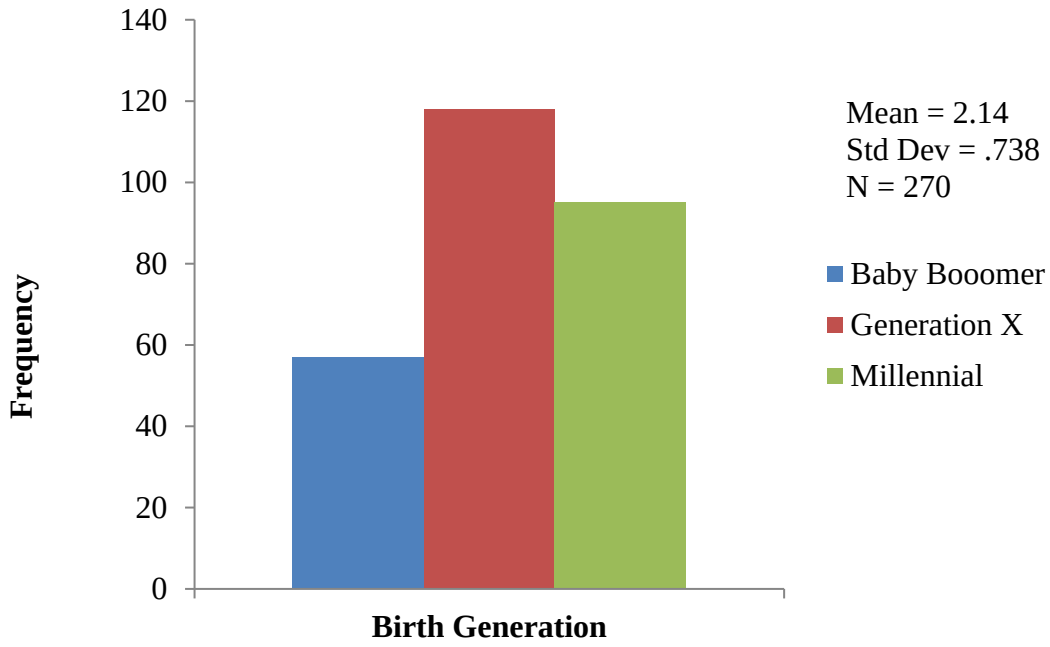

Figure 7 Birth Year (Generation) Bar Graph

The video gaming experience reported by the respondents (Table 12 and Figure 8) indicated nearly 83.4% of the respondents having played 1-2 hours a week or less with 50.4% having played 1-2 hours or less a month.

Table 12 Video Gaming Experience

Video Game Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never Played Video Games	55	20.4	20.4	20.4
	Played Video Games 1-2 hours a month	81	30.0	30.0	50.4
	Played Video Games 1-2 hours a week	89	33.0	33.0	83.3
	Played Video Games 1-2 hours a day	26	9.6	9.6	93.0
	Played Video Games more than 1-2 hours a day	19	7.0	7.0	100.0
	Total	270	100.0	100.0	

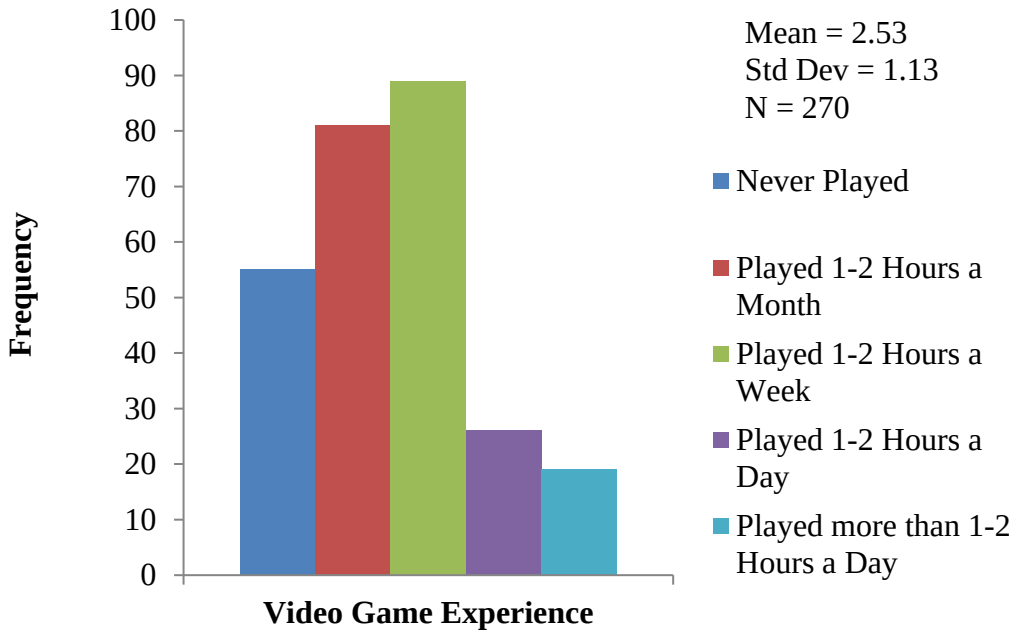

Figure 8 Video Gaming Bar Graph

The associated statistics for the participants of the scaled variables of the Adaptive Leadership Competency Profile scores are shown in Table 13. Figure 9 displays the distribution of the scores of the 270 participants. The ALCP composite scores indicate a negative skewness (-.483) and a positive kurtosis (.389) indicating scores will be clustered more towards the right or higher end of the scale (where the minimum score is 0 and maximum score 440) and with a more pointed and heavy-tailed distribution of scores (Field, 2009). The mean score of 289 also supports the indications provided by the negative skewness and positive kurtosis scores.

Table 13 Adaptive Leadership Competency Profile Descriptive Statistics

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ALCP Scores	270	248	150	398	298.82	41.463	-.483	.148	.389	.295
Valid N (listwise)	270									

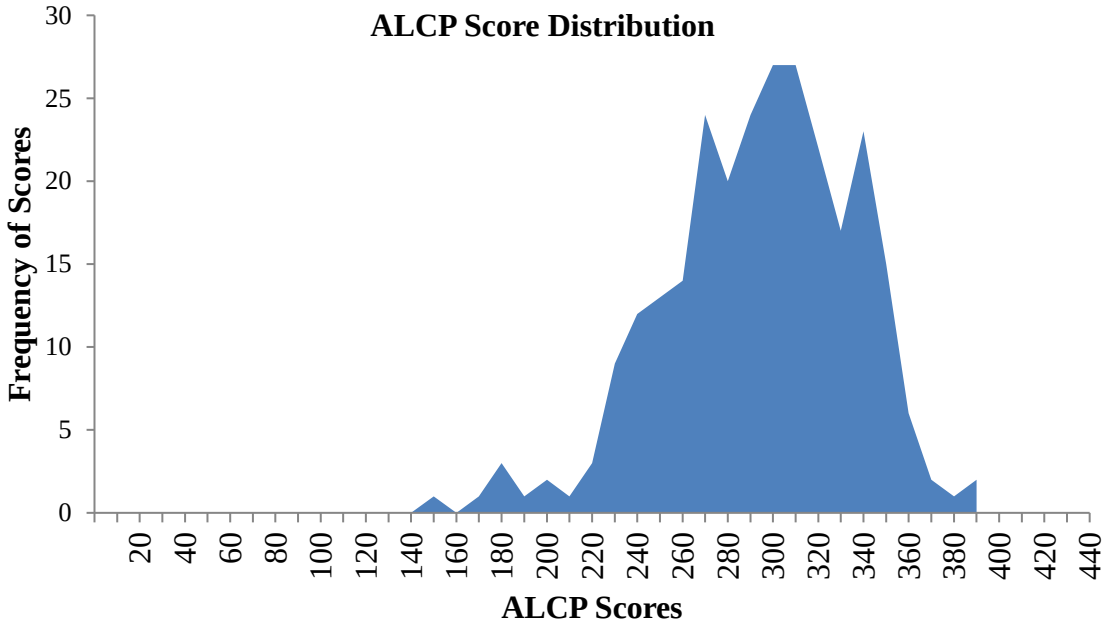

Figure 9 ALCP Score Distribution

The statistics for the ordinal demographic data are shown in Table 14. Education level responses have a negative skewness (-.412) and a positive kurtosis (.025). This indicates that the data are more clustered towards the right of the scale with a more pointed and heavy-tailed distribution (Field, 2009). More precisely, the data indicate more responses reporting higher education levels with degrees at the Bachelor and Masters level (see Figure 4, page 82).

Table 14 Ordinal Variables Descriptive Statistics

Statistics

		Education Level	Company Experience	Total Management Experience	Generation	Video Game Experience
N	Valid	270	270	270	270	270
	Missing	0	0	0	0	0
Skewness		-.412	-.350	.126	-.230	.440
Std. Error of Skewness		.148	.148	.148	.148	.148
Kurtosis		.025	-1.509	-1.672	-1.136	-.370
Std. Error of Kurtosis		.295	.295	.295	.295	.295

The company experience data has a negative skewness (-.350) and a very large negative kurtosis (-1.509) indicating data distributed more to the right of the scale and with a very flat light-tailed distribution (Field, 2009). This shows that the participants tended to have more experience with the participating company yet the kurtosis, with a generally flat distribution, indicate there was generally an even number responses with the remaining lesser degrees of experience (see Figure 5, page 83).

Video gaming experience has a positive skewness (.440) indicating data more concentrated to the left and a negative kurtosis (-.370) indicating a more flat light-tailed distribution (see Figure 8, page 86). These results depict a population with generally little video game experience and that the lack of experience was generally evenly recorded across the respondents. The review of the literature indicated that Millennials would have higher video game play experience. This assertion is not supported by the data generated from this study.

Total management experience data reflect a positive skewness (.126) and negative kurtosis (-1.672) again representing a heavy distribution on the left with a flat light-tailed distribution (Field, 2009). The skewness and kurtosis data for total management experience indicate that the respondents had little management experience within the participating company or elsewhere and the large kurtosis number would suggest most respondents reported similar limited management experience (see Figure 6, page 84).

Finally, the birth generation data indicate a negative skewness (-.230) and kurtosis value (-1.136) indicating data concentrated more to the right with a more flat light-tailed distribution (Field, 2009). The negative skewness for the birth generation data would suggest a larger concentration of respondents in the Generation X and Millennial generations, yet the large negative kurtosis would indicate that the distribution of responses would not differ much between the three measured generations (see Figure 7, page 85).

Overall, looking at the participants' responses, the data indicate a relatively flat distribution among the Birth Generations with more reporting from the Generation X and Baby Boomer generations as expected from the literature. Additionally, the data indicate a heavy concentration of responses from participants having achieved a Bachelor or Masters level of education. Regarding Company Experience and Management Experience, most respondents had either very little experience or over 96 months experience with the company or in management positions, which was depicted with a bi-modal distribution for both demographics. The data also indicates that most respondents have little video gaming experience, which is counter to the literature, and the ALCP scores are grouped more towards the higher end of the scale with a mean of 289 out of a possible score of 440.

Research Question 1

Research Question 1: Are individuals in leadership positions from the Millennial Generation demonstrating a higher degree of adaptive leadership skills than other generation leaders? The hypothesis associated with this research question is – Leadership positions occupied by members of the Millennial Generation do demonstrate enhanced adaptive leadership skills more than individuals in leadership positions from other generations, as measured using the Adaptive Leadership Competency Program survey. As described in Chapter III, the mined survey data were used to conduct a one-way ANOVA test with the Adaptive Leadership Competency Profile scores as the dependent variable and the respondents' generation as the independent variable. The one-way ANOVA was determined as an appropriate method given that each of the ALCP scores are composite scores totaled from the responses to all the questions in the survey. Shown in Table 15 are the descriptive statistics generated as part of the one-way ANOVA analysis performed for this research question. The ranges of responses for individuals in the Baby Boomer and Millennial generations are very close in range span (179 and 183 respectively). Members from Generation X had a wider dispersion of scores (248). Additionally, the confidence interval for the three generations scores indicate that the means for the three generations increase from Baby Boomer to Generation X to Millennial. The dispersion coupled with the confidence intervals could perhaps be an indication of the influence of technology on the generations as technology matured and was adopted by later generations. It could also indicate how Generation X was a transition generation from limited technology to a state where technology was more readily available and a part of society.

Table 15 Descriptive Statistics for Research Question 1

Descriptive Statistics

ALCP Scores

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Baby Boomer	57	290.19	41.60	5.51	279.15	301.23	187.00	366.00
Generation X	118	299.14	45.28	4.17	290.88	307.39	150.00	398.00
Millennial	95	303.61	35.61	3.65	296.36	310.87	206.00	389.00
Total	270	298.82	41.46	2.52	293.85	303.79	150.00	398.00

Before continuing with the analysis using a one-way ANOVA on the data for this Research Question, a test for homogeneity using the Levene's Test was conducted. The results of this test are shown in Table 16. A value of $p < .05$ would indicate the variances of the data would be significant. This test of the data shows that there are no significant differences between the variances. Therefore, the assumption of homogeneity when using one-way ANOVA has been met and the analysis can continue using this method.

Table 16 Levene's Test for Homogeneity for Research Question 1

Test of Homogeneity of Variances

ALCP Scores

Levene Statistic	df1	df2	Sig.
2.217	2	267	.111

With the indication of the homogeneity of the data confirmed, a one-way ANOVA was conducted (Field, 2009). The results of this analysis are in Table 17. From the data, there was

no significant difference noted between generations and the ALCP scores, $F(2,267) = 1.88$, $p > .05$, ώ = .01. Additionally, there was no significant linear trend, $F(1,267) = 3.75$, $p > .05$, ώ = .01. These results indicate that there is no statistical difference in the adaptive leadership scores by Birth Generation, the focus of Research Question 1. The null hypothesis for Research Question 1, that individuals belonging to the Millennial Generation holding leadership positions do not demonstrate enhanced adaptive leadership skills more than individuals in leadership positions from other generations, as measured using the Adaptive Leadership Competency Program survey, cannot be rejected.

Table 17 One-Way ANOVA for Research Question 1

ANOVA

ALCP Scores

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		6434.169	2	3217.085	1.884	.154
	Linear Term	Unweighted	6413.586	1	6413.586	3.755	.054
		Weighted	6112.068	1	6112.068	3.579	.060
		Deviation	322.102	1	322.102	.189	.664
	Quadratic Term	Unweighted	322.102	1	322.102	.189	.664
		Weighted	322.102	1	322.102	.189	.664
Within Groups			456015.297	267	1707.922		
Total			462449.467	269			

Research Question 2

Research Question 2: Do participant scores demonstrate enhanced adaptive leadership skills based on reported level of video game experience? The associated hypothesis for this research question is – Participants demonstrating enhanced adaptive leadership skills also have had higher levels of exposure to video games. In order to analyze the data in regards to this research question, once again the composite total Adaptive Leadership Competency Profile scores of each respondent were used as the dependent variable and the reported video game experience was used as the independent variable. The different levels of experience used in the survey were (a) never played video games, (b) played video games 1-2 hours a month, (c) played video games 1-2 hours a week, (d) played video games 1-2 hours a day, and (e) played video games more than 1-2 hours a day. As in Research Question 1 analysis, a one-way ANOVA was used. The descriptive statistics generated for this research question are shown in Table 18. From this table several items of note are shown. The largest proportion of respondents reported only having played video games 1-2 hours a month or 1-2 hours a week (n = 170). These two categories likewise had a relatively narrow range in the confidence interval for the mean (17.54 and 16.64 respectively) and similar ranges in overall reported scores (187 and 186). Finally, the range of scores for those individuals who reported having played video games for more than 1-2 hours a day had a very narrow range in the confidence interval of 9.94, which would indicate a very similar relationship between game play and ALCP scores for those having played video games to this degree.

Table 18 Descriptive Statistics for Research Question 2

Descriptives

ALCP Scores Ranked

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Never Played Video Games	55	289.6364	44.90581	6.05510	277.4966	301.7761	176.00	398.00
Played Video Games 1-2 hours a month	81	300.4568	39.66612	4.40735	291.6859	309.2277	180.00	367.00
Played Video Games 1-2 hours a week	89	303.1011	39.50260	4.18727	294.7798	311.4224	206.00	392.00
Played Video Games 1-2 hours a day	26	292.1538	49.79212	9.76504	272.0424	312.2653	150.00	357.00
Played Video Games more than 1-2 hours a day	19	307.5263	32.74543	7.51232	291.7435	323.3091	245.00	389.00
Total	270	298.8222	41.46255	2.52333	293.8542	303.7902	150.00	398.00

As with Research Question 1, a test for homogeneity was conducted before proceeding with the one-way ANOVA. A Levene's test for homogeneity was conducted and the results of the test are shown in Table 19. As previously stated, a value for $p < .05$ would indicate the variances of the data would be significant. These results indicate that there is no statistical difference in the Adaptive Leadership scores by level of video game experience. Therefore the assumption of homogeneity of error variance has been met.

Table 19 Levene's Test for Homogeneity for Research Question 2 One-Way ANOVA

Test of Homogeneity of Variances

ALCP Scores Ranked

Levene Statistic	df1	df2	Sig.
1.238	4	265	.295

With an indication of the homogeneity of the data, a one-way ANOVA was conducted. The results of this analysis are shown in Table 20. From the data, there was no significant difference noted between video game play and the ALCP scores, $F(4,265) = 1.33$, $p > .05$, ώ = .01. Additionally, there was no significant linear trend, $F(1,265) = 1.32$, $p > .05$, ώ = .01. These results indicate there are no significance differences shown between the ALCP scores and the amount of video gaming experience reported by the participants, which was the subject of Research Question 2. The null hypothesis for Research Question 2 states that participants demonstrating enhanced adaptive leadership skills do not have higher levels of exposure to video games and cannot be rejected.

Table 20 One-Way ANOVA for Research Question 2

ANOVA

ALCP Scores Ranked

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		9082.429	4	2270.607	1.327	.260
	Linear Term	Unweighted	2260.018	1	2260.018	1.321	.251
		Weighted	3123.259	1	3123.259	1.826	.178
		Deviation	5959.170	3	1986.390	1.161	.325
	Quadratic Term	Unweighted	53.134	1	53.134	.031	.860
		Weighted	1415.590	1	1415.590	.827	.364
		Deviation	4543.580	2	2271.790	1.328	.267
Within Groups			453367.037	265	1710.819		
Total			462449.467	269			

Research Question 3

Research Question 3 states: Is there a relationship between the generation of the participants and video game experience of the participants? The hypothesis for this research question is: There is a strong relationship between video game experience and the generation associated with the player. For this research question a chi–square test was completed. Table 21 displays the cross tabulation of the data from the respondents. From the data in Table 21 it can be seen that of the total participants in the study, 55 respondents (20.4%) indicate having no gaming experience at all. Of those 55, 10 (10.5%) fall within the Millennial Generation birth years. The Millennial Generation makes up the larger proportion of respondents having played the top two categories of video gaming experience, played video games 1-2 hours a day and played more than 1-2 hours a day, reporting 53.8% and 63.2%, respectively. The data in Table 21 show Baby Boomer respondents indicating no play or only 1-2 hours of video play per month

at 52.6% and 21.1%, respectively, which is 73.7% of the total reported in the study. Generation X participants reported 42.4% playing video games 1-2 hours a month and 32.2% playing 1-2 hours a week, which is 74.6% of the total reported in the study. Millennials indicated having played video games 1-2 hours a week, 1-2 hours a day, and more than 1-2 hours a day at 42.1%, 14.7%, and 12.6%, respectively, making up 69.4% for the top three levels of video gaming experience.

Table 21 Chi-Square Cross Tabulation for Research Question 3

Birth Generation * Gaming Experience Growing Up Cross Tabulation

			Gaming Experience Growing Up					
			Never Played Video Games	Played Video Games 1-2 Hours a Month	Played Video Games 1-2 Hours a Week	Played Video Games 1-2 Hours a Day	Played Video Games More Than 1-2 Hours a Day	Total
Birth Generation	Baby Boomer	Count	30	12	11	2	2	57
		Expected Count	11.6	17.1	18.8	5.5	4.0	57.0
		% within Birth Generation	52.6%	21.1%	19.3%	3.5%	3.5%	100.0%
		% within Gaming Experience Growing Up	54.5%	14.8%	12.4%	7.7%	10.5%	21.1%
		% of Total	11.1%	4.4%	4.1%	0.7%	0.7%	21.1%
		Std. Residual	5.4	-1.2	-1.8	-1.5	-1.0	

	Generation X	Count	15	50	38	10	5	118
		Expected Count	24.0	35.4	38.9	11.4	8.3	118.0
		% within Birth Generation	12.7%	42.4%	32.2%	8.5%	4.2%	100.0%
		% within Gaming Experience Growing Up	27.3%	61.7%	42.7%	38.5%	26.3%	43.7%
		% of Total	5.6%	18.5%	14.1%	3.7%	1.9%	43.7%
		Std. Residual	-1.8	2.5	-.1	-.4	-1.1	
	Millennial	Count	10	19	40	14	12	95
		Expected Count	19.4	28.5	31.3	9.1	6.7	95.0
		% within Birth Generation	10.5%	20.0%	42.1%	14.7%	12.6%	100.0%
		% within Gaming Experience Growing Up	18.2%	23.5%	44.9%	53.8%	63.2%	35.2%
		% of Total	3.7%	7.0%	14.8%	5.2%	4.4%	35.2%
		Std. Residual	-2.1	-1.8	1.6	1.6	2.1	
Total		Count	55	81	89	26	19	270
		Expected Count	55.0	81.0	89.0	26.0	19.0	270.0
		% within Birth Generation	20.4%	30.0%	33.0%	9.6%	7.0%	100.0%
		% within Gaming Experience Growing Up	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	20.4%	30.0%	33.0%	9.6%	7.0%	100.0%

The chi-square test was selected to determine if there is a relationship between the two categorical variables of Birth Generation and Video Gaming Experience. Since both variables are categorical and not continuous, chi-square test allowed for this comparison using frequencies reported between the two variables, comparing the number reported by the participants in the study with what may be expected by chance (Field, 2009). Table 22 shows the results of the chi-square test. Based on the data in Table 22, there appears to be a significant association between the Birth Generation and Video Gaming Experience χ^2 (8) = 64.91, $p < .001$.

Table 22 Chi-Square Tests Results for Research Question 3

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	64.910[a]	8	.000	.[b]		
Likelihood Ratio	57.764	8	.000	.[b]		
Fisher's Exact Test	.[b]			.[b]		
Linear-by-Linear Association	36.701[c]	1	.000	.000	.000	.000
N of Valid Cases	270					

a. 1 cells (6.7%) have expected count less than 5. The minimum expected count is 4.01.
b. Cannot be computed because there is insufficient memory.
c. The standardized statistic is 6.058.

Since the variables for this research question have more than two categories associated with each variable, a Cramer's V test was also performed. This test is used due to the data having 8 degrees of freedom and each variable having more than two categories within the variable (Field, 2009). Table 23 displays the results of the Cramer's V test performed showing a value of .347 out of a possible 1. This represents a medium association between Birth

Generation and Video Gaming Experience. This value is highly significant ($p < .001$) and indicates that a value of this size is unlikely to have happened by chance. Additionally, the strength of this relationship is significant, which confirms what was learned from conducting the chi-square test. Figure 10 graphically shows the distribution of responses across the levels of video game play by birth generation.

Table 23 Cramer's V Statistic Results for Research Question 3

Symmetric Measures

		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	.490	.000	.[c]
	Cramer's V	.347	.000	.[c]
	Contingency Coefficient	.440	.000	.[c]
N of Valid Cases		270		

c. Cannot be computed because there is insufficient memory.

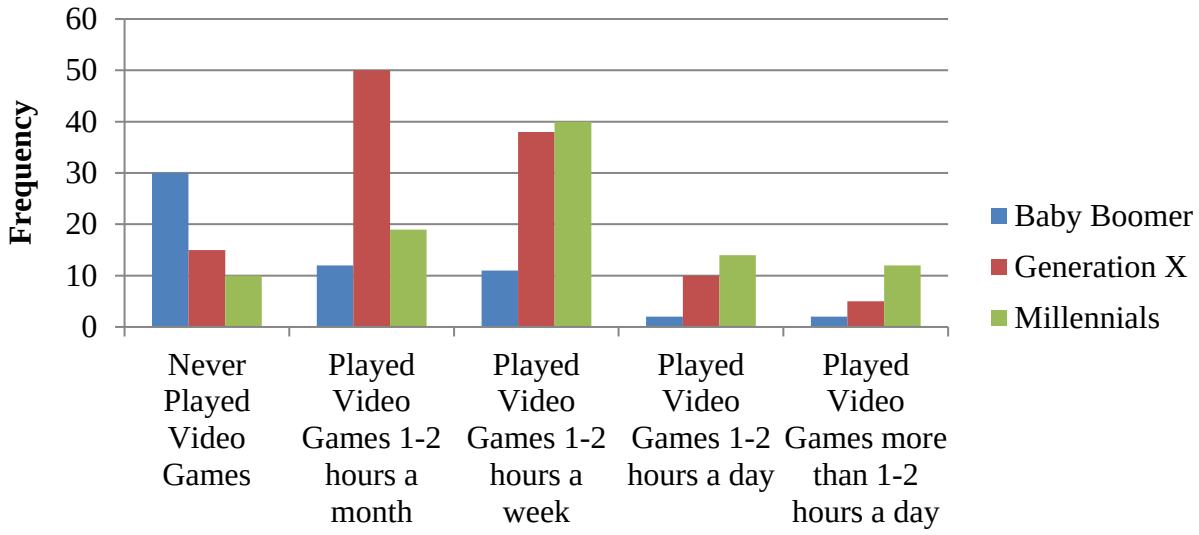

Figure 10 Video Game Play by Birth Generation

Summary

The results presented in this chapter indicate that the extant data collected from the participating organization generally represented a flat distribution across the three generations, yet tended to have individuals with more experience with the participating company and little experience in a leadership position. Additionally, the education level of the participants tended to be more heavily weighted at the Bachelor and Masters level with a less representation at the Doctoral level. Video game experience was centered on playing 1-2 hours a month and 1-2 hours a week categories. Given the review of the literature, a higher amount of video game play would have been expected with the nearly equal distribution of participants in the three generations. With these data collected, the three Research Questions were analyzed using a one-way ANOVA for the data gathered for Research Question 1 and 2. The assumption of homogeneity of error variance was met for both Research Question 1 and 2. The analysis found that there were no significant differences noted between the Adaptive Leadership Competency Profile scores and Birth Generation for Research Question 1 ($F(2,267) = 1.88$, $p > .05$, $\acute{\omega} = .01$), or between the Adaptive Leadership Competency Profile scores and Video Gaming Experience for Research Question 2 ($F(4,265) = 1.33$, $p > .05$, $\acute{\omega} = .01$). For Research Question 3, the use of a chi-square analysis was selected to analyze the relationship between Video Gaming Experience and Birth Generation. The results of the chi-square test indicated a significant association between the two variables, $\chi^2 (8) = 64.91$, $p < .001$. A Cramer's V test was also performed given that there were more than two categories within the variable. The results of that test validated what was found in the chi-square test with a value of .347 and a significance value of $p < .001$. A more detailed discussion of these results, along with other potential areas for future research, will be discussed in Chapter V.

CHAPTER V

DISCUSSION AND CONCLUSION

The purpose of this study was to assess the impact video gaming has had on the Millennial Generation's ability to learn and demonstrate adaptive leadership skills. This final chapter will review the statement of the problem being considered, the methodology used in gathering and analyzing the data, provide a summary of the results, and finally present a discussion of the findings with recommendations for future study.

ReStatement of the Problem

This paper sought to examine if the employees from the Millennial Generation are bringing a different level of leadership competency in to the workforce as they advance in the corporate structure than previously demonstrated by earlier generations. The premise of this study is that the Millennial Generation is beginning to assume leadership roles in the workforce, replacing members from the Baby Boomer Generation and Generation X. Additionally, the Millennial Generation has had significantly more exposure to video games as compared to other generations due to the development and enhancement of the Internet and gaming technology. Exposure to gaming has potentially created an environment for this generation to develop social, organizational, and leadership skills (Reeves et al., 2008).

Coupled with the exposure to the potential learning environment presented by video gaming is the current business need for individuals who can exhibit more adaptive leadership

skills in a fast paced business environment. Cojocar (2009) defined the leadership needs for today's businesses as being capable of solving complex problems in a collaborative, timely manner, using innovative solutions which is precisely what has been presented in this study as an aspect of gaming. The intent of this study was to assess any potential impact video game play has had on the Millennial Generation as compared to the existing Gen X and Baby Boomer Generations currently in leadership roles.

Review of Methodology

In this study, extant data was mined from the participating organization's Learning and Development organization. The data collected was generated from the deployment of an instrument measuring adaptive leadership skills, the ALCP, of individuals participating in the company's leadership orientation program. The instrument was completely voluntary and resulted in 270 surveys returned for analysis. This extant data was then used to address three research questions.

- Research Question 1: Are individuals in leadership positions from the Millennial Generation demonstrating a higher degree of adaptive leadership skills than other generation leaders?
- Research Question 2: Do participant scores demonstrate enhanced adaptive leadership skills based on reported level of video game experience?
- Research Question 3: Is there a relationship between the generation of the participants and video game experience of the participants?

There were three variables identified for this research. The dependent variable for this study was the adaptive leadership score as identified for each participant on the ALCP. The

independent variables were birth generation of the participant and the amount of video gaming experience each participant reported having played growing up which was captured in the demographic data collected as part of the instrument. Attribute variables, for example highest attained degree, were only used in descriptive fashion.

After gathering the results of the ALCP along with some specific demographic data, the first step was to assess each research question using the designated analysis approach as stated in Chapter III. For Research Question 1 and 2, the two variables associated with each research question were examined using a one-way ANOVA. Research Question 3 used the chi-square test with greater than one degree of freedom.

Summary of the Findings

Demographics

The demographics of the participants of the study showed a good mixture of the three generations in the workplace. The data demonstrated a relatively flat distribution across all three birth generations. The number of participants for each generation was encouraging in that it provided a good representative sample across the generations. Due to concerns over potential litigation risks, restrictions were placed on the gathering of demographic data in regards to gender and racial classification.

From an educational perspective the data were not surprising in that nearly half (47.4%) had a bachelor's degree and another 26.3% had a master's degree. What was surprising is that 21.1% reported having less than a bachelor's degree. Given the complexity of the industry in which the participants work, the participants having less than a bachelor's degree may reflect more participants from the Baby Boomer Generation having joined the company as an entry

level employee where the requirements for advanced education is not mandated. Additionally, the higher level of education of the participants may indicate that learning has occurred in regards to adaptive leadership skills as a result of their pursuit of higher education versus playing video games.

Company experience and total management experience both showed bimodal distributions among the participants. In both instances, the majority of the participants had very little company and total management experience or significant company and total management experience. The higher amounts of company and total management experience could impact the results of individuals demonstrating adaptive leadership in that they could have learned these skills while on the job with the target company versus learning them playing video games. Additionally, the large number having more longevity with the company and with more total management experience could represent the significant Baby Boomer and Generation X participants whom had less access to video games than Millennials. The larger numbers reporting short experience with the company and total management experience may be an indication of the company's approach to address the potential talent gap which may occur as larger numbers from the Baby Boomer Generation depart the work force.

Since the results of this study indicate that there is no relationship between the ALCP scores and the Generation of the participant, the data indicate that the Millennials, who have been in the work place for a shorter period of time, are scoring just as high as members from the Baby Boomer and Generation X generations. It appears that some experience is either preparing the Millennials for leadership roles, or the experience gained while on the job, is improving the leader skills of older generations. This situation with the Millennial Generation could be the result of a combination of having greater exposure to technology and gaming, thereby gaining

comfort with its use, which in turn fosters greater collaboration and demonstration of a similar level of adaptive leadership scores as with the more senior Baby Boomers (Gee & Hayes, 2011; Perkins-Gough, 2009). Individuals from the Millennial Generation have skills that possibly resonate with the more junior employees that are of a similar generation. Members of the Baby Boomer and Generation X generations have had to learn this on the job.

Reported video gaming experience indicated that the participants of the study generally played 1-2 hours per week or less. This result could have negatively impacted the proposed hypothesis given the reliance on video game play to provide opportunities for the Millennial Generation to learn adaptive leadership skills. The data would support one of the stated limitations of the study in that not all members of the Millennial Generation played video games or played as much as some of the literature would indicate.

In reviewing the findings of the study it is important to consider the potential impact of social desirability bias on the responses from the participants. Social desirability bias can occur when individuals responding to survey question under report (over report) their own actions based on their interpretation of the social desirability (undesirability) of those actions (Chung & Monroe, 2003; Zerbe & Paulhus, 1987). For this study, even though participants were assured of anonymity, social desirability bias may have impacted the participants' responses. More specifically, participants may have reported fewer hours of video game play as this could be interpreted negatively from the larger organization's perspective. Additionally, even with specific parameters for selecting Birth Generation, individuals could have reported themselves as a member of an older generation to avoid a perceived stigma of being associated as a Millennial.

Social desirability is composed of impression management and self-deceptive enhancement (Paulhus, 1984). "Impression management (IM) is the deliberate tendency to

overreport [sic] desirable behaviors and underreport undesirable ones. Self-deceptive enhancement (SDE) is the tendency to give honestly believed but overly positive reports about oneself" (Booth-Kewley, Larson, & Miyoshi, 2007, p. 464). Wanting to provide an answer that would be seen more positively in an attempt to maintain a more socially desirable status could have induced a degree of bias into the results of the self-reporting instrument. Potentially enhancing the impact of the social desirability bias was the manner in which the survey was administered. The ALCP questionnaire was administered as a paper-and-pencil instrument. Booth-Kewley et al. (2007) found that paper-and-pencil surveys demonstrate higher social desirability bias than computer-administered surveys. They also indicated a greater disinhibition of respondents to answer questions which could be considered less socially acceptable than the same questions answered using the paper-and-pencil method.

Finally, social desirability bias tends to be higher with female respondents (Cohen, Pant, & Sharp, 1998, 2001; Schoderbek & Deshpande, 1996). Even though gender data was not captured as a part of this study, gender social desirability bias could also have impacted the data generated from this study. Specifically, the critical areas of reported video game play and the ALCP Scores, especially in regards to the intensity of actions taken as someone in a leadership position, could have been reported lower than actually employed due to social desirability bias. Future research could focus on the gender composition of respondents additional surveys and investigate any potential relationship with the data outcomes.

Results of Research Questions Analysis

The analysis for Research Question 1 focused on determining if there was a relationship between the Birth Generation of participants and higher ALCP scores. The data showed a

narrow dispersion of the ALCP scores among the Baby Boomer and Millennial generations, possibly indicating how the two generations were composed of individuals that have homogeneous experiences impacting their adaptive leadership skills. Additionally, the confidence intervals showed increasing means of ALCP scores from Baby Boomer to Generation X to Millennial Generation. The results of the one-way ANOVA analysis indicate that there does not appear to be any relationship between the Adaptive Leadership scores and Birth Generation.

The analysis for Research Question 2 attempted to find a relationship between the amount of video gaming experience of participants and higher ALCP scores. Using a one-way ANOVA, the descriptive statistics generated using this approach indicated a large proportion of respondents reported only having played video games 1-2 hours a month or 1-2 hours a week (n = 170). These two categories likewise had a relatively narrow range in the confidence interval for the mean and similar ranges in overall reported scores. Finally, the range of scores for those individuals that reported having played video games for more than 1-2 hours a day was very narrow with a confidence interval of 9.94. The values generated as a result of the analysis indicate that there does not appear to be any relationship in the adaptive leadership scores and the levels of exposure to video game play.

The final research question dealt with the possible relationship between video game play and birth generation. For the analysis of the data for Research Question 3, the non-parametric chi-squared and the Cramer's V test were used. The cross tabulation of the data showed that of the total participants in the study, 20.4% indicated having no gaming experience at all. Of those not having video gaming experience, 18.2% belonged to the Millennial Generation. Not surprisingly, the Millennial Generation made up 76.4% of respondents having played the top

three categories of video gaming experience. Of the Baby Boomer respondents, 73.7% indicated no play or only 1-2 hours of video play per month. Generation X participants reported 74.6% of the total respondents having video gaming experience in the middle two categories of 1-2 hours per week or 1-2 hours of play per month. Based on the data generated using the chi-square approach, there appears to be a statistically significant association between the Birth Generation and Video Gaming Experience.

Unexpected Findings

There were three unexpected findings from this study. The first was the large number of Millennials in leadership roles already in the workforce of the participating company. There is nothing associated with the participating company, a large heath insurance company, which would particularly attract or promote a younger workforce or younger individuals in leadership positions. This has already been mentioned above and will not be readdressed here with the exception of stating that it was unanticipated.

The second unexpected finding was the lower than expected video game play by Millennials. The literature, as mentioned previously, indicated that members of the Millennial Generation played a significant amount of video games (Canadian Council On Learning, 2009; Perkins-Gough, 2009) yet this generalization, which was highlighted in the limitations of this study, should not be made and cannot be supported by the numbers from the respondents of the survey. While the study did show a significance in the analysis of the data indicating that the Millennial Generation did show statistical support for having played more video games than older generations, the data also showed that there were individuals from the Millennial

Generation who did not play video games at all (18.2%) or only 1-2 hours per month (20%). These numbers stand in stark contrast to what was indicated by the literature review

The third and final unexpected finding was made as a result of compiling the data. This finding was the indication of a difference between participants from the Millennial Generation and those from Generation X and Baby Boomer in selecting degrees of intensity when in a leadership position. When members from the Millennial Generation rated themselves effective in response to questions on the ALCP, they tended to rate themselves lower on intensity on the same questions. Members from the Baby Boomer Generation and Generation X tended to rate themselves high in both effectiveness and intensity. The possible reluctance of wanting to classify their leadership behavior as intense may stem from the environment in which they grew up. As Ng et al. (2010) indicated in their research, Millennials want a nurturing work environment which may prevent them from promoting what could be considered an intense approach to leadership. Additionally, having grown up where collaborative activities in school were promoted and group members were encouraged to support each other (Lowe et al., 2008), demonstrating an intense approach to leadership may not be what a Millennial identifies as a successful approach.

Discussion of the Findings

While the data generated from the analysis of Research Question 1 does not indicate any statistical significance, it does highlight an increasing level of competence in regards to adaptive leadership with successive birth generations. Perhaps one possible influence could be the influence of technology on the generations as technology matured and was adopted by later generations. It could also indicate how Generation X was a transition generation from limited

technology to a state where technology was more readily available and a part of society. This assumption can also be supported by the wider dispersion of scores within the Generation X participants and the rise in the confidence interval mean by generation. What this lack of statistical significance may indicate is that as members from the Baby Boomer and Gen X generations gain experience in their leadership roles they are learning to adapt to the shifting demands of their leadership roles, and are developing adaptive leadership skills on the job.

Research Question 2 highlighted the point that contrary to the literature reviewed in Chapter II, the amount of video game play did not appear to have any relationship with the level of scores on the ALCP (Jang & Ryu, 2011; Reeves et al., 2008). Potentially impacting these results could be, as mentioned above in the discussion regarding the demographics, the amount of company and managerial experience the participants had from the Generation X and Baby Boomer Generation. The range of scores for those individuals that reported having played video games for more than 1-2 hours a day had a very narrow range in the confidence interval of 9.94 which would indicate a very similar relationship between game play and ALCP scores for those having played video games to this degree. The lack of statistical significance between ALCP scores and amount of video game play, coupled with the rising mean ALCP scores from generation to generation, provides further indication that something, if not video game play, is positively impacting the new occupants of leadership roles in organizations.

The analysis of the data for Research Question 3 is a validation of the themes presented in the literature review and logically confirms that in general, as the technology supporting video game play evolved, the later or younger generations were able to capitalize on these advances for entertainment and learning. The data from Research Question 3 also highlights the danger of making generalized assumptions about groups of individuals. In reviewing the literature, a

researcher could make the generalization that Millennials all play video games and are learning the skills associated with game play (Reeves et al., 2008; Squire & Steinkuehler, 2005; Yee, 2006). The data from this survey shows that just over 10% of the respondents associated with the Millennial Generation had never played video games. Similarly, at the opposite end of the spectrum, 19.7% of the members from the Baby Boomers and Generation X Generations indicated their amount of video game play as 1-2 hours of play a day or more. This finding could indicate the need to separate the video game players from the non-video game players to provide for a more equitable comparison between birth generations. Taking this approach may provide a future researcher with a more refined and clearer indication of any potential impact video game play may have had on a given group of participants.

Reflecting on the findings this researcher found several areas of interest. One of note is the lack of a relationship between those playing video games and heightened ALCP scores. The literature review in Chapter II had indicated a strong relationship between the leadership skills needed to be successful in video game play and the leadership skills becoming important in the evolving business world (Glover, Rainwater, et al., 2002; Jang & Ryu, 2011; Reeves et al., 2008). The data tended to indicate a relationship with higher ALCP scores and experience within the company and in a leadership role. Perhaps it is the digital immersion (Hershatter & Epstein, 2010) which is helping Millennials in leadership roles perform as well as, or with a mean slightly higher than, experienced Baby Boomer. Instead of developing higher adaptive leadership skills through video game experience, perhaps Millennials are learning how to improve their leadership skills through the use of enhanced technology. Perhaps, based on their exposure to technology, Millennials are able to gather and analyze information quicker, collaborate on challenges faster, and subsequently make decisions of equal quality as their more

experienced Baby Boomer and Generation X peers. What is clear from the data is that the skills learned through the use of technology and video gaming alone cannot be assumed nor is it indicated in regards to the enhanced ALCP scores.

The connection between Social Cognitive Learning, the environment provided by video gaming, and the learning of leadership skills is not as clear as the literature would indicate. While video game play does provide the triadic reciprocality environment espoused by Bandura (1977) with social interaction between players, in an environment where players can restart a mission or task if they fail, and where players can learn from each other's mistakes or successes, the data from this study does not indicate that the results can be seen in enhanced adaptive leadership skills as measured by the ALCP. This concept of learning and making mistakes, resetting the game and learning from failure with minimal consequences was heavily promoted by Gee (2005), Reeves et al. (2008), Squire and Steinkuehler (2005), and Groff and Haas (2008). Where the triadic reciprocality may be impacting the learning is in the context of on the job experience as seen in the higher ALCP scores of members from the Baby Boomer and Generation X generations. While the consequences of failure are greater and the ability to hit restart may not be available, individuals in leadership roles can still learn from their employees in the given business environment. The result from this approach would be similar to that of the video game environment in the application of learned or improved skills in future situations.

A final point of reflection on the results of this study concerns the generations in leadership roles that took part of this study. While the literature highlighted the coming impact of the Millennial Generation on the workforce (Espinoza et al., 2010; Hershatter & Epstein, 2010; Ng et al., 2010), the number of Millennials from the participating organization already in leadership roles was surprising. The number of individuals participating in the study was almost

one third of the surveyed population. The distribution across the generations in this study was relatively flat, that is generations were not proportionally represented. The expectation at the beginning of this study was that the largest portion of the surveyed population would be significantly more from Generation X and Baby Boomer given the discussion in the literature. This more flat distribution does provide more strength to the study in that the generations were relatively equally represented in the study.

A related connection with the generational dispersion of participants was identified during the compilation of the responses from the survey. Respondents were asked to rate the frequency they demonstrated a particular action relating to adaptive leadership as well as the intensity they demonstrated in the same action. In compiling the data, Millennials tended to rate themselves lower when rating intensity than other generations. Millennials would assess themselves with a high frequency demonstrated on a specific task, indicating the use of adaptive leadership. But when answering the same question would rate their intensity on the same task and in the same situation as relatively low. Members from the Baby Boomer and Generation X generations would often rate frequency and intensity both very high. Perhaps there is a generational difference in (a) Baby Boomers wanting to be perceived as intense, (b) the definition of intensity, or (c) generations have a different perspective of the utility of intensity. Given that the scores for each question were the sum of the intensity and frequency assessments by the participant, this difference in possible interpretation of the term intensity could have resulted in lower scores of Millennial participants, or higher scores of Baby Boomer and Generation X participants. While the ALCP was shown as a statistically reliable instrument, perhaps the respondents were from a similar birth generation or more homogenous group than what the participating company surveyed. A potential study into the scores on the ALCP among

separate birth generations in regards to how they rated intensity would be warranted to investigate any potential impacts between generations on the ALCP.

Relationship of the Study to Prior Research

The results of this study support the work cited in the literature review regarding the influx of individuals from the Millennial Generation into leadership roles in the workplace. This is apparent in the number of respondents from the participating organization which demonstrated a relatively flat distribution across all three generations. Supporting the research is also the bi-modal distribution of company and management experience reported by the respondents. Higher numbers of leadership roles are being filled by individuals with less experience either in the company or coming from other companies.

Where this study offers another perspective is in the expectation set by several of the authors reviewed in the literature regarding the significant amount of video game play performed by members of the Millennial Generation. Perkins-Gough (2009) and the Canadian Council On Learning (2009) both indicated that the Millennials were spending a significant amount of time playing video games, yet the results of this study would suggest that this is not as prevalent as could have been interpreted from the literature. As discussed earlier in this chapter, the assumption that the Millennial Generation as a whole has participated in a very high degree of video game play cannot be supported by the data gathered and analyzed in this study.

A similar divergence from the literature is also noticed in this study with the lack of statistical significance between higher adaptive leadership scores and video game play. Reeves et al. (2008) and Squire (2007) both indicated that video games provided an environment in which the development of various skills, to include leadership skills, could be acquired by

players of the video game. Digital immersion (Prensky, 2001) may include video game play, yet the relationship between this segment of digital immersion and enhanced leadership skills was not evident in this study.

Social Cognitive Learning Theory (Bandura, 1986) was not specifically shown as being integral in adaptive leadership skills as a result of video game play. There is some indication that this learning theory can be supported by the higher adaptive leadership scores of members that did not play video games, learning adaptive leadership skills in a triadic reciprocality environment on the job. Specifically in this study, members of the Baby Boomer Generation who scored high on the ALCP tended to also have longer periods of time with the company and in managerial roles. To achieve these skills members of this birth generation must have learned through experience while on the job versus in another learning environment.

Finally, the discussion in the literature regarding technology and digital immersion (Prensky, 2001; Reeves et al., 2008; Squire & Steinkuehler, 2005) is not directly supported by this study, but perhaps tangentially this study may support the literature in that Millennials are coming into the workforce with, on average, equal or slightly greater adaptive leadership skills than other generations. This study did not show a direct relationship between video game play and enhanced adaptive leadership skills, but the enhanced skills of the Millennials, as shown on the ALCP, indicate something is positively impacting their skills. Perhaps it is more of an impact with the use of technology, as previously discussed, or a combination of technology, educational approaches, and parenting styles which is creating a more collaborative, connected, approach to working on teams and in leadership roles. While this perspective is beyond the purview of this study, it does warrant future study in an attempt to discern any potential relationship.

Theoretical Implication of the Study

This study supports and reinforces the instructional design approach promoted by Rothwell and Kazanas (2008) in that learning organizations of companies cannot assume the skill sets of incoming employees. In order to provide the most applicable learning event for the employee, a thorough analysis of requirements of the position must be made in addition to the skills and attributes the employee possesses upon assuming the new role. Assuming that the new generation moving into their positions of leadership has acquired a degree of skills as a result of video game play or familiarity with technology will not enhance the probability of success without better understanding the specific needs of these same employees.

The study highlights and identifies the environment and triadic reciprocality promoted in the Social Cognitive Learning Theory as it applies to the video game environment, yet it does not indicate a relationship of that environment and measured learning as it applies to adaptive leadership. This could be, as stated in the limitations of this study, a result of the selected instrument not accurately measuring adaptive leadership or that the interpretation of the questions by the respondents inappropriately influenced the resulting ALCP scores. Video games do replicate the triadic reciprocality environment presented by Bandura (1977), yet the instrument or perhaps the item being measured was not impacted by the video game environment. Additional study would be needed to determine if the learning environment, as described by Bandura (1977), supported learning of the skills identified in the Adaptive Leadership Competency Profile.

Opportunities for Future Research

The data collected and the results of this study present significant opportunities for future research. The first of which would be to use the composite scores for each of the 10 leadership competencies measured using the ACLP and perform a more granular study to see if any particular competency is stronger by birth generation to provide an indication for adjusting future leadership orientation material. A similar study could be conducted to determine if experience with the company or in a leadership role indicate competencies which need less emphasis or perhaps more emphasis as leadership development curriculum is reviewed and adjusted to meet the needs of the intended audience. This potential approach could possibly provide for a more targeted approach in developing individuals new to leadership roles through the focus on particular competencies as opposed to attempting to address adaptive leadership at a higher level.

A further dissection of the ALCP scores and competencies could also potentially provide greater insight. Each competency has between 4 and 7 questions associated with it to measure adaptive leadership skills and each question asks for an assessment of two variables to measure the degree of adaptive leadership skill – effectiveness and intensity. This greater focus on the components of each competency of the ALCP score could be analyzed from a birth generation, gender, racial designation, company and management experience, as well as education level. Alluded to in the discussion of the findings, perhaps the evolving makeup of the individuals assuming leadership roles is influencing how different groups utilize specific competencies when practicing adaptive leadership. This analysis could help instructional designers and learning professionals to better construct learning events and also help current holders of leadership positions to better understanding the incoming cohorts of new employees.

Gender and racial demographics could have added to this study, but due to litigation concerns of the participating company the data were not collected. The comparison of the ALCP scores by gender and racial designation could have aided in understanding the existing skillsets and needs of these groups assuming leadership roles. While the intent of not collecting this demographic data is understood, the benefit could have provided the participating company with greater insight as to the needs of the diverse group of individuals assuming leadership positions. A deeper review, had the data been accessible, would provide any potential relationship in overall adaptive leadership scores by gender or racial designation so as to determine any targeted learning needs for any impacted members of a particular demographic. This analysis could further be used to address specific competencies which may have needed addressing, as well as the overall improvement in adaptive leadership scores.

The use of the amount of company experience and management experience with the overall ALCP scores and individual competency scores could also provide additional insight. The utility of understanding the level of skill competency could greatly assist the participating company in allocating limited learning and development funding in the most efficient and beneficial manner. Indicators provided by such an analysis could help assess how best to orient individuals assuming leadership roles if their point of entry into the role was through progression within the company, externally hired from outside the company, or hired for a leadership position directly after graduation from college or university. As discussed by Rothwell and Kazanas (2008), understanding the skills of individuals and comparing them to the job requirements can increase the success in the instructional design of development curriculum.

In reviewing the findings of this study, another possible use of the existing data in a future study would be to analyze the ALCP scores of the Millennials with those of other birth

generations that had similar company experience and management experience. This type of analysis would possibly better compare more homogeneous groups with similar work experience and possibly remove a variable which was unaccounted for in the comparison, learning on the job by earlier birth generations. By comparing groups with more similar work and management experience, a potentially better assessment of the impact of video game play could be made. This analysis may be difficult and may have to be conducted with a limited number of individuals from the Generation X and Baby Boomer Generations due to the fact that logically they would have needed to have worked to support themselves and their families much longer than any participant from the Millennial Generation. However, a future review of the data may provide greater insight on the potential impact of video game play.

Finally, the data show there is an increase in adaptive leadership skills as assessed by the ALCP for each successive birth generation. While not statistically significant, the mean scores of each birth generation is increasing. What makes this interesting is the short amount of time reported working for the company or in management roles by the Millennial Generation participants, yet the mean scores for this generation trended higher than the other two more experienced generations. A future and more in depth study could be to gain a greater understanding of the potential relationship between the increased amount of technology and the increased adaptive leadership skills of the younger Millennial Generation. Video game play is but one aspect of technology which has impacted this birth generation. A further review of the proliferation of cell phone technology, computers, and mobile technology could provide significant insight into not only how this generation is learning and developing, but also how learning and development professionals can best address the learning needs of this large and potentially very influential next wave of employees.

Summary

The results of this study did not find any relationship between the ALCP leadership skills scores by generation nor between higher ALCP leadership skills scores and video game play time. What was found was that video game play is significant in relation to the generation in which the respondent belongs. Additionally, the data from this study show that Millennials are rapidly assuming positions of leadership and performing as well as or slightly better in regards to adaptive leadership as measured by the ALCP. While video game play is not shown as significant in this analysis, some unidentified events or conditions seem to be impacting the Millennial Generation in a way that they are in the work force for shorter periods of time in a company and in leadership roles, yet are scoring as well or better in regards to adaptive leadership as indicated by the ALCP. This study has only begun the analysis of this group for potential ways of meeting the learning needs and demands of the employees who will be assuming the leadership roles in the business world.

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APPENDIX A

VARIABLES ANALYSIS

Variables Analysis

	Variable Label	Levels of the Variable	Scale of Measurement
Dependent Variable(s)	Adaptive Leadership	Frequency: 0 = Never Performs Task 1 = Performs the Task Yearly 2 = Performs the Task Monthly 3 = Performs the Task Weekly 4 = Performs the Task Daily Intensity: 0 = Not Intense 1 = Somewhat Intense 2 = Moderately Intense 3 = Highly Intense 4 = Extremely Intense Level of Effectiveness: 0 = Not Effective 1 = Somewhat Effective 2 = Moderately Effective 3 = Highly Effective 4 = Extremely Effective	Ordinal
Independent Variables	Gaming Experience	0 = Never Played Video Games 1 = Played Video Games 1-2 times a Month 2 = Played Video Games 1-2 times a Week 3 = Played Video Games 1-2 times a Day 4 = Played Video Games more than 1-2 times a Day	Ordinal
	Generation	1 = Baby Boomer 2 = Generation X 3 = Millennial Generation	Nominal

Some Extraneous Variables	Education Level	1 = High School Grad 2 = Associate Degree 3 = Bachelor Degree 4 = Masters 5 = Doctorate	Ordinal
	Company Experience	1 = 0-36 Months 2 = 37-60 Months 3 = 61-96 Months 4 = 97+ Months	Ordinal
	Management Experience	1 = 0-36 Months 2 = 37-60 Months 3 = 61-96 Months 4 = 97+ Months	Ordinal

APPENDIX B

ORGANIZATION PERMISSION LETTER TO GATHER DATA

Greg Davis
Director
Leadership College
Tell 860-902-6593
Greg.davis@cigna.com
Cigna University

TO WHOM IT MAY CONCERN

This letter of agreement is signed below to show agreement and approval for John Harbison, Learning manager, Cigna University to conduct the research study "The Impact of Video Gaming on the Manager's Adaptive Leadership Skills: Do Millennials Have an Advantage?" using data previously gathered from participants in Cigna University's new leader program, The Way We Lead. Individual names of this organization's employees, gender, nor ethnicity will not be used in this study.

Greg Davis
Director, Leadership College
Cigna University

6/8/2015
Date

John Harbison
Learning Manager
Cigna University
Doctoral Candidate

6/8/2015
Date

APPENDIX C

IRB COMMITTEE SUBMISSION FORM

FOR IRB USE ONLY
IRB #: _____
Date Submitted: _____
Date Approved: _____

FORM A:

APPLICATION FOR REVIEW OF RESEARCH INVOLVING HUMAN SUBJECTS

This form should be used if your research involves protected health information. Please refer to the HIPAA section of the website (www.utc.edu/irb) for the appropriate forms.

Investigator's Assurance: By submitting this protocol, I attest that I am aware of the applicable principles, policies, regulations, and laws governing the protection of human subjects in research and that I will be guided by them in the conduct of this research.

I have reviewed UTC's HIPAA policy and I am familiar with the requirements of the Privacy Rule with regard to protected health information. I attest that my research will be guided by the appropriate principles required by these federal regulations.

NOTE: If protected health information is disclosed without authorization, a full board review is required.

Title of Research:	The impact of video gaming on managers' adaptive leadership skills: Do millennials have an advantage?

		Dept	Mail Code	Email
Principal Investigator	John Harbison			jqs417@mocs.utc.edu.
Other Investigator	Learning and Leadership Program Office			utclead@utc.edu
Other Investigator				
Faculty Advisor (for student apps)	Dr. David Rausch	Education		David-Rausch@utc.edu .

Please check that all of the following items are attached (where applicable) before submitting the application:

- Any research instruments (any tests, surveys, questionnaires, protocols, or anything else used to collect data)
- All informed consent documents (see www.utc.edu/irb for sample informed consent documents)
- Permission from applicable authorities (principals of schools, teachers of classrooms, etc.) to conduct your research at their facilities
- Appropriate permission and signatures from your faculty advisor (if applicable).
- Please be sure the entire application is filled out completely.

****All student applications must be either signed by the faculty advisor then scanned and submitted electronically, OR submitted directly by the faculty advisor.**

All applications should be submitted by email to instrb@utc.edu.

Anticipated dates of research project: Upon IRB approval through December 2015
Please allow 2 weeks for IRB processing from date of submission.
Please be aware that you cannot begin your research until it has been officially approved by the IRB.

Type of Research:
☒ Dissertation/Thesis
☐ Class Project
☐ Faculty Research (Please see information at the bottom of this form if this research pertains to a grant opportunity)
☐ Other (please explain):

Purpose/Objectives of Research: (Briefly state, in non-technical language, the purpose of the research and the problem to be investigated. When possible, state specific hypotheses to be tested or specific research questions to be answered. For pilot or exploratory studies, discuss the way in which the information obtained will be used in future studies so that the long term benefits can be assessed.)

The purpose of this study will be to assess the impact video gaming has had on the Millennial Generation's ability to demonstrate adaptive leadership skills. Millennials are a significant portion of the population and as the Baby Boomer generation leaves the workforce, the need for these new leaders to have adaptive leadership skills will become ever more important. The implications of this research could be important for businesses as they develop leadership development plans for new managers of the Millennial generation.
The following research questions and hypotheses will be investigated:
RQ1: Are Millennial Generation leaders demonstrating a higher degree of adaptive leadership skills than other generation leaders?
The associated hypothesis for research question one is:

H1: Millennial Generation leaders do demonstrate enhanced adaptive leadership skills more than other generation leaders, as measured using the Adaptive Leadership Competency Program survey.

RQ2: Do the leaders demonstrating enhanced adaptive leadership skills also report higher video game experience?

The hypothesis that aligns with research question two is:

H2: Leaders demonstrating enhanced adaptive leadership skills also have had higher levels of exposure to video games.

RQ3: Is there a correlation between the interaction of generation and video game experience?

H3: There is a strong correlation between video game experience and the generation associated with the player.

Relevant Background and Rationale for the Research: (This section should present the context of the work by explaining the relation of the proposed research to previous investigations in the field. Include citations for relevant research.)

The confluences of three major events generate the subject of this study. The first is the need of companies to exercise adaptive leadership to be successful in their markets. Businesses in today's fast-paced environment have expressed a need for an adaptive approach to leadership that can demonstrate speedy decision making, enhance collaboration among employees, and strengthen the management of teams that are in some cases virtual (Reeves et al., 2008). DeGenring (2005) discussed how businesses will need to change their approaches, models, thinking, and leadership in order to survive in this new and fast-paced, changing environment. Glover, Jones, et al. (2002) described the challenge for leaders in regard to change more precisely:

> Every leader in the world is facing the need to cope with change, but not all leaders are creating changes that enable their corporations…to adapt in a successful and sustained way. Unless leaders are able to develop abilities that enable them to lead adaptively in complex and rapidly changing situations, their organizations will be unable to effectively meet the challenges dictated by the modern world. (p. 15-16)

According to Heifetz et al. (2009), the desire to have leaders who can exercise adaptive leadership has its roots in our human desire to evolve and grow. However, the emphasis on adaptive leadership is being driven by the increased speed of technology and communication, which is causing rapid changes in the marketplace (Ross, 2000).

The second event is the aging of the Baby Boomer Generation and their impending departure from the workforce. The incumbent generation of workers who will replace the Baby Boomer Generation will be the Millennial Generation (Gen Y). This potential rapid influx of Millennial Generation leaders is a result of many Baby Boomer leaders staying in place longer due to the recession of 2008 and 2009, and the fact that the Baby Boomers are currently occupying positions three to four levels below top executives (Espinoza et al., 2010). The large number of replacements needed, coupled with the smaller size of the Gen X Generation, will propel workers from the Millennial Generation into leadership roles at a much greater rate and number than previous generations (Espinoza et al., 2010). It is estimated that the Millennial Generation will represent 36% of the total workforce by 2014 (Zamir, 2013) and as much as 75%

(Young, 2013) in as little as five years. With this increase of the Millennial Generation in the total workforce, some are already beginning to assume leadership roles.

It was estimated that approximately 50% of leaders in the United States were eligible to retire by 2011 (Dychtwald et al., 2006). The Millennial Generation, made up of individuals who could be potentially replacing some of these leaders, has grown up in an era where the Internet has expanded, technology has enhanced access to information, and individuals have a greater ability to engage in social dialogue not previously experienced by other generations (Young, 2013). With the growing desire of companies to have leaders that can be more adaptive and develop better relationships with their customers (Heifetz et al., 2009), the need to develop leadership skills within the incoming Millennial Generation will become critical to companies. Based on the idea that the Millennial Generation has had such relationship with technology, they have been labeled as "digital natives" (Prensky, 2001, p. 9). "They are native speakers of technology fluent in the digital language of computers, video games, and the Internet" (Prensky, 2005, p. 9). Gorman et al. (2004) discussed how the exposure to technology has

> affected this generation like no other. . . . the ability to effectively utilize broadly networked digital communication technologies to quickly and seamlessly accomplish a wide variety of tasks. . . . has resulted from rich experience with Internet communications. (p. 257)

Even with this exposure to technology, Gorman et al. (2004) acknowledged that the digital competency assumed to be present in all Millennial Generation members will only be present "on average…in comparison to the average member of the current workforce." (p. 267). Finally, the exposure to technology has also impacted this generation, in varying degrees, while playing video games. Technology is providing an enhanced environment in video games that promote the acquisition of skills and knowledge through this play, which must be considered as this population enters the work force (Beck & Wade, 2004).

The third event is that as companies devise learning and development programs for the leaders of their organizations, they will want to capitalize on the skills of the incoming Millennial Generation. Following an instructional design process similar to that presented by Foshay et al. (1986), the assessment of relevant characteristics of the incoming learner would be of significant value as they determine the appropriate learning design to provide the leaders with the optimal learning experience in the shortest time. The opportunity presented is for companies to have leaders ready sooner and demonstrating adaptive leadership skills faster, thereby allowing companies to take advantage of opportunities in the marketplace quicker (Reeves et al., 2008).

As the Baby Boomer Generation retires and the leaders from that generation are replaced, the next large population of employees moving into leadership roles will be from the Millennial Generation. Like all generations preceding them, the Millennial Generation has been shaped by world events as they have matured such as terrorism and the tragedy at Columbine (Espinoza et al., 2010; Welsh & Brazina, 2010). Coupled with these horrors, the Millennial Generation has also benefited from advances in technology, cell phones, and a more nurturing parenting style (Espinoza et al., 2010). These advances in technology have enabled the proliferation of video games and have enhanced the impact playing video games has had on the Millennial Generation (Espinoza et al., 2010).

Concurrent with the increases of the Millennial Generation in the work force and the exposure to video gaming is the need for leaders to exhibit more adaptive leadership skills versus employing a more traditional leadership style (Ross, 2000). To increase the probability of success, companies will need leaders who can do more than institute change within their organization; they will need leaders to help the organization adapt in a sustained way, in a rapidly changing and complex business environment (Reeves et al., 2008; Tetenbaum, 2011). The rationale for this study is to determine if there is a correlation of enhanced adaptive leadership skills from the Millennial Generation who have had increased exposure to video games as compared to earlier generations who have not had the same exposure.

Methods/Procedures: (Briefly discuss, in non-technical language, the research methods which directly involve use of human subjects. Discuss how the methods employed will allow the investigator to address his/her hypotheses and/or research question(s).)

The data used in this study will be from previously gathered data from the participating organization to help determine if the members of the convenience sample demonstrate attributes of adaptive leadership based on the established instrument – Adaptive Leadership Competency Profile (see attached). The sample will be composed of individuals from multiple generations (Baby Boomer, Generation Y, and Millennial Generation/Generation X). Once we obtain the data from the sample, we will be able to compare Millennial Generation participants against other generations to see if the Millennials are coming into management with a higher degree of adaptive leadership skills. If, as hypothesized, they are coming with increased skills and the Millennial participants acknowledge spending an increased amount of time playing video games, then the impact to leadership training can be addressed. The extant data collected by the participating company were gathered using the ALCP survey of a convenience sample of leaders attending a new leader's development course at a large health care insurance company. The company's deployment of a survey to gather data regarding the adaptive leadership skills of its new leaders began in 2015. The goal of this study is to achieve a sample of the total leader population in the health care insurance company with an expected *n* of 275-325 participants. A quantitative descriptive approach will first be used to assess the adaptive leadership skills between leader generations and then to assess the impact of the time spent playing video games on those participants with higher adaptive leadership skills scores. The intent is to describe any generational impact of video gaming on the Millennial Generation as compared to other generations in leader roles. If this indicates an impact, a quantitative correlational analysis will be conducted on the extraneous variables to determine if there are any indicators of other variables impacting the abilities of leaders to demonstrate adaptive leadership.

Subject Population: (List the size of population be used, and check if any of the populations listed apply to the study. Discuss criteria of selection or exclusion, population from which they will be selected, and duration of involvement. *NOTE: Federal guidelines require selection of subjects be equitable within the exclusions, and subjects meeting the criteria cannot be discriminated against for gender, race, social or financial status, or any other reason.)*

Describe Sample: The sample frame for this study is a smaller subset of the general population of leaders from the Baby Boomer, Generation X, and Millennial Generations. This convenience

sample is made up of new leaders within a large health insurance company who attended a new leader orientation course. The course was conducted monthly, with 20-32 participants in each class. Each class was composed of individuals from all generations (Baby Boomer to Millennial), varying education level, and from all across the United States.

Approximate Number of Subjects: 350

Subjects Include (check if applicable):

Minors (under 18)	☐
Involuntarily institutionalized	☐
Mentally handicapped	☐
Health Care Data/Information	☐

IF YOU HAVE CHECKED THE BOX PERTAINING TO HEALTH CARE DATA, BE SURE YOU HAVE COMPLETED ANY NECESSARY HIPAA FORMS AS WELL.

Informed Consent: Describe the consent process and attach all consent documents. See www.utc.edu/irb for sample informed consent forms and complete information regarding informed consent.
All research must be conducted with the informed consent (signed or unsigned, as required) **of all participants:**

Extant data were collected from participants attending the new leader orientation course. Researcher will mine the extant data already collected by the participating organization to retrieve allowed demographic data and responses to the Adaptive Leadership Competency Profile survey.

Incentives: What incentives will be offered, if any? (Indicate whether or not subjects are to be paid, how and when they will be paid, amount, and the rationale for payment. The proposed payment should be commensurate with the time required for participation, travel expenses, and/or inconvenience assumed by the subject, but should not be so great as to constitute undue influence on an individual to assume risks of study participation that would not otherwise be undertaken.)

No incentives were offered for completion of the survey instrument.

Risks/Benefits to Participants and Precautions to Be Taken: (This section should discuss all possible risks and discomforts from participation in the study, indicating both severity and likelihood of occurrence for each. Risks may range from the physical to the psychological. Inconvenience, travel, or boredom may also be considered risks of participation in the study. The methods that will be used to minimize these risks should also be discussed. Many studies hold the potential for loss of privacy and confidentiality. These concerns should be noted in this section. If subjects are vulnerable populations, or if risks are more than minimal, please describe what additional safeguards will be taken.)

The collected data selected for use in this study did not pose any risk to the participants. All responses will remain confidential and will be analyzed without associating the responses to any individual participant. Demographic information will be used for additional analysis but will not be associated with a specific individual.

In your opinion, do benefits outweigh risks? ☒ **Yes** ☐ **No**

Privacy/Confidentiality: (Please describe whether the research would involve observation in situations where subjects have a reasonable expectation of privacy. If identifiable existing records are to be examined, has appropriate permission been sought, i.e. from institutions, subjects, and physicians? What provision has been made to protect the confidentiality of sensitive information about individuals? Are research records anonymous? If not, there should be discussion of how records will be coded, and where and how they will be stored. It should also note where and how signed consent forms will be maintained. If video or audio tapes will be made as part of the study, disposition of these tapes should be addressed. In general, the IRB recommends that research tapes be destroyed as soon as the needed data are transcribed, and that only restricted study personnel be allowed access to the tapes. List the names of individuals who will have access to names and/or data. If other procedures are proposed [for example, retaining tapes for future use, allowing individuals other than study investigators access to the tapes] justification should be presented and separate.)

Data already collected by the participating organization will remain confidential and published as aggregate data and not associated with any individual, gender, or ethnicity. Data will only be associated with an identified generational span of years. Additionally, all data will be stored on a password protected computer maintained on a company server.

Signatures: ** If submitted by a faculty member, electronic (typed) signatures are acceptable. If submitted by a student, please print out completed form, obtain the faculty advisor's signature, scan completed form, and submit it via email. Only Word documents or PDF files are acceptable submissions.

Principal Investigator or Student	Date
Faculty Advisor (for student applications)	Date

If this research pertains to a grant opportunity:

Grant submission deadline:
Funding Agency and ID Number:

Graduate☐ **Undergraduate**

APPENDIX D

ADAPTIVE LEADERSHIP COMPETENCY PROFILE (ALCP)

Employee ID_____

Adaptive Leadership Competency Profile

Background

The Adaptive Leadership Competency Profile (ALCP) presents a macro model for assessing adaptive leadership skills. The ALCP includes 10 competencies which are based on grounded theory results from a National Science Foundation research study, readings, and observations. You are being asked to assess yourself on the identified questions relating to adaptive leadership. The results of this assessment will be used in a study to measure existing adaptive leadership skills of leaders that are have been newly placed in a leadership role or are new to the company. The results will be compiled to determine how to better assist current leaders, improve existing leadership development programs, and better focus existing leadership-training programs.

In addition to questions about your leadership skills, it is asked that you also provide the demographic information at the bottom of this page for additional analysis.

Confidentiality

All data will be kept in the strictest confidence. The researchers have taken precautions to ensure individual confidentiality. It is asked that you provide your employee identification number in case the researcher has a question of clarity for a response you provide. None of the responses will be published with any identifying numbers, names, or markings.

Thank you.

Demographics: (Circle the applicable response)

Education Level	1= High School	2= Associate Degree	3= Bachelor Degree	4=Masters	5= Doctorate
Company Experience With Cigna	1= 0-36 months	2= 37-60 months	3= 61-96 months	4= 97+ months	
Total Management Experience	1= 0-36 months	2= 37-60 months	3= 61-96 months	4= 97+ months	
Birth Year	1= 1946 to 1964	2= 1965 to 1977	3= 1978 to 1996		
Gaming Experience Growing Up	1= Never Played Video Games	2= Played Video Games 1-2 hours a month	3= Played Video Games 1-2 hours a week	4= Played Video Games 1-2 hour a day	5= Played Video Games more than 1-2 hours a day.

Instructions
Read each item carefully. Then respond in a manner that most accurately reflects your perception of the frequency and intensity of your behavior. Frequency is a measure of how often the behavior is used; intensity is a measure of degree, magnitude, or highly focused operating style. Please note some individuals may not exhibit all of these behaviors all of the time. Therefore, to ensure accurate measurement and quality result carefully consider your response.

EXAMPLE QUESTION

Task Number	Competency		Frequency of Task		Intensity of Task
0.0	**Example**: Develops a plan for your department.		Performs this task DAILY	**X**	Performs this task EXTREMELY Intense
		X	Performs this task WEEKLY		Performs this task HIGHLY Intense
			Performs this task MONTHLY		Performs this task MODERATELY Intense
			Performs this task YEARLY		Performs this task SOMEWHAT Intense
			Performs this task NEVER		Performs this task NOT Intense

Influencing and Motivating

Task Number	Competency		Frequency of Task		Intensity of Task
1.1	Instills a unifying challenging, and rewarding spirit.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
1.2	Influences others to help achieve work-related task and or objective.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
1.3	Offers encouragement to others to improve motivation and to improve motivation and performance.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
1.4	Acts as a catalyst and motivates others.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
1.5	Brings out the best in people.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Learning

Task Number	Competency		Frequency of Task		Intensity of Task
2.1	Creates a learning environment.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
2.2	Turns situations into a learning experience.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
2.3	Promotes life-long learning as a way of life.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
2.4	Fosters experimentation and learning.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
2.5	Promotes innovation and continuous learning.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Management

Task Number	Competency		Frequency of Task		Intensity of Task
3.1	Uses time and resources efficiently.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
3.2	Sets priorities with an appropriate sense of what is most important or urgent.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
3.3	Manages operations and provides direction.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
3.4	Sees that a job is completed.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
3.5	Performs essential tasks in ambiguous situation.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
3.6	Defines performance outcomes and boundaries.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
3.7	Sets goals, organizes work effectively, and uses resources appropriately.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Envisioning

Task Number	Competency		Frequency of Task		Intensity of Task
4.1	Defines a vision of future realities.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
4.2	Sees the light at the end of the tunnel.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
4.3	Creates strategic visions (who we are, where we are going, what we can be)..		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
4.4	Sees the “Big Picture”.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Teaming

Task Number	Competency		Frequency of Task		Intensity of Task
5.1	Fosters teamwork, cooperation, and collaboration.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
5.2	Generates participation through coaching.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
5.3	Fosters co-partnering and interdependence among team members.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
5.4	Guides to reach consensus.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
5.5	Fosters esprit de corps (team spirit).		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Ethical Behavior

Task Number	Competency		Frequency of Task		Intensity of Task
6.1	Uses principles of truth and honesty.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
6.2	Adheres to ethical standards.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
6.3	Stands up for what is right.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
6.4	Demonstrates integrity.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
6.5	Demonstrates a clear commitment to ethical practices.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
6.6	Speaks the truth.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Developing Human Capital

Task Number	Competency		Frequency of Task		Intensity of Task
7.1	Expands human capacity through development programs.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
7.2	Takes care of personnel.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
7.3	Stretches the capabilities of employees.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
7.4	Takes a personal interest in the career development of each team member.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
7.5	Generates opportunities for individual growth and economic performance.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
7.6	Identifies the next generation of leaders.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Communicating

Task Number	Competency		Frequency of Task		Intensity of Task
8.1	Speaks openly and directly about performance problems with others.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
8.2	Offers others specific and detailed feedback.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
8.3	Listens to suggestions and comments and makes changes if the situation allows it.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
8.4	Communicates the organization's values in terms of specific statements on specific issues.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Decision Making/Problem Solving

Task Number	Competency		Frequency of Task		Intensity of Task
9.1	Benchmarks products and processes.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
9.2	Uses an interdisciplinary approach in solving problems.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
9.3	Makes difficult decisions and follows up.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
9.4	Gets down to the real brass tacks! Defines it, examines it, analyzes it, and tries to solve the problem..		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
9.5	Seeks information from multiple sources to define a task or problem.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Changing

Task Number	Competency		Frequency of Task		Intensity of Task
10.1	Experiments with process and discovers new opportunities and solutions.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
10.2	Regards change as a source of vitality and opportunity.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
10.3	Leads change and removes barriers to change.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
10.4	Changes work process to maximize efficiency and effectiveness.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
10.5	Applies technologies to view, explore, analyze and create options for organizational change.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Task Number	Competency		Frequency of Task		Intensity of Task
10.6	Abandons outmoded assumptions and beliefs to experiment with some alternative concepts and ideas.		DAILY		EXTREMELY Intense
			WEEKLY		HIGHLY Intense
			MONTHLY		MODERATELY Intense
			YEARLY		SOMEWHAT Intense
			NEVER		NOT Intense

Effectiveness

Task Number	Competency		Effective		Level of Effectiveness
11.1	Overall, do you consider the person you are rating to be effective in their job role?		**Yes or No**		EXTREMELY
					HIGHLY
					MODERATELY
					SOMEWHAT
					NOT

Task Number	Competency		Effective		Level of Effectiveness
11.2	Is the person you are rating effective in linking the needs of people, teams, and the organization?		**Yes or No**		EXTREMELY
					HIGHLY
					MODERATELY
					SOMEWHAT
					NOT

Additional Comments:

VITA

John W. Harbison is a native of Chattanooga, Tennessee. He attended and graduated from The University of Tennessee at Chattanooga with a bachelor's degree in Engineering Administration in 1979. Upon graduation, John was commissioned as a Second Lieutenant in the United States Army, where he served in various leadership and staff positions over a career of 22 years, achieving the rank of Lieutenant Colonel. While serving as an Army Officer, John was fortunate to earn numerous awards and decorations and upon retirement was award the Legion of Merit. John earned his Masters of Industrial Technology degree from Western Carolina University in 1989 while working at the university as an Assistant Professor of Military Science. Following his retirement, John returned to Chattanooga and began his second career working for Cigna Health Care in Service Operations and later in Cigna University, the company's learning organization. While with Cigna, John has become a Coach and Master Facilitator focusing on leadership, management, and change training, as well as performing numerous operational functions for Cigna University. John is married to his wife of 34 years, Marion whom he met on his first tour to Germany. John is currently completing the requirements for his degree as a Doctor of Philosophy in Learning and Leadership.