Successful Aging: Use Of Communication Technology In An Adult Day Program

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SUCCESSFUL AGING:
USE OF COMMUNICATION TECHNOLOGY IN AN ADULT DAY PROGRAM

by

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ABSTRACT

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This dissertation investigated the relationship between learning digital communication technologies in an intergenerational intervention and successful aging among older adults. The specific goal of this study was to uncover the effects of this intervention on the cultural constructions of aging in an urban Adult Day Program in Trinidad and Tobago. This mixed method study utilized the Geriatric Depression Scale (GDS; Sheikh & Yesavage, 1986), a life satisfaction scale, well-being measurements, open-ended survey questionnaires and a focus group session. The results from the quantitative items indicated no significant differences after the intervention; however, the focus group discussion and open-ended surveys provided useful information on the processes involved. This study has implications for the design of similar intergenerational programs throughout Trinidad and Tobago and other Caribbean islands which can promote conditions for successful aging.
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But, it is said, memory dwindles. No doubt, unless you keep it in practice... Old men retain their intellects well enough, if only they keep their minds active and fully employed.

_Cicero 106-43 BC (2001, para.16)_

**CHAPTER I: INTRODUCTION**

The purpose of this dissertation is to explore the use of technology as a tool to promote positive aging among adults enrolled in an Adult Day Center in Trinidad and Tobago. The main goal of this research was to examine the possible effects on life quality and satisfaction of the older adult participants in relation to their new ability to connect, via digital technology, to friends, family and age-mates, as a solution to social isolation and shrunken social networks usually associated with normal aging.

An examination of the available literature on aging, intergenerational interventions, and technology, combined with the results of the qualitative research among older adults in an Adult Day program in Trinidad, support the notion of transforming the aging process. It is important, especially at this time in human history, for us to be more informed about factors related to quality of life and life satisfaction. Appreciating the role of well being and life satisfaction in
positive aging, individuals and programs alike can integrate this type of data into the overall study of gerontology and elderly care. As Kelty, Hoffman, Ory and Harden (2000) stated, interventions focused on productive and positive aging have been generally based on research done on White Americans. Research on other ethnic groups and other countries is crucial as the world aging demographic figures are shifting rapidly toward the over 65 years age group. As Kelty, Hoffman, Ory and Harden (2000) suggest,

The observation that variations in social conditions affect the aging process underscores that this process is malleable and hence responsive to some degree of human intervention and control.... Behavioral or social interventions have been shown to postpone or compensate for aging-related changes in cognitive and other functional domains. However, until recently, interventions were not designed for different ethnic groups; rather they were based on research using White middle class participants. Intervention programs must be designed so that they are appropriate for the needs and situations of the targeted population (p.144).
Therefore, for interventions to be truly functional and relevant, according to Kelty, Hoffman, Ory and Harden (2000), they must be designed for the target group. It is no longer suitable to use research from one ethnic or cultural group to assess and make recommendations about the needs of other ethnically diverse groups. The current model employs intervention programs designed for the dominant group, which may or may not be fully effective in application to other ethnic minority groups.

As baby-boomers worldwide are making their transition into retirement, into the older adult developmental phase, issues of quality of life and life satisfaction have become a matter of concern. The issue of quality of life is an important area of research within the last 25 years. Psychologist and other social scientist have proposed that enhancing quality of life and life satisfaction can have great benefits to psychological states as well as preventing and treating illness.

At this time in human history, it is crucial that psychologists and other helping professionals gain knowledge about specific factors and processes involved in successful ageing and quality of life among older adults. As the global population continues to age at a rapid pace, research on the oldest segment of society is timely and relevant. US population
demographics agencies have predicted the individuals over 65 years old will account for 20% of the population by year 2030 (US Special Committee on Aging, 1991). In the 2010 Census, data collected states that the third age population, adults over 65 years, has risen to 6.2% of the US population. This figure is expected to rise exponentially within the next three decades, whereby older adults are expected to outnumber their younger counterparts, the middle adult group, by 2050.

Rapid population changes in favor of older adults have not been an issue of Western societies alone but a worldwide issue. According to the United Nations Secretariat's Population Division, controlled fertility in many countries, coupled with increased life expectancy due to more advanced medical technology internationally, are factors that largely account for this global shift in demographics (2005).

The present research site, Trinidad and Tobago, in a very conservative estimate by the 2005 World Bank report on aging, stated the population over 60 years was 11.3%. The same report stated that this number should rise to 18% by 2020. World Bank's recommendation in their report called for measures to encourage and enhance the concept of positive aging and promotion of quality of life and life satisfaction. This has become an issue for policy makers and politicians alike as older
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Adults require more aid and resources as their physical and cognitive capabilities diminish through the normal aging process. Unlike other segments of societies, individuals of older adult population are more likely to get ill, suffer from chronic pain and long-term diseases, mobility issues, bed-ridden and die from natural causes. To promote positive aging, and enhance factors associated with increased quality of life and life satisfaction, psychologists, helping professionals, and policy makers have endorsed Adult Day programs (Schaber, 2010; Schmitt, Sands, Weiss, Dowling, & Covinsky, 2010).

Many older adults are enrolling into Adult Day programs in increasing numbers (Schaber, 2010). These programs are seen by this group as one way to maintain their independence and socialize with individuals from their generation. Many of these programs are staffed with qualified individuals from various fields in gerontology. The dramatic increase of baby-boomers has lead to a need for different programs geared towards enhancing quality of life (Schmitt, Sands, Weiss, Dowling, & Covinsky, 2010).

Earlier research in gerontology looked at the negative models in aging and growing older rather than taking an optimistic approach. Similarly, previous programs geared to older adults were focused on a deficit modeling, the goal of
fixing that which is broken instead of centering on individual strengths. Today, there has been a dramatic shift towards positive psychology and wellness models in research on older adults.

In support of increasing an individual’s quality of life, Seligman (2000) has advocated for a shift in psychology in replacing the focus on illness with that on wellness, optimism and awareness of each individual’s strengths. Seligman and other positive psychologists have discussed the importance of happiness, well-being and life satisfaction as a buffer to many psychological and cognitive illnesses. This is significant especially in older adults as their mental health and cognition may be negatively impacted through the normal aging processes (Kelty, Hoffman, Ory, & Harden, 2000). For example, in the study by Baltes (1997), the focal point was positive aging and enrichment programs as paramount to well-being among older adults.

The shift from images of negative aging to aging well has lead to two popular concepts of ideal aging. The first, and more commonly used phrase, is successful aging that reflects the belief that middle and older adulthood can be as healthy, vital and agreeable as an individual's earlier years. Successful aging, vital aging, and active aging are sometimes used
synonymously (Moody, 2009, p.69). Moody (2009) described the second concept of positive aging as productive aging. Old age is not a time for disengagement, but for continued contribution to society through work, volunteerism and other active contributive role (Moody, 2009, p.68). Moody's definition of productive aging requires a continued connection to a work environment or an extension of an earlier career to actively contribute to society and enhance wellness in older adults.

Advocates of successful aging or productive aging can be found in much earlier times too. The idea of positive aging is not a new idea and the desire to live well into old age can be found expressed in Cicero's treatise (Cicero, 2001, para.16). Successful aging gives hope to live long and live well, rejecting beliefs of age-related ill-health as inevitable (Lindenberger, Lovden, Schellenbach, L & Kruger, 2008). Moody (2009) believed that America, Europe and other Western societies have embraced successful and productive aging because of deeply rooted cultural ideals of perennial growth and expansion (p.68). However, ideas of globalization as a notion of an integrated world system and aging have been linked. Successful aging and productive aging programs are being embraced by non-Western countries as a result of global capitalism, as well as poverty and risk reduction among older adults (Fry, 2009, p. 190).
According to Fry (2009), globalization has transformed the economic world in ways that is disadvantageous to the oldest segment of society. Within nations classified as underdeveloped by global economic systems, as in the case of Trinidad and Tobago, loans from the World Bank and International Monetary Fund are usually restricted to infrastructural and financially feasible projects. As a result, the needs of older adults are not invested in heavily. Fry (2009) advocated for programs to support successful aging that should be viewed as a national priority. Support for the elderly cannot be left to families or voluntary social services but should be reflected as a major concern in fiscal economy (Sokolovsky, 2009, p.292).

Similarly, in Peru, a growing number of elders are living in poverty despite governmental laws to assist older adults. The United Nations and other international organizations have implemented global programs and donated extensive resources to promote successful aging among the large poverty stricken older adult population (Shenk & Mahon, 2009, p. 260,261). Successful aging is crucial to moving away from earlier negative aging concepts. Understanding the aspects of successful aging is next step toward the positive aging revolution. Quality of life has been referred to as a component of wellness at all ages, and seen as a main factor in the process of successful aging.
The movement to boost life quality has been adopted by the medical professionals and mental health practitioners alike (Gatchel, 1996). Addington-Hall and Kalra (2001) described the relationship between illness and self perception as strongly correlated. This study concluded that frequency, length and intensity of illness correlated with how an individual perceives his or her own life. Existing literature and research have conclusively indicated that individuals diagnosed with depression are twice as likely to die from cancer and four times as likely to die from heart disease (Butler, Sutherland & Lewis, 1991; Perkins & Tice, 1995). Fallowfield (1996) found that scoring high on well-being assessment measures correlated with lower incidences of cancer, heart disease and stroke.

Considering the extensive psychological and medical research done on the topic of well-being, researchers have agreed that well-being can either alleviate or exacerbate physical and psychological health and wellness. Much focus has been placed on the quality of life in one group by current gerontologists, individuals over 65 years old, popularly referred to as baby-boomers. The term baby-boomers, is defined as the generation born between 1946 and 1965 (Agree, Freedman, & Sengupta, 2004). This generation is unique in that individuals from this group are generally better educated and wealthier than
earlier recorded generations of older adults (Quine & Carter, 2006).

As a result of the normal aging process, individuals over 65 years are more likely to have to deal with illness and other cognitive and physical challenges. This age group is more likely to face psychological challenges as well. Through the loss of close long-term relationships as a consequence of death or mobility related illnesses, loss of independence, or medical issues, older adults are more prone to depression as a group than others (Perkins & Tice, 1995). These issues have been known to have a direct effect on life satisfaction and quality of life as well as influencing physical ability.

Considering the literature reviewed, it can be concluded that quality of life is negatively affected and declines with increased dependence on others and the physical environment among older adult population (Atchley, 1999; Fozard, Rietsema, Bouma, & Graafmans, 2000; Gatchel, 1996). The older adult must rely on individuals and things to compensate for lost capabilities to carry out task that were considered mundane in prior years. Furthermore, the loss of long-term relationships coupled with some degree of apprehension about making new intimate connections are also negatively correlated with older adults' well-being (Atchley, 1999). Other research findings
suggest that autonomy, social support, feelings of independence, mental well-being and continuing productive activity are among factors known to positively influence as well as increase quality of life among baby-boomers (Baltes & Mayer, 1999; Atchley, 2006).

Among the older adult generation, quality of life and life satisfaction are positively correlated with psychological health, self-esteem, self-determination, efficacy and positive social interactions. Inversely, deficiencies in quality of life can manifest as affective disorders, poor physical health, withdrawal from society, and decreased self-esteem (Gatchel, 1996). Aging as a phenomenon, in the present study, was viewed using three perspectives: human development perspective, aging as a socio-cultural phenomenon and finally, aspects of aging as culturally specific to this study site, Trinidad.
CHAPTER II: LITERATURE REVIEW

Phenomena of Aging from a Developmental Psychology Perspective

Current data suggest that older adults is the fastest growing population group in the United States (Sokolovsky, 2010). The needs of this rapidly growing populace must be sufficiently met to address issues related to their current and future quality of life concerns (Baltes & Mayer, 1999). Quality of life as a primary area of study has flourished, as it has been shown to be directly and indirectly related to treatment and prevention of physiological as well as psychological disorders (Addington-Hall & Kalra, 2001).

As primary aging is a natural process in the life span, it results in organic physical and cognitive deterioration. The level of decline is in no way universal but varies from one individual to the next. The effects of the aging process can be influenced, to varying degrees, by diet, exercise, experiences, beliefs, expectations and social interactions, or any combination those variables (Atchley, 2006). These factors which affect aging -- physical, psychological and social -- are also correlated with quality of life (Addington-Hall & Kalra, 2001). As Mulvaney-Day, Alegria and Scribney (2007) emphasized, the notion that positive mental health outcomes are strongly
correlated with social interactions especially among family and community members has been widely accepted.

The impact of aging in the medical model has taken a far more deterministic and less optimistic perspective. Aging in generally medical terms, as posited by Charness (2001), adversely and dramatically affects communication and socialization skills in most older adults. He argued that aging negatively impacts cognitive and psychomotor functions, highlighting events such as strokes which can dramatically affect language and movement. Recent research has demonstrated that lifestyle habits, health and other non-age related factors play a more decisive role in predisposition to strokes.

Arthritis, stroke, vision, hearing loss and Parkinson's disease are some of the age related diseases that Charness (2001) highlighted, thereby impairing the ability to communicate and socialize fully. Arthritis, believed to affect 35 - 60 % of adults over 62 years of age, impairs manual dexterity important in such communication tasks as emailing, surfing the internet, social referencing or even gesticulation for emphasis in conversations. Impairment in vision can also greatly diminish communication abilities when using computer monitors or mobile technology screens (Jastrzembski & Charness, 2007; Hanson, Hurley & Sheaff, 2011). In addition to the consequences of aging
of the sensory inputs and the individual's ability to effectively use digital technology to communicate, consideration should be given to the varying degrees of physiological deterioration and the effect on well-being as it relates to communication.

Fallowfield (1996) indicated a negative correlation between high levels of well-being and incidents of heart disease, stroke, and cancer. Quality of life has also been shown to have an effect on psychological wellness, being associated with depression, anxiety and other mood disorders. The terms quality of life and well-being are used prolifically, especially when discussing an older adult population. Ikels (1994) described well-being among an aging population as changing and malleable. In her cross-cultural study, participants in Botswana, Ireland, Hong Kong, and U.S. were compared using quantitative and qualitative measures to define their concepts of well-being. Ikels concluded that to effectively evaluate individual well-being, the quantitative self-evaluation measures were not adequate. It was just as important, or even more so, for the participants to discuss the meaning of well-being and its main contributors to their wellbeing (p.129,133, 139). In Hyde, Wiggins, Higgs and Blane's (2003) study, self-evaluation was shown to be a critical component in the quality of life.
instrument. Those authors critiqued other quality of life measurements using medical or mental health practitioners’ perspective. The importance of high levels of positive well-being, especially in older adults, cannot be over-stated considering the undeniable and direct relationship with various psychological and physical dimensions.

In the past, the focus in psychology was placed on remedial and deficit models, which were concerned with preventing negative outcomes of aging. However, the current foci have changed, becoming much more proactive by promoting constructive models, enhancement of well-being and quality of life and elements of positive aging (e.g., Baltes & Mayer, 1999). This type of modeling is depicted in Seligman’s positive psychology, whose main focal point has been the convergence of well-being, quality of life and physical and psychological outcomes (Seligman, 2001). Seligman also emphasized the importance of the role of authentic happiness, optimism and meaningful social networks to one’s optimal development and positive well-being.

As humans are more likely to thrive under highly socializing and interactive environments, they are driven by the need to belong to large and significant groups. This need to belong can usually only be satisfied by genuine intimate and meaningful relationships. The need for meaningful and consequential
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relationships allows individuals to satisfy critical developmental task throughout the lifespan, this is especially significant to older adults (Erikson, 1978). Atchley (1999) argues that growing older does not diminish this psychological need, but rather, it becomes heightened with age and physical, psychological and/or cognitive decline.

Older adults experience challenges ranging from physical frailty, inhibited mobility, being homebound, shrinking social networks and limited interpersonal interactions. Accordingly, Tomaka, Thompson and Pallacios (2006) found that social isolation is the most prevalent among the elderly. Additionally, social isolation can be a result of physical and social limitations as well as interpersonal constraints such as retirement, mortality or chronic illness of peers, friends and family. Consequentially, social relationships among the elderly are lessened, resulting in smaller number of intimate interpersonal relationships. The old-old, that is, adults over 85 years, are faced with challenges to create significant new relationships as those are less probable among this group (Pennington & Knight, 2008). Psycho-social human development perspective looks at aging as a separate and distinctive stage within life-span theory.
From an Eriksonian perspective on aging, successfully achieving the final developmental stage is the most complex life task as it encompasses all of the earlier stages of development. Originally, Erikson's theory consisted of eight stages, but later in his career, the ninth stage was added to “...complete the cycle”, to include the old-old individuals, more affectionately called the third-agers (Erikson, 1997, p.31).

In the first eight stages of one’s developmental lifespan, Erikson believed syntonic, or positive, and dystonic, or difficult, events are foundational and cumulative, with both being critical in shaping our current and future selves. More predominant syntonic tendencies buffer and support the organism through inevitable and infrequent dystonic experiences (Erikson, 1997). Syntonic events foster self-esteem, self-respect, well-being and agency throughout the human experience. Inversely, dystonic events are associated with psychic stagnation, regression and other crises (Erikson, 1997).

The first developmental stage in Erikson’s model is trust versus mistrust. Infants who are the benefactors of a combination of good genes, loving caregivers who keenly relate and enjoy them, and an environment conducive to growth, will achieve hopefulness. On the other hand, when an infant’s basic needs are consistently not being met, mistrust will develop
towards the caregiver and to the world in general (Erikson, 1963; Erikson, Erikson & Kivnick, 1986).

When such skills as walking, talking, and toilet training are done independently or mastered, autonomy is achieved. Shame and doubt sets in if caregivers fail to promote a meaning of autonomy in the second stage. The third stage of development is initiative versus guilt. Purpose is acquired through achievement of initiative. If there is harsh admonition, consistently following failure, the ego can become deflated, resulting in guilt. In the fourth stage, industry emerges through mastery and feelings of productivity, while inferiority results as the stage crisis from feelings of interpersonal and intrapersonal inadequacy (Erikson, 1963; Erikson, Erikson & Kivnick, 1986).

Searching for identity in the fifth stage, the questions “who am I?” or “where do I fit in?” are key questions to the individual’s identity. Finding love and delighting in the other is the purpose of the sixth stage of development. According to Erikson, intimacy as a virtue is inspired and fueled by the dreams of mutuality. If the individual has failed to develop a sense of connectedness or oneness, the resulting crisis is isolation. In the seventh stage of Erikson’s model, the psychosocial task is focused on generativity versus stagnation. Generativity of middle adulthood has to do with looking outside
of the self to the care of others. Stagnation that remains unresolved can be characterized as an individual who is bored, focused on past events, selfish, and apathetic in later life (Erikson, 1963; Erikson, Erikson & Kivnick, 1986).

The eighth and final stage of the original model is integrity versus despair. Unlike the previous stages that deal with current experiences, this stage is distinguished by looking back. According to Erikson, older adults are focused on reflecting on their earlier years. This stage-task is a critical self-evaluation of the individual's achievements and successes compared to their failures and disappointments. Erikson added that the older adult will appraise his accomplishments against his failures with consideration of life opportunities. The conclusion of the older adult’s personal audit will give either a feeling of integrity, fulfillment and unity with oneself and earlier decisions or despair. After fully weighing all of life's accomplishments against its failures, the stage-task is successful if a feeling of contentment is the result. On the other hand, if the personal audit creates feelings of regret, remorse, and guilt, the task of this stage was not productively completed, resulting in despair in the older adult (Erikson 1963).
In “The Life Cycle Completed” by Erikson and Erikson (1997), the ninth stage is discussed in depth. The ninth stage looks at older adults in their 70s, 80s, 90s and beyond. Crucially, the ninth stage is seen as an aggregation and reversal of previous eight stages. Erikson and Erikson (1997) have qualified the ninth stage in terms of the first eight stages, emphasizing the old-old individual is more likely to experience more negative events than supportive events during this developmental stage.

Erikson and Erikson (1997) argued that elders are faced with mistrust in their own abilities as they decline with age. Older adults begin to doubt themselves and their autonomy over their lives, bodies and choices being made. Shame and doubt has become part of the lived experience as one’s will weakens when autonomy is usurped by well-meaning others trying to help the older adult achieve a goal.

Erikson (1963) believed that elders in their 80s feel guilt as their initiative is self directed. Unlike the third developmental stage where the initiative task is focused on helping others, in the ninth stage the older adult's initiative is purely on helping oneself. Inferiority and lack of competence become an issue for the senior as energy wanes. The elder is faced with challenges of industry and competency, and forced to
accept their inadequacies, and feelings of inferiority are inevitable as bodily functions lessen as a natural part of the aging process (Erikson, 1997; Erikson, Erikson & Kivnick, 1986).

The senior at the age of 80 is challenged to revisit foundational questions of identity such as “who am I?”, “what is my purpose?” The ways in which the individual define themselves in older adulthood have changed vastly from accepted constructs held in their adolescent period. Earlier self concepts and identities formulated during adolescence may no longer be valid. Therefore the older adult must once again define their identity within the new contextual framework. Additionally, Erikson and Erikson discussed intimate exchanges among elders as awkward and insecure, depriving them of new and significant relationships. The absence of close intimate relationships among older adults is likely to cultivate feelings of isolation and loneliness. As the old-old tends to withdraw, in part because of deep interpersonal connections or physiological limitations, inevitably there can be feelings of loss, hopelessness and stagnation. Erikson and Erikson added that society has implied the older adult should be cared for, as opposed to being the caregiver of earlier years (Erikson, 1997).

In the ninth stage, as Erikson and Erikson (1997) posited, disgust in older adults does not originate from memories of the
past, as they believed to be the case in the earlier eighth stage. Erikson added the disgust in the old-old is intrapersonal and a consequence of their feelings of biological worthlessness. Disgust is an active process in the ninth stage, not as cognitive process but reactive, as one’s health and strength declines. The older adult is preoccupied and frustrated over immediate loss of abilities, physical decline and difficulties in undertaking previously mundane tasks. Routine activities such as hand-washing dishes can be challenging if there is arthritic pains, inhibited mobility, or muscle weakness. The flu virus, slipping, or allergic reactions were not challenges in earlier stages, while possibly leading to complications or even fatalities in older adults. Seniors fortunate to boast of perfect health, will also be faced with despair as their peers, family, friends and even spouses may suffer from chronic illness and death (Erikson & Erikson, 1997; Erikson, 1963).

According to Erikson (1997), integrity at this ninth stage is marked by the elder coming to terms with the end of life. Death, according to Erikson, should not be feared if one has achieved integrity, as a consequence of accepting the decisions made and the life lived. Older adults are then able to face the end of their life with boldness, strength and wisdom. Erikson, Erikson and Kivnick (1986) added that while true wisdom is not
achieved by most, making it an exception rather than the norm, it can be achieved through psychological health. The authors advise that the end should not be perceived with undue anxiety, depression or overwhelming distress, but accepted as part of the lifespan process. This line of thinking would allow the older adults to live optimally to the end, free from anxieties or other mood related disorders.

Although emergence of old age has been described as occurring in one’s 70s, many elders in their 80s and 90s may experience associated issues, depending on their earlier healthy lifestyle habits. It is therefore important to emphasize that different individuals exhibit characteristics and symptoms of old age differently and at varying ages, such as physical frailty, organic physical and mental diseases, and general decline of physical and cognitive processes. Even in the best circumstances of physical and psychological health, older adults are forced to face their own mortality, often leading to feelings of despair (Erikson, Erikson & Kivnick, 1986).

Erikson’s (1963,1997) theory is especially relevant for this research as even in the most favorable circumstances of aging, older adults are more likely to experience despair and disgust. Despair can result from many different events, such as shrinking social networks as aging progresses. Additionally, the
despair can be exacerbated with one’s own physical and psychological decline, whether organic or environmental. The current research is an attempt to address some of the negative concerns such as despair and disgust among seniors. Interventions to expand and/or create new social networks, foster connectedness, and renew feelings of usefulness can diminish the despair and disgust experienced by the old-old Erikson asserted as inevitable.

In addition to an Eriksonian perspective on aging, the Berlin Aging Study (BASE) (Baltes & Mayer, 1999; Baltes & Smith, 1997; Mayer & Baltes, 1996) gives a multidisciplinary approach on the topic. Within the psychology of aging, lifespan development theory is widely used framework. The assumption of lifespan theory is development does not stop at any one stage but is continuous from conception to death (Baltes et al, 1999). Lifespan development theory also supports that human development is dynamic, multidimensional, nonlinear and viewed through a multidisciplinary perspective. The researchers in the BASE study were from various backgrounds including geriatric medicine, sociology, psychiatry, and psychology. The study sampled 516 heterogeneous participants of both men and women of 70 to 100+ years old. The cohort had individuals who experienced World War I, while they all experienced World War II. Needless to state,
these critical historical world events impacted their educational, occupational, health and social experiences. Understanding the cohort and cultural effects were of significant interests to the research team, especially when looking at their results.

In Lindenberger and Baltes' (1997) comprehensive analysis of the Berlin Aging Study (BASE) study, they stated three main conclusions. Firstly, that the age-related differences in intelligence among the BASE sample were directly related to and can be accounted for differences in the participants' hearing, vision and balance. Therefore, Lindenberger and Baltes (1997) concluded that the relationship between sensory functioning and cognitive abilities were important factors in the process of mental aging. Secondly, there was a positive relationship between socio-biographical markers, such as educational levels, social prestige, social class, and income with crystallized intelligence or overall knowledge. Thirdly, the authors found a correlation between intellectual functioning and life history. Socially advantaged and disadvantaged individuals in the sample showed significant differences in their intellectual functioning. Socially advantaged individuals were defined as individuals with higher levels of education than average as well as those who functioned within professional capacities in
earlier years. Although life history and cultural factors provided some advantages in the level of functioning, Lindenberger and Baltes (1997) did not conclude that they protected against the rate of cognitive decline and loss of intellectual capacity.

Riediger, Li and Lindenberger (2006) looked at aging through the conceptual framework known as the socialization, optimization and compensation model (SOC) informed by Baltes' (1997) most prominent work in aging. Riediger, Li and Lindenberger (2006) indicated that during the old age lifespan stage there is a ratio of gains and losses. The older adult gains in social and economic status, and professional and crystallized knowledge, while there are losses in biological and cognitive domains such as health, age-related memory loss, reduced physical abilities and sensory speed. Importantly, the gain-loss ratio changes through the lifespan. The socialization, optimization and compensation (SOC) model as described by Riediger, Li and Lindenberger (2006) proposed that the individual is continually adapting throughout the various developmental stages to minimize losses that affect functioning while increasing gains that promote growth. Riediger, Li and Lindenberger (2006) demonstrated the validity of this theoretical framework in the leading old age and aging theories
used in current research. The significance of the SOC model, based on the notion of the older adults dynamically interacting with their environment and selecting situations that reduce loss and promote or maintain gains in growth and development, was seen in the empirical and conceptual models discussed (Riediger, Li, & Lindenberger, 2006).

Other aging models which were widely used prior to the Berlin Aging Study (Baltes, 1997) also focused on the interaction between the elders and their environment. In response to activity theory, which states that successful aging is relative to one activity and social engagement, Cumming and Henry (1961) developed their disengagement theory. This theory proposed that the older adult has consciously and rationally chosen their actions to disengage. Disengagement theory states that the older adults willfully withdraw from society and society, as a natural response, reciprocates by disengaging from the senior citizen. Cumming and Henry (1961) believed that this disengagement was a natural and universal response to getting older.

Atchley (1983, 1989) in response to both activity theory and disengagement theory, devised his continuity theory. Atchley (1983, 1989) believed that individuals, as they grow older, continued along the same path of internal and external
structures. Specifically, withdrawn younger individuals continue to be withdrawn older adults. Likewise, very active young adults continue to be very active older adults with the necessary accommodations for physical functioning. Therefore, if an individual was an avid runner throughout their young and middle adulthood stages, they are more likely to be an avid walker or jogger during their golden years.

Activity theory suggests that successful aging is correlated with higher levels of involvement and social engagement. On the hand, disengagement theory suggests that successful aging is a result of naturally withdrawing from society to a peaceful and restful cocoon type environment. Continuity theory posits that successful aging can be achieved when older adults can continue their lifestyle, level of activity and accustomed engagement with society considering physical limitations of aging (Gubrium, 1973; Cumming & Henry, 1961; Atchley, 1983, 1989). Although these theories are no longer used but they should be considered in successful aging research.
Cultural-Historical and Socio-cultural Approach to the Phenomena of Aging

Old age, unlike other development stages, such as puberty, is not marked by any definitive physiological or psychological markers but is determined by culture. Aging definitions are not globally universal, but culturally specific, with variations even within cultures. Therefore, it is not possible to give one complete definition of aging and old age. Instead, it must be viewed within the context in which the aging is taking place characterized with the help of more fluid and flexible classifications. Salthouse (2006) concluded that aging concepts should be viewed and hypothesized from a broader perspectives, using multiple variables to achieve high construct validity. Aging in the US and other economically developed nations differs widely from that of developing nation and even more so within an economically underdeveloped country (UN Conference on Ageing, 2006).

Eyetsemitan (2007) made a clear distinction between types of aging and the differences of the aging process in a developed versus developing society. Primary aging is defined as inevitable and universally shared physical changes. On the other hand, secondary changes are those which are not universal but
environmentally constituted and may or may not be shared. Paying closer attention to secondary aging, Eyetsemitan noted that primary and secondary aging processes and their similarities and differences across cultures are based on global socioeconomic status. In a comparative aging study between the U.S., India and Zaire/Congo, Eyetsemitan (2007) observed that

Industrialization brings about improved living conditions, and with paid employment and work careers, the poverty is reduced. Paid employment provides the ability to be well fed, for access to and use of good health care services. ... In the United States, Western medical care is more widely available and acceptable than in India and in Congo/Zaire, and efficient old age pension and social security systems greatly enhance functional independence among American elderly... Children in collectivistic cultures [developing country] are expected to take care of their parents in old age... the Congolese older person's perception of the health-related self does not strive for good health as an important value, but [interdependence]" (p. 66).

In this approach, the emphasis in addressing aging constructs is placed on the contextual nature of secondary aging processes as measured from non-African, such as American,
socioeconomic status criterion. The global socioeconomic status in aging is determined by medical services available to prolong life as well as social services available to improve the quality of life. In a developed country, the primary and secondary aging process is mitigated by the prevalence of paid employment, advanced medical care, individual independence and focus on good health in old age. In contrast, in a developing country with inadequate financial systems and biomedical advancements for the elderly, the focus is placed on interdependence and the eventual death (Eyetsemitan, 2007).

Torres (2009) demonstrated the crucial role that cultural values play in the construction of understandings and meanings related to old age. Aging as a construct can only be fully appreciated and understood in the culture in which the aging is taking place. Fry (1995) stated,

Through culture we interpret and give meaning to events. For aging, we understand changing bodies culturally. We comprehend the aging process with familiarity. We figure out what to do with people of different ages because of culture (p.117).

Therefore, to develop interventions geared towards successful aging, meanings of old age must first be fully defined and
understood, in relation to its specific culture. Earlier ethnogerontologists have argued for the role of culture in atheorization of aging research, and the importance of working without established theoretical frameworks when discussing aging processes and dynamics. That is, since aging is culture specific and sensitive, aging assumptions should be valid in the specific culture in which it is situated, rather than generalized and compared across other cultures. Torres emphasized that culture-sensitivity takes precedence over the notion of atheorization, suggesting that the cultural understanding cannot be negated or ignored in an attempt to create a theoretical framework of aging. Torres in her critique cited Burton (1992) that there is a lack of culturally-relevant theoretical frameworks on aging and its meaning.

Bengston, Burgess and Parrott (1997) argued in favor of moving away from grand generalizing theories in aging research. However, researchers must create theories to explain their empirical research focused on smaller and specific populations considering the social constructivist nature of aging studies. Bengston, Burgess and Parrot (1997) resisted the trend in the social gerontological field in the 1990's to use interpretive frameworks to instead focus on creating new theories. Additional, they believed that grounded theories in social
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Gerontology is the best foundation for programs, new research and interventions. As Bengston, Burgess and Parrot (1997) stated:

Much recent research in gerontology appears to have disinherited theory. In their quest to examine aspects of individual and social aging, researchers have been quick to provide facts but slow to integrate them within a larger explanatory framework, connecting findings to established explanations of social phenomena... Theory is often unacknowledged. Whenever a research project is undertaken, it is operating under an implicit theory about how a set of phenomena may be related, and these expectations or hunches are derived from previous explanations. The problem is that explicit theorizing is often missing.

This perspective is in keeping with Torres' (2009) approach towards social gerontology to steer from established theory, while supporting a constructivist and contextual methodology in research.

Since age is a social construction and growing old is culturally mediated, as Fry (1995) suggests, research methods to investigate aging must examine the impact of specific aspects within that sociocultural contexts. Fry reviewed how culture
impacts old age along specific dimensions using more qualitative methods such as families, gender, economics, and health. The review concluded that aging is a universal but not uniform experience for humans. Although old age is generally associated with functional declines and proximity to death, it is not considered by every culture as unpleasant. In some cultures, old age is desired as it can be a transition to economic benefits, authority within the family, or respectability and status. Culture plays a critical role in old age definitions and imposed meanings (Fry, 1995, p. 131).

Therefore, the concept of aging cannot be conceptualized and understood universally. In some societies, where the medical model is adopted, old age is perceived as prolonged terminal illness for which there is no cure (Ploubidis, De Stavola & Grundy, 2011). However, in other cultures, old age means those who have lived many years gathering knowledge and wisdom should be revered and cared for by all members of that society (Baltes, & Mayer,1999). In many cases, there are wide variations of aging concepts across and even within cultures depending on factors such as socio-economic status, religion, gender and ethnicity. Old age will have a different meaning for members of the same culture from a higher socio-economic group residing in
a metropolis than that for the lower socio-economic group residing in a rural area.

The psychological well-being and generalized health of the fastest growing sector of the population throughout developed and developing nations have become an issue of global concern. In their study of older adults, Findorff, Wyman, Nyman, and Croghan (2007) demonstrated a significant relationship between psychological and physical health in regard to long-term hospitalizations and the overall national cost. Therefore, interventions intended to positively impact well-being in older adults, as in the present study’s application of digital communication technology and intergenerational activity, can potentially affect a significant part of the national population and their related health care costs.

Cultural Historical Approach

Intergenerational programs can be situated in a Vygotskian framework, as learning is taking place within highly socialized conditions. “Development” of culture is not limited to the child; as cultural tools change, the younger generations can transmit knowledge to their elders. Vygotsky’s theory is centered on the notion that children’s cognitive processes are developed through social interactions with adults and more
expert peers. His theory maintains that adults have a social responsibility to teach and transmit their knowledge to younger generations for the purpose of cultural continuity. In this dynamic, the adult knowledge is crucial to the child’s development (Stetsenko & Arievitch, 2002).

Miller (1993) stated that it is through the process of imparting expertise of the shared culture, including in social behavior and academic subjects, that children develop. Vygotsky (1978) believed that not only does the child follow the example given by the adult, but development is also supported by the adult through scaffolding. This process allows the child to learn and perform certain tasks first with and then without assistance. The gap between what the individual can do without help and what he can with more expert assistance is called the zone of proximal development.

Newman and Smith (1997) discussed the zone of proximal development as playing a role in academic learning, through social norms and tool use relevant to the specific culture. Enriching interactions between two generational groups, where the skilled person teaches the less skilled, can be described as practical application to Vygotsky’s theory. The concept of one group teaching the other about their experience or an aspect of
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culture, by giving assistance within the zone of proximal development, is foundational to Vygotskian theory.

In a society that is technically advanced, the younger generations, more so than the oldest one, have become experts in technological tools. Vygotsky’s notion (1978) is based on the adults being the bearer of knowledge, and the child being the learner. In the present study the adolescent is the bearer of the knowledge, having cultural mastery of communication technologies, while adult is the learner. While in many cultures the older generation teaches the younger members for cultural continuation, in the proposed research project, the younger generation is transmitting knowledge to older individuals, for cultural inclusion rather than cultural continuation. It is unimportant which group is transmitting or receiving cultural knowledge based on age. The activity of cultural transmission is critical to the well-being and growth of any culture, regardless of which generation is fostering knowledge.

The role of tools and artifacts is an important aspect of social cognition and overall social processes. In a technologically driven society, such as the world today, digital communication devices and other advanced communication technologies are the main tools used to for cognitive mediation between the person and his environment Cole and Engestrom
(1993). As language is described as a master tool or the ultimate artifact, digital technologies facilitating communication and language is therefore considered as important. That is, technological communication devices which allow the individual to interact with and contribute to the world have an important role in the social cognitive process. One can describe digital technological devices and their pervasiveness as an extension to the current language system. As discussed by Mori and Harada (2010), our phones and other available mobile devices connect us to our world at all times. While an individual with restricted access to technology will be connected to the world based on physical access, which in the case of many older adults can be limited.

Western civilization's benchmark of advancement and progress usually factors technology into the equation, and the society's use of said technology in mastering and controlling their natural world (Ingold, 2000, p.312). Therefore, it is through the mastery of technology and other cultural tools that the environment can be mastered. In the 1900's Dewey (1938) discussed the interchange between the individual, the environment and the external resources [including cultural tools and other technologies] for progressive education, cognition and activity. As technology and tool use and or mastery have not
described as intuitive or innate, cultural and social engagement allows the transmission from one to another. Cultural and cognitive engagement have been described as the specific and traditional ways in which technology and tools using abilities are acquired from one person or generation to the next (Baber, 2003). Therefore, the mastery of technology and cultural tools for cognitive and social progress is important to the human experience and mastery of nature. Just as important in the equation of social cognition is the transmission of the skill in using the technology and tools, affording a cognitive shift in the society.

Norman (1991) distinguished tools from cognitive artifacts as he believed that the latter are tools of thought which in one way or another enhances our mental abilities and complement our individual skills. Therefore, in the present study, the digital communication devices used would be classified as a cognitive artifact as it enhances the participants overall well-being.

Cognitive artifacts are further subdivided by Norman (1991) to be seen from two perspectives: the personal point of view and the system point of view. The personal point of view, the cognitive artifact allows the individual to overcome personal cognitive limitations. An example would be to a home-bound older adult using Facebook to keep in touch with friends and family,
an elder with degenerative eye diseases can use "speech to text" option on their smart phones to contact friends, or simply using an phone application to figure out the dinner tip for those less inclined at doing mathematical calculations. The systems perspective looks at the union of man and artifact as a better union than taken alone. Charness (2005) discussed this union, where medical practionners are incorporating portable in-home medical devices to monitor the elderly patients heart-rate, blood glucose levels and other vital measurements thereby giving the medical staff up-to-date reports and assistance if needed.

Cognitively enhancing technology categorized as either a tool or artifact resulted in expanding or amplifying the cognitive abilities, processes and social cognition of the user (Scialfa & Fernie, 2006). Norman (1991) believed that the concept of cognition should be seen as distributed phenomenon from an external perspective, that is, the zenith of human intellect is in innovations that accommodate for and even exceed human shortcomings. As a normal part of the aging process, the human memory tends to deteriorate relative to the overall health of the individual (Atchely, 2000), the to-do list or digital calendars make-up for normal forgetfulness. Admittedly, handheld devices aids us in accomplishing many daily tasks beyond normal human capacity and not just with recall related tasks, such as
the built-in navigator which assists the individual from getting from one point to another, or the socially inhibited individual using social networks websites to meet friends and other with similar interests.

Cole and Engestrom (1993) cited Luria's 1928 paper that emphasized the importance and prevalence of tool use as a human attribute distinguishing us from other animals. Accordingly, it is our ability to use tools and transmit the knowledge of their use which changes our psychological condition -- our well-being, life quality and interconnectedness. The authors advanced the issue of cultural mediation as having a bidirectional effect on the environment as well as on the person. Within the conceptual and practical framework of the current research project, it is suggested that older adults learning to use these technologies might have effects psychically and psychologically.

**Aging in Trinidad and Tobago**

The global population is aging at a growing rate, and this trend is pronounced in Latin America and the Caribbean as well. In Trinidad and Tobago, adults over 60 years and older accounted for 13.18% of the total population. This statistic is expected to double to 26% by the year 2025 (World Health Statistics, 2012). Many Caribbean countries have reported relatively high
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populations of adults 60 years and older, such as Barbados at 15.78%, St. Lucia is 12.13 % and Jamaica at 10.98%.

The lifespan in Trinidad and Tobago has changed drastically over the last 50 years. The average Trinidadian born in 1950 would be expected to live to be 47 years old. Presently, the World Health Organization (2009) stated that the lifespan in Trinidad and Tobago has been increased to 70 years. The extended lifespan in Trinidad and Tobago can be explained through a socio-cultural and historical context. According to Rowe, President and Kahn (1996), successful aging is possible. Baltes (1987, p. 611) showed that the critical aspect of successful aging lied in the dynamic balance between maximizing gains while minimizing losses. Therefore, the rate of aging, development over time, and the old adults’ ability to recover from losses is tied to the sociocultural conditions.

The sharp increase in the lifespan of the Trinidad and Tobago populace has been correlated with the increased overall life quality resulting from the oil boom of the 1970's era. Baltes (1996) demonstrated the positive impact that available cultural resources such as education, technology and medicine have on life expectancy and positive aging perspectives. Aging and other developmental processes are embedded with their cultural and historical circumstances. Furthermore, Baltes
(1996) proposed that older adults, more so than young or middle adults, have greater needs for cultural resources in order to maximize gains and minimize losses to age successful.

With a focus on the research site, Trinidad and Tobago, understanding of old age requires taking many characteristics into account. A principal indicator of aging is defined by the contribution to family in regards to the working status, such as retired, semi-retired or fully working (Trinidad and Tobago Ministry of Social Welfare Policy paper, 2006). Retirement and the ability to contribute financially to the family unit is one of the criteria by which old age and growing older are conceptualized.

According to The Division of Ageing, a newly formed department under the auspices of the Ministry of Social Welfare policy paper (2006), the official retirement age of sixty years serves as an artificial marker of aging. The retirement age of 60 years or as is the case in public service sector, having worked for 33 1/3 years, whichever benchmark is arrived at first, was instituted with the goal to "clear jobs" for the younger generation. The Ministry of Social Welfare's Policy paper (2006) furthered the notion that for many Trinidadians, turning 60 is seen as a rite of passage resulting in a
psychological shift from middle to older adulthood, accompanied with other societal associations and meanings of old age.

As stated by Economic Commission for Latin America and the Caribbean (ECLAC, 2004), Trinidad, as a developing country, has neglected issues related to population aging and general welfare of older adults. Pan American Health Organization (2006) stated that advanced old age is associated with lowered quality of life and increased medical spending in Trinidad resulting from chronic diseases, poor health and disabilities in older adults. Active aging is described by the World Health Organization (WHO) (2007) in their policy on aging in Latin America and the Caribbean, as the process of optimizing health opportunities for enhanced life quality. This policy also emphasized the importance of full participation and integration of older adults in society.

In Trinidad and Tobago, six percent of the country’s gross domestic product is spent on social security, health, education and public housing (World Bank, 2008). In their 1997 study of active aging, Mushkin and Patterson (1997) argued that lack of social support and social participation, emphasis on curative care, economic hardships and negative attitudes to paid employment in later life have a negative effect on active aging in the Caribbean.
Chronological age in an economically and technologically advanced society compared to that of an economically underdeveloped country can have socially different consequences and implications. In advanced societies, as a result of the medical and technological advancements, the impact of physiological aging in the older adult appeared to be delayed when compared to less advanced societies. Robinson (2006) in his editorial in *Ageing and Development in Latin America and the Caribbean*, stated that physical decline and social isolation due to the aging is seen at earlier ages in the Caribbean compared to United States and Canada. Older adults live longer and more productive lives in developed Western societies, which can lead to greater feelings of agency, self-determination, and generally more positive outcomes.

Specifically, in the United States, it can be considered normal for a 70 year old adult to be engaged in full-time employment, volunteerism, as well as having an active social life, living vibrantly while interacting with various individuals across generations, enjoying feelings of being an active contributor to his or her society (Tout, 1989, p. 55). In contrast, a 70 year old person in an economically underdeveloped country, such as in the case of Trinidad & Tobago, has typically been retired for a decade. This older adult has
experienced limited social interactions while, in many cases, having issues related to financial circumstances and further challenges to re-enter the work force. According to Tout, these variations in the aging scripts, from one society to the next, mean hope and vitality in one culture, whereas in another culture, aging is an inevitable terminal illness for which there is no remedy (Tout 1989, 145).

Eyeteemitan (2007) reported the different perceptions of aging from collectivistic and individualistic cultures. In his analysis, he stated that aging perceptions are influenced by both cultural factors and equally important, the age of the perceiver. Older adults perception of aging varies widely from an individualistic culture, like the U.S., or collectivistic culture, like Congo/Zaire, India and, similar to the latter ones, the proposed research site of Trinidad. Eyeteemitan (2007) wrote:

...cultural differences in the meaning attributed to health in old age is based on levels of technological advancements. In America, health was perceived as important, with respondents expressing fears of becoming ill and dependent, but hoping to maintain their autonomy, health and cognitive functioning into old age with intentions to pursue
good health practices. In Congo/Zaire, respondents expressed fears of death and expected to decline in mobility and strength, but held hopes for support from their children and a good death. The Indian respondents fell in between. (p.65)

As a collectivistic culture, aging perceptions in Trinidad and Tobago may be similar to those cultural perspectives analyzed by Eyetsemitan. Aging perceptions can vary vastly from one culture to the next as cultural factors vary. Just as relevant to aging perceptions within the same culture, is the chronological age of the individual.

In 2005, the World Bank estimated the population over the age 60 years in Trinidad during the decade of 2000 to be at 11.3%. It was noted to be a very conservative estimate. U.S. census data stated that older adults, the sector known as the third age, constitute approximately sixteen percent (16.2%) of the entire American population (2010). This figure is expected to increase dramatically within the next three decades. For the first time in recorded history, older adults are expected to outnumber young adults by 2050. This shift in demographic can be largely accounted for by increasing life expectancy and controlled fertility (Population Division, United Nations
Secretariat, 2005). The aging trend in the United States is expected to follow a global pattern of aging.

**Technology**

Technology is defined by the National Library of Medicine as the functioning of scientific knowledge in everyday tasks (Humphreys, 2007). Presently, the use of technology, specifically digital communication technology, has evolved as a vital aspect of work, communication, entertainment, education as well as the health care industry. Research has demonstrated that younger individuals are able to learn and incorporate technologies such as computers, internet, smart phones and other digital technology with greater ease than their older counterparts. According to the Pew Internet and American Life Project 2010, 86% of 18 – 29 year old adults use social networking internet sites compared to 24% of older adults between the age 65 and 75 years. It must be noted that the age of the majority of the users lies closer to the range minimum. Unfortunately, there was no available data on American social networking usage in older adults ages 75 – 90 years.

With greater options and decreasing prices of computers and other technological devices, technology use is at an all-time high and breaking new consumer records with each new device
marketed. Early research on communication technologies suggested that heavy internet use can lead to depression, seclusion and diminished interactions among family members. Although substantial internet use can affect family communications negatively, at the same time, it has been shown to positively influence community building. For example, Pinkett (2003) found that families are spending more time with technological devices and less time talking face to face with each other. However, another study showed that social networking websites allow like-minded individuals to connect with each other (Kraut, Patterson, Lundmark, Kiesler, Mukophadhyay, & Scherlis, 1998; Pinkett, 2003). This finding is particularly relevant to the current study as internet can be used as a tool for older adults to connect with family members living far away, as well as other groups or individuals with similar interests and experiences. This activity can address the issue of shrinking social networks and challenges of making new friends.

Based on the literature surveyed in this research project, digital communication technology is classified as a cultural-historical tool/artifact. Therefore, the framework integrates the general model of human activity found within a specific cultural context, tool/artifact related concepts via communication digital technology, intergenerational activity and
aspects of successful aging. Hence, the framework integrates conceptualizations of tools, older adults, social interaction and their interrelations. Tools are thought of as items used only for work, while in this study, any device used to carry out an occupation or pursuit. Another applicable definition of a tool is a handheld device that aids in accomplishing a task, an apparatus used in performing an operation necessary in life (The Oxford Concise Dictionary, 2011). Either way, the digital communication technologies used in the present study is classified as a tool as discussed within cultural-historical theory.

**Technology in the Human Experience**

In earlier societies, the current dominant world model where the younger generations are creating a new history, cultural continuity is characterized by rapid technological changes, making traditional ways obsolete while novel systems and techniques are esteemed (Mead, 1967). As technology continues to evolve, the evolution of language has also become a source of concern to many technologically-challenged older adults. Oxford (2012), as well as Merriam-Webster dictionary (2012), have added social networking specific words such as LOL, unfriend, and OMG to their latest dictionary editions, indicative of the digital technology invasion into the social
communication patterns and language taking place globally (Oxford; Merriam-Webster dictionary, 2012).

Technology has taken an integral role in almost all aspects of the human experience. Love, work, politics, health, parenting, and almost any other human dynamic have integrated some form of digital technology into their processes. In the United States and other technologically advanced societies, computers, smart phones and mobile devices have become indispensable to their many users including mailbox, digital camera, digital recorder, navigator, personal organizer, radio player, MP3 player, personal gaming device, and so much more.

To many, the thought of carrying out mundane tasks without the use of computers and/or smart phones is beyond recollection. A compelling argument has been made by Huang (2011) on the relationship between identity and our chosen technology as evidenced in the instrument, alerts, device color and other obvious characteristics. He concluded that mobile phones are now a stable part of social technology, a cultural artifact with psychological effects. Conversely, they cannot be considered as a representation of our identities, simply because many other factors determine our chosen devices, such as finances, availability and willingness to learn newest features. In Huang’s case study, one participant stated,
that he can go out without watch and wallet, but he feels empty and helpless if he does not bring his mobile phone with him. If the purpose of using a mobile phone is to seek for psychological security, in order to ensure that the world is predictable and understandable, this thought is too emotional and illogical for him (Huang, 2011, p. 178)

The internet has become a medium not for simply meeting new people, but for finding love. There are many websites geared specifically toward romance. There has been further differentiation of these websites to focus on short-term dating, long-term romance, marriage, romance for single parents, romance for widows and widowers, and romance for the third-agers. Technology and computers in romance among the ‘greying population, according to Malt (2007), has revolutionized socialization in older adults as well as facilitating more intimate relationships through all age groups. Noteworthy finding of Malt’s research is that the older adults who successfully found love and romance using online resources were all long time users who spent many hours daily using the internet and other mobile devices. Online dating has become popular among all age groups, and benefactors have insisted that online romantic peer-bonds are more intimate than face to face initiated relationships. Malt (2007) has cited Cooper (2004),
and Walther (1996) who contended that online relationships progress much faster than face to face relationship albeit for different reasons.

Why is online romance so prevalent? One possible explanation is found in the work of Walther (1996) who classified CMC as “hyper-personal” describing it as “more socially desirable or intimate than normal” communication (p. 34) and claiming that it “surpassed the level of affection and emotion of parallel f2f [face-to-face] interaction” (p.17). Cooper (1999) supports this viewpoint, suggesting that relationships formed on the Internet progress far more quickly and intimately than face-to-face relationships, partly because of the degree of anonymity but also because of the possibilities for heightened level of self-disclosure it provides. Cooper highlighted three key factors that “turbocharge” online sexual activity via accessibility, affordability and anonymity, which he termed the “Triple-A Engine” (Cooper, 1999 cited in Cooper, McLoughlin, & Campbell, 2000, p. 522).

Work and education are other areas of the human experience fully utilizing technological advancements and benefitting from digital technological revolution. Newest innovations in computer technology such as video-telephones, and other real-time remote transmission devices have made working, instruction and training from home available to all willing to adopt a virtual classroom.
or workplace. As Sitzmann and her colleagues (2010) pointed out, technology has taken over the classroom. Many institutions of higher education carry online course options. Additionally, classroom instructions have also included technology through multimedia presentations, podcasts, digital attendance monitors, electronically displayed lectures via college websites or electronic textbooks.

According to the 2012 Pew Internet and American Life Project report (Pew Research Center, 2012), individuals in the world of work are no longer immune from the technological revolution. This report stated that sixty-two percent of working Americans are networked. They are connected to their employer through emails, cell phone, smart phone or the internet. The number of individuals working remotely from home via technological devices has risen by 238% over the last ten years, with this transition made possible through more accessibility of technology. Although internet and technology use varies from one profession to the next, there is an overall rise in technology use in the workplace.

As the director of the Pew Research Project mused, “if you can’t find it on the internet, it does not exist,” a statement that conveys the pervasiveness of technology and its immersion in daily life (Pew Internet and American Life Project, 2012). As Huang (2011) demonstrated, individuals have been tethered to
society through technology. Huang added that generally, everyone is connected to each other at all times through communication technologies. The use of a cell phone gives individuals access to other cell phone users, no longer confined to landlines at home or at the workplace to communicate with each other. Digital communication technology has become an irreplaceable social and cultural artifact, which has changed the human experience in a variety of way.

Technology and Aging

It is not unusual for older adults, especially outside of the US and other non-Westernized cultures, to discuss challenges of learning and using mobile phone texting as forms of communication (Schulke, 2010). As mobile telecommunication devices are becoming more complicated and furnished with additional features, older adults can be intimidated by these advanced technologies, possibly hindering their desire to integrate these devices into their daily lives (Scialfa & Fernie, 2006). Other reasons for their resistance to digital technology can be explained by findings of Schulke’s (2010) study, which showed that older adults learn technology at a slower rate than younger participants. Yet another explanation for the resistance to technology is because of perceived cost.
Additionally, the older adults in Schulke's study believed that digital technology to be out of their price range and unable to own these devices.

Gerontechnology, as defined by Lesnoff-Caravaglia, is the study that intersects the issues of aging and technology (2010, p. 247). Lesnoff-Caravaglia underscored the importance of technology to older adults as it would allow them to extend their independence significantly,

As two critical trends converge - the global aging of the older population and the rapid acceleration of technological developments - they will have a marked effect upon all hemispheres of human experience. The presence of an increasingly older population calls for a reevaluation of the meaning of life, death, and the quality and nature of human experience (p. 247).

Medical technology has increased life span over the last decade significantly; as Lesnoff-Caravaglia noted, the number of 100+ year old population is at an all time high and expected to grow in the coming decades. Technology is not limited to extending lifespan, but is employed in every aspect of the human experience -- the environment, health, communication, memory aids and other cognitive functions as well. This author paints a
vivid picture of the pervasiveness and indispensability of advanced computer technology as part of the aging process. In his list of technological advancements for the aging population, he included robotic wheelchairs, robotic dogs as well as microsurgery to reconstruct neural pathways to replace senses lost through normal aging (Scialfa & Fernie, 2006).

Digital communication technologies tend to be generally visually displayed, such as emails, text, and instant messaging. As part of the face-to-face interaction, paralinguistic communication such as physical cues, gesticulation, prosody and visual cues are conveyed in personal communication, but these cues are not transmitted in digital communications. To compensate for this inability to transmit paralinguistic cues that are inherent in person-to-person communication, users developed emoticons. This form of symbolism comprised of a host of alpha–numeric symbols and punctuation marks is used to indicate emotional states in digital communication. The need to emphasize and understand emotion within digital/visual communication channels, the older adult technology users must learn this additional and quickly evolving group of symbols, possibly further adding to their technology related insecurities (Morrell, Dailey & Rousseau, 2003).
In a 2010 study on texting behaviors in Japanese older adults (Mori & Harada, 2010), participants living with their spouse and grandchildren were shown to learn more quickly advanced phone functions such as sending and receiving texts, and non-communicative functions. The second group of participants, older adults living with a spouse only, used the cell phones for calls although both groups had learned texting functions. Mori and Harada (2010) suggested that grandchildren served as a model user of technology and offered social support to their grandparents with whom they lived.

According to Mori and Harada’s (2010) study of gerontechnology, the older adults were in awe by the communicative technology. They generally associated new technology with youthfulness, and as something that is separate from their aging experience. Additionally, as digital technologies have become portable and powerful, their costs have increased respectively (Fozard, Rietsema, Bouma, & Graafmans, 2000). Because many older adults and retirees live on fixed incomes, digital devices are perceived by them as out of reach or merely an extravagance or luxury rather than necessity.

In a reverse trend, younger adults consider smart phones as integral to their education, socialization, work and entertainment. Thus, to many in the younger generations, digital
communication technologies are indispensable to modern living, not an indulgence or a luxury. As devices evolve from one model generation to the next, increased efficiency is a target for technology manufacturers (Scialfa & Fernie, 2006). Older adults are especially fascinated by the multiple functions and efficiency of the available technologies (Lindenberger, Lovden, Schellenbach, Li, & Kruger, 2008).

Although fascinated by the uses and prevalence of technology and technological advances, it is likely for older adults to feel left behind and isolated from the tech-savvy generation. It is essential for individuals to feel connected to their society. Being an active participant in one’s culture has a direct impact on issues of individual agency and personhood. Many older adults can feel separated from technology driven aspects of the society that are considered to be a mundane experience by its younger techno-savvy members. This separation and isolation negatively affects the mastery of cultural tools, which are integral to the socio-cultural environment and interconnectedness of older adults (Nehmer, Lindenberger, Steinhage-Thiessen, 2010; Lockenhoff, DeFruyt, Terracciano, McCrae, DeBolle, Costa, & Fickova, 2009).

Future projections for population trends posit that in the year 2050, 87 million Americans will be 65 years and older. As
the eldest segment of society skyrockets, so will their needs likely increase. Unlike adolescents who require supervision, guidance, support and scaffolding, older adults needs are mostly physically, cognitively and psychologically oriented (Marx, Hubbard, Cohen-Mansfield, Dakheel-Ali, & Thein, 2005).

Mori and Harada (2010) suggest that older adults lack confidence in their ability to learn new technology. Czaja and Ownby's (2010) research gives a hopeful perspective on this topic. Older adults generally take longer and do not usually reach the same levels when compared to younger adults at learning new skills. Interestingly, however, with suitable designs, cognitive support, and scaffolding in place, older adults can perform at the same level or higher than younger adults. Czaja and Ownby (2010, p.357) strongly advocate adoption of technology use among older adults. Implications on cognitive aging and learning new technologies are important to productive aging, as these authors state, because

Not being able to use technology puts older adults at a disadvantage in terms of their ability to live and function independently and to successfully negotiate the built environment. For example, as the Internet and other forms of information technologies are increasingly being used as a vehicle for providing health care information and
services, people who cannot adapt to these technologies are likely to experience disparities in access to health care.... Older adults commonly report that they would be more receptive to using new technologies if they were given adequate training and support (p.354).

Although some older adults may be apprehensive about learning new technologies, their ability to learn and perform technological tasks equal to younger adults is not affected by their age, but more by design of the device and the training support.

Facilitating conditions for the use of communicative technology by older populations can be viewed as a resolution to maintaining and even expanding their social networks, positive interactions and social connectedness with other elders, family and friends (Sum, Mathews, Pourghasem & Hughes, 2008). Although individuals age at different rates, enhancing well-being through positive socializations and genuine relationships with the help of communicative technologies can positively affect this process.
Technology and Aging in Trinidad and Tobago and Other Caribbean Islands

The inclusion of technology in everyday activities, such as the transition from postal mail to email and telephone communication to instant messaging and texting, can be a source of frustration to many older adults who might feel themselves technologically-challenged (Scialfa & Fernie, 2006). In Trinidad and Tobago, an up-and-coming technologically driven society, digital communication technologies have become commonplace and are seen as an indispensable tool but many, especially by young adults and adolescents. Clay (2009) described the role of Trinidad’s governmental policy, termed Vision 2020, which included giving laptop gifts to secondary school students as the main catalyst for the technological revolution taking place in this country.

While life expectancy has expanded, and in some countries extended by up to twenty years compared to previous statistics, retirement age has remained generally the same. According to Policies and Programmes for Older Persons in Trinidad and Tobago in 2006, transition to senior citizenship is marked by the official retirement age established at 60 years. A country of approximately 1.3 million and in keeping with global aging
trends, the current older adult population lies at ten percent and is expected to increase to fifteen percent by 2020 (World Bank, 2008).

![Life Expectancy in 2009](image)

**Figure 1: Life Expectancy in 4 Caribbean nations for 2009.**

Trinidad and Tobago, with a population of 1.282 million people was chosen as an appropriate study site because of the emerging technology use among younger generations and high level of computer illiteracy among older adults. Trinidad also has a relatively high life expectancy rate for a Caribbean nation. Although the overall literacy rate is 98.3% according to World Statistical Health report of 2012, computer ownership is still a novelty, especially to individuals over 60 years. Dr. Rouse, the Director of newly created Division of Ageing, has kindly made her expertise available for discussions on the issue as she is
currently the foremost expert on aging and aging related issues in Trinidad and Tobago and the Eastern Caribbean. In one of the meetings with Dr. Rouse in 2011, she stated that because the Division of Ageing is new to the Trinidad and Tobago and the Region, these models are based on North American aging models. Also, these models work for the U.S., and there is hope that the ageing models adopted will work for the Caribbean population. The true success of the models adopted can be seen in the long term. There were no statistical data being officially collected on the outcomes of the programs coordinated by this division.

The Division of Ageing was created as a result of the Madrid International Plan of Action on Ageing initiative held in 2002. The division falls under the Ministry of People and Social Development and its main goal is to be an advocate for the older adult population. The mission statement for the division is to educate the public and major stakeholders about the issues of aging in Trinidad and Tobago. Additionally, a secondary statement was added to the department's original mission, that is, to enhance the quality of life of older persons throughout the nation.

According to the Ministry of People and Social Development's national policy on the Division of Ageing (2011), the mission, functions and services are clearly outlined. The
division's functions are as follows: to standardize the care of older adults; implement national policy on aging; organize and coordinate workshops and programs for caregiver and providers of older adults; develop and implement programs beneficial to older persons; monitor and regulate homes for older persons; conduct public programs nationwide on sensitizing others on aging; and conduct research on aging matters. The division's list of services offered consists of: commemorating World Old Age Day, World Elder Abuse Day, hosting an annual retirement planning seminar and an older person forum, creating senior activity centers that "enhance the dignity" of elders and maintain a help desk for older persons. Considering the list of functions and services offered, the quality of life issues of older adults in Trinidad and Tobago may not be fully addressed by this governmental department. As Dr. Rouse pointed out, there is still much to be done as the agency is still growing.

According to Rouse (2008), older adults do not readily have computers available to them in their households. Computer and digital technologies have been out of reach of the middle and older adult population. Although the literacy rate of the country is 98.3%, and the computer literacy rate is estimated to be close to 32%, the latter consists mostly of the younger generations of the island country (United Nations Development
Program, 2009; Rouse, 2008). Trinidad’s Central Statistical Office (2010) estimates that although fourteen percent (14%) of households own computers or laptops, only seven percent of households have internet service. Therefore, one half of the computer owners in Trinidad and Tobago use internet or some form of social networking, while the other half use computers for their non-interactive functions. As Rouse (2008) added, computers are seen more of a status symbol and used for word processing, games and music. It is not uncommon for many households to have a computer where it is used only by the younger, school aged members of the family.

As the Director of Division of Ageing in the Ministry of Social Welfare further reports, this department was established six years ago, with the sole focus on welfare of adults over 60 years. The Division of Ageing of Trinidad and Tobago was seen as a radical and revolutionary new department, given that nothing like this existed before, according to Rouse (2008). In 2008, Division of Ageing received a grant to create eight adult day program centers. Ninety-five percent of older adults, or seniors as they are affectionately called, are living in their community either alone or with other family members. The objective of the adult day programs originally was for retirees to learn crafts
such as crocheting, basket weaving, and/or macramé and more importantly, to interact socially with peers.

In her address at the international conference on aging, Rouse (2008) emphasized the prevalence of abandonment, neglect and abuse of the oldest old who live independently. Older adults, the remaining five percent living in commercial residences are sometimes subjected to neglect by family and workers. Matroo (2010) in an investigative report in the leading newspaper revealed the inhumane conditions in which older adults are kept. He described many of the institutions as warehouses rather than an environment of enrichment and well-being. Rouse (2010) commented on the exposé, stating that because households are not regulated or subsidized by the government, the well being of older persons living in them is solely the responsibility of the family. It was noted in the article that many of the clients/patients in these old age residences were afflicted with Alzheimer’s disease or some other form of dementia and ranged in ages from 62 to 102 years.

Tout (1989) described the variations and descriptions of growing older and the meaning of old age in economically under-developed countries, a classification to which Trinidad belongs. He defined patterns of aging based on migration patterns of the extended family members from rural to urban areas, as well as
international migration and the effects of old age. Tout explicitly addressed financial challenges, health care services, educational and cognitive enrichment, infrastructure, family support, social and national support and a host of other factors affecting older adults in developing countries affecting quality of life. Many of these concerns, according to Tout, affect the rate at which an individual may express the aging process specifically in the under-developed and developing nations, although they might not be valid in developed countries. As in the case of Trinidad, adult day programs are a new phenomenon while similar programs with more cognitively enriching activities have been a staple in the US and Canada.

In her 2009 paper, Challenges of an ageing Society, Senior Lecturer Bissessar of the University of the West Indies provided a grim outline of aging in Trinidad. She applauded the government for giving free bus passes to the elderly, increasing government pensions to anyone over 65 years, and providing free healthcare and prescriptions medication. But she also added that although the health care is free, the public hospitals are chaotic and deplorable. In many cases, patients may wait as long as 8 hours to be seen by a physician. Bissessar wrote that 23% of older adults live alone and another 34% live with a only their spouse. While 84% of the elderly need some help to carry
out daily routine because of medical limitations, depression and loneliness were shown to be a major issue among older adults in Trinidad. She described private residences as dubious and unaffordable although they might alleviate the issue of loneliness. Considering the cost of living and non-prescribed nutritional supplements that may positively affect life quality, she concluded that only members of the middle or upper socio-economic classes can afford to live well in their twilight years in Trinidad.

**Intergenerational Programs and Older Adult Development**

Ames and Youatt (1994) stated that intergenerational programs can be formal as well as informal. In formal or purposeful settings, intergenerational programs have been focused on the critical needs such as decreasing isolation among older adults or delinquency in adolescents. More commonly, intergenerational interactions can be informal or recreational, such as grandparents playing with their grandchildren. Accordingly, intergenerational programs are not limited to therapeutic institutions for the aged, but have been implemented in community centers, religious organizations, and schools.
Beyond addressing critical needs of both polar age groups, intergenerational programs have served many other functions of socialization. Existing literature on old age perceptions and prejudice reduction has shown that this outcome can be achieved through consistent contact (Atchley, 2001). Ageism is a form of prejudice that can affect both the young and the old negatively (Butler, 1969; Isaacs & Bearison, 1986). A trans-cultural / trans-national study on ageism highlighted two main elements: competence and benevolence (Ishii-Kuntz, 1997). While elders were viewed as being high on benevolence and low on competence, the inverse dynamic applied to the younger generation (Hagestad & Hhlenberg, 2005). Hernandez and Gonzalez (2008) concluded from their intergenerational research that not only did the younger participants change their negative constructs of old age, but the older group did as well.

Family can play an important role in the informal intergenerational relationships. An important aspect of positive aging is an increased sense of well-being as outlined in the Berlin Aging Study (1997). Accordingly, Katz (2009), in her cross-national study on subjective well-being, demonstrated significant positive effects of intergenerational familial relationships in both short and long-term well-being measure in adults 75 years and older. In this particular study, subjective
well-being was captured by self-report of life satisfaction and happiness. Life satisfaction measure focused on interpersonal exchanges with family members, whilst happiness was measured by positive versus negative affects (Bazargan & Hamm-Baugh, 1995; Barusch, Rogers, & Abu-Bader, 1999).

Leading scholars in this area of research have categorized intergenerational programs into three main groups depending on their main objectives. Recreational, public service or educational are the three main categories of these programs. Although these three categories are not mutually exclusive, researchers assign participants according to key interests as well as for greater construct validity (Aday, Rice, & Evans, 1991). In many of the studies, multiple intergenerational research modalities were used (an example is cooking classes with nursing home residents teaching high school students at the community center) but then usually described the study under one category, that is, either recreational, educational or public service. Considering the example, cooking classes can be described as recreational, educational as well as a public service a, these categories should not viewed as mutually exclusive.

In the case of recreational intergenerational interactions, the activities shared by the elders and the younger group are
dancing, music appreciation or some other form of recreational activity (Seefeldt, Jantz, Galper, & Serock, 1977). Intergenerational programs have continued to promote positive and mutually beneficial interactions between old and young generations. According to Kemper and Harding (1999), younger generations tend to engage in “elderspeak” when interacting with older adults. These researchers define elderspeak as a form of overcompensation in verbal communication demonstrated by exaggerated prosody, slowed rate of speech, and simple vocabulary. Older adults may find elderspeak to be patronizing and even disrespectful as it intimates cognitive deficiency or sensory impairment. Intergenerational programs, those that are mutually beneficial and bi-directionally teaching, have reduced the prevalence of elderspeak and expressions of other types of negative attitudes (Horton, Baker, Pearce, & Deakin, 2010).

Educational intergenerational programs serve to transmit some form of knowledge that is deemed relevant to both groups. They can take the form of academic instruction, elders teaching the younger generation a skill that is important, such as basket weaving in a post-figurative society (Mead, 1967), or lesson in playing an instrument. The current research project will also fall within the category of educational program as the adolescent are teaching the older participants to use computers
and mobile telephone to enhance communication and expand social or familial networks.

**Foundations of the Present Study**

Many researchers have demonstrated the numerous benefits of learning, including computer technologies through intergenerational models (Morgan, Bertera & Reid, 2007; Jones, 2011; Shedletsky, 2006; Chung, 2008). The intergenerational study carried out by Morgan, Bertera and Reid (2007) was procedurally similar to the present study. Although the 2007 study did not measure well-being or quality of life, their main goal was to study social interaction with younger participants and the effects on older adult participants’ cognition.

Morgan, Bertera and Reid measured the effects of learning technology on affect, well-being and quality of life, scales developed by Barrett and Murk's (2006) and Hyde, Wiggins, Higgs, and Blane (2003). Additionally, in the Morgan, Bertera and Reid's study, they sought to determine older adult participants' cognitive intactness through self-report questionnaire and interactional skills (attentiveness, conversational skills, positive and socially appropriate behaviors). As those researchers observed, the older adult participants consistently showed positive behaviors and attitudes during the time spent
with their adolescent mentoring partners. This was not a goal of the research but a notable point of the study which stands out to the reader.

In emerging adulthood, a developmental task is to learn more positive and socially acceptable ways of interaction. Likewise, in the transition from middle adulthood to older adulthood, a behavioral shift should take place for optimal development (Erikson & Erikson, 1964). Intergenerational activities facilitate these social and interactional learning environments. Jones, Herrick and York (2004) discussed the substantial benefits of intergenerational activity between low-income older adults residing in subsidized housing developments and youths. This qualitative descriptive study paired emotionally disturbed youths with older adults. While older adults were seventy-four (74) years old on average, the mean age of the youths was fifteen (15) years. Similar to the present study, Jones et al (2004) collected self-report data at the end of the group meetings. Their findings indicated that significant therapeutic benefits were gained by the youth participants. The older adults benefited from the intervention in areas of instillation of hope, universality, interpersonal and intrapersonal learning, as well as guiding and mentoring the troubled youths. Activities must be age appropriate, as many
intergenerational programs tend to infantilize the elders. When the older adults partake in activities or games created for children, the older participants do not gain from the positive benefits of day programs (Salari, 2002).

In the above-mentioned study, the youths were high school aged and the activities consisted of games, crafts and picnics. The current study included adolescents ages 18 to 21 years old, as well older adults residing in low income neighborhoods, while the activities were technology based in keeping with the main goal and hypothesis.

**Purpose and Rationale of the Present Study**

The main goal of this study has been to explore the effects of an intergenerational intervention in which older adults learned specified digital communication technologies from older adolescents, and its effects on life quality and satisfaction on the older adult participants.

The secondary goal was to investigate the effects of adopting digital communication technologies such as Facebook, emailing, instant messaging and mobile phones for texting as means of communicating with family, friends and peers and thus
expanding social networks with new learning and adopting technology. To examine the impact of mastering these cultural tools on life quality and satisfaction of older adults as a separate effect of the inter-generational interface was an important aspect of the secondary goal.

Thirdly, the study examined the effects of the intergenerational intervention on the older adult participants' old age constructs and aging perceptions. By interacting with a younger cohort, older adults’ aging perceptions may be affected. Older adults can see themselves and their contribution to society as they spend time and develop a meaningful relationship with the adolescent participants. The adolescents will also be given the opportunity to create new attitudes toward older adults and age. Inter-generational interaction can allow both groups to see themselves through the eyes of another generational group.

The first hypothesis was that the older adult participants would be affected after the six week intergenerational intervention. This will be determined by lower scores on geriatric depression scales post intervention. The second hypothesis is that older adult participants’ life quality and life satisfaction would be affected as a result of learning and using digital communication technologies. In adopting digital
technological cultural tools into their lives, this development can lead to enhancement of social interactions, expansion of social networks and increase in connectedness to family, friends and peers in the older adults participants. The third hypothesis states that the intergenerational intervention would have an effect on the meanings of growing older and old age among the older adult participants.
CHAPTER III: METHOD

Participants

Twenty older adults between the ages of 65 and 80 years from an Adult Day program located in the Republic of Trinidad and Tobago participated in the study. All participants self-reported as being cognitively intact, which was the selection criterion for participating in the study. Twenty adolescents between the ages of 18 and 21 were recruited from the surrounding neighborhoods with flyers posted in the community center and local college campus.

Inclusion criteria for Day Program older adults participation in intergenerational intervention were as followed: self-reported cognitive intactness, ability to speak and write in English fluently, with at least five (5) years of formal education, being between 65 and 80 years old, not residing with anyone between the ages of 12 and 25, and having had no prior training in computer use for Facebook, instant messaging, or emailing. The Adult Day Program members with a medical diagnosis and in treatment for depression were excluded. A final inclusion criterion for the older adult participants was that they had friends and family members available on social networks to communicate with via technological channels.
For the adolescent participants to be included, they had to demonstrate their computer skills with emailing, surfing the web, and social networking skills as stated in protocol. Adolescents who resided with individuals over the age of 65 years were excluded from the study. Adolescents were recruited using fliers placed on notice boards throughout a local post-secondary institution, College of Science and Technology of Trinidad and Tobago (C.O.S.T.A.T.T.) located in small nearby of towns El Dorado and Trincity. Both towns of El Dorado and Trincity are within 10 minutes drive time from research site. The potential adolescent participants were interviewed briefly to determine their level of comfort with technology. In addition to their knowledge of digital technology, the focus was placed on their ability and willingness to mentor the older adults according to the study protocol for the assigned period.

The adolescents were given a stipend of U.S. $40.00 at the end of the six (6) weeks of the intergenerational intervention to compensate for transportation cost they incurred while participating in the study. At the end of the study, two of the laptops used in the intervention was raffled among the twenty adolescents participants. The other eight laptops were donated to the Adult Day Program at the end of the six week intergenerational program. For all participants, both older
adults and adolescents, it was necessary that they were able to attend the majority of sessions to be included in the study.

During the course of the study, four older adult participants dropped out and two adolescents did not attend the last two sessions. Therefore, the resulting total number of participants were sixteen older adults (n=16) and eighteen adolescents (n=18). As a result, the initial intervention group consisted of eight men and twelve women. The older adult participants consisted of five men and eleven women.

The age of the older adult participants ranged from 65 to 76 years, with the average of 68.88 years (the standard deviation of 3.61). At the time of the research all of the older adult participants had been involved with the day program for more than three months. According to the older participants' self report, 62.5% reported themselves to be in "good" health. A small number rated their health as "excellent", which comprised 12.5 % of participants, while the remaining 25 % rated their health as "not good". With regard to family relationships, 87.5 % of the older adults had children and grandchildren. As far as ethnic composition, 81 % were Afro-Trinidadian, while 19% identified as Indo-Trinidadian.
For all the participants, this was their first involvement with intergenerational or technology related research. In terms of their educational background, 12.5% had achieved a bachelors degree, while 37.5% had only an elementary school education. High school diplomas were the highest educational level of the remaining 50% of the participants. There were seven (7) male adolescent participants in this study.

**Older Adult Participants**

C. C. is a 77 year old male of African heritage. Before he retired at 60 years, he was employed as a supervisor in the City Corporation - Port of Spain Maintenance Division, with an elementary school education. Mr. C. has 13 children with his
wife, Mr. S. (who also participated in our study) and 19 grandchildren. Currently, there are two adult children living at home, while the majority of his children migrated to North America and Europe. Clarence stated that he is in good health with the exception of minor arthritic complaints. He is physically active and goes for daily early morning walks. He has glasses for reading but has adequate vision.

S. C. (Mr. C.'s wife) is a 72 year-old home maker of African heritage. She has never worked outside of the household and like her husband, she also has an elementary school education. Mrs. S. C. has reported that she is in poor health as she suffers from hypertension, a cataract in her left eye (having had surgery to remove a cataract from her right eye last year). Additionally, she has minor issues with poor leg circulation, which causes her ankles to swell which can be painful at times. Despite her physical complaints, she reported her mental health as generally good.

G. F. is a 69 year-old male of mixed heritage. He reported his ethnicity as “other,” writing "Spanish-Creole" in the space provided. The term "Spanish-Creole" within Trinidadian culture connotes a mixture of two or more heritages of Indigenous Indian (either Caribe or Arawak) with African, East Indian and /or Caucasian. The term evokes privilege or preferential treatment
to individuals categorized as such. Mr. G. F. is a retiree of the Port Of Spain port where he worked as a Dock Master. He has two years of tertiary education in addition he reported to be educated in theology as training for the priesthood. He and his wife Mrs. M. F. have 9 children, 27 grandchildren and great-grandchildren as well. He reported to be in excellent health and excellent mental health. Additionally, he appeared to be well read, well spoken, personable and youthful for his years.

Mr. G.F.'s wife, Mrs. M. F. is a 70 year-old housewife with an elementary school education. She reported that she is in poor health as a result of diabetes. Marion identified her ethnicity as "other," writing "mulattoe" in the space provided. In a later discussion, she explained that she had "good hair" as her grandfather was Dutch and her grandmother was an Afro-Trinidadian. Additionally, although her mother was "half-white", her father was "very dark" Afro-Trinidadian which would explain her "brown" complexion.

Ms. P. F., Mr. G. F.'s younger sister is 64 and lives with the couple. She has no children and worked as part of the clerical staff of the Customs and Excise department in the public service. She has graduated high school and entered the public service soon afterwards. She is currently attending evening classes in pursuit of an associate's degree in business
management and accounting. She reported fair health but did not elaborate on any physical or mental health issues. Unlike her brother who identified himself as other, Ms. P. F. reported her ethnicity as Afro-Trinidadian.

Mr. A. S., an Indo-Trinidadian semi-retired painter/builder/entrepreneur is 76 years old. He reported that he was in excellent health while also stating he was diagnosed with high cholesterol. He has 4 children with common-law wife Ms. I.V. Mr. A. S. attended trade school after seven years of elementary school.

Ms. I. V. is 61 years old with an elementary school education. She is a housewife but stated that she worked as a "domestic servant" before she became a mother of their four children and 15 grandchildren. Ms. I. V. described her ethnicity as "douglas" indicating she is of a mixed heritage between East Indian and African parents.

Mr. L. G. is 63 year-old retired tailor from The Trinidad and Tobago Defense Force. He is married to Mrs. M. G., 63, a housewife and checker [temporary time-keeper] for Unemployment Relief Programme (U.R.P.), which is a national maintenance and infrastructure development project. Lambert reported he had 3 stepchildren and did not fill out the question related to
grandchildren, while his wife indicated she had 3 children and 11 grandchildren. Mr. L. G. was in excellent health and is very good physical condition as he an avid runner and plays cricket for the local community team. His wife described her physical and mental health as good. Mr. L. G. attended trade school where he studied tailoring after his 7th year of elementary school. Mrs. M. G. attended secretarial school after her 7 years in her local elementary school. She is currently semi-retired as she continues to work with the U.R.P. for two weeks from 7:00 am to 9:00 am approximately once every two months. She and her husband both identified their ethnicity as Afro-Trinidadian.

Mrs. S.T. is a 66 year-old housewife and semi-retired seamstress. She is Afro-Trinidadian with 4 children and 9 grandchildren. She has an elementary school education and learned to sew through an apprenticeship. She and her husband live alone while their children have migrated to North America. Her physical health is described as fair and her overall mental health reported as good.

Ms. E. S. is an Afro-Trinidadian retired domestic worker. Enid was never married and lives with 4 adult sons. She did not indicate the number of grandchildren in her questionnaire although she was gently reminded that the spaces were left empty. She added that her health was poor, indicating she had
mobility problems with arthritic pains in her joints, high blood pressure as well as diabetes. She did not receive formal education beyond a primary school level but is an enthusiastic student of Caribbean history and politics. She volunteers with a national political party in their recruitment drive and other events.

Ms. C. B. is a 67 year-old Afro-Trinidadian and a retired woman police constable (W.P.C.). She became a police constable soon after graduating high school. Ms. C. B. was never married and has no children. She indicated that her health was fair and has good overall mental health.

Mrs. A. J. is married and worked as a librarian before she retired. She is 62 years old with 6 children and 8 grandchildren. She is Afro-Trinidadian and reported her health as poor. She indicated on her questionnaire she has "fibroids" and "stomach troubles". Annette graduated from high school, and completed 2 years of university but did not complete her third and final year.

Mrs. J. F. is divorced with 5 adult children, two of them are still living at home. Mrs. J. F. identified her ethnicity as other, "Spanish" to indicate her Indigenous Indian ancestry. She stated that she graduated high school, and attended secretarial
school. She worked as a secretary in the public service before she retired. Mrs. J. is 61 and although she was recently diagnosed with glaucoma, she is in a very good mental state generally. She indicated on her survey that she is physically and socially active as a volunteer netball coach, assists in the "mass camp" during the carnival season and enjoys "partying".

Mrs. J. T. is also 61 and is a retired bank clerk supervisor. She has 2 adult children studying in England. She is Afro-Trinidadian and is in excellent physical and mental health. She and her husband own the small local gym where she instructs yoga. She volunteers as a pseudo-pilates instructor at the local community center running a small class. She has an associate's degree in banking and is currently taking psychology classes at The University of the West Indies as a non-matriculated student.

Mrs. M. P. is an Afro-Trinidadian 62 year old woman in good physical and mental health. She also indicated she has arthritic pains in her ankles and suffers from migraine headaches "off and on". She listed her pre-retirement occupation as housewife and primary school teacher. She graduated from high school and is currently attending sewing classes once a week at the John Donaldson Technical institute. She has 3 children, and 4 grandchildren.
Site Description

The Adult Day Program is a non-governmental organization located in an sub-urban village in the local community center in eastern corridor. The sub-urban community is a small town situated in the north-eastern of Trinidad. This community is significant as it is one of the first housing projects created in the 1980's to accommodate low and low-middle income families. The government built settlement consists of one hundred and fifty 3-bedroom single family houses and eighteen five-story apartment buildings on the northern side of the housing development. Although the houses were prefabricated houses and identical when built, today, the houses have been greatly modified by their occupants.

Walking through the north-eastern community, the homes are a reflection of the owners' style, family size and financial resources. Some of the houses were expanded to add rooms horizontally while some expansions were more elaborate and expanded vertically. The homes were generally renovated attractively and most had flower gardens or small but tasteful verandas. The town has a government managed early childhood education center, an elementary school, a secondary school and several post-secondary programs in the new community education center. This suburban community also has a large recreation
ground accommodating netball court, a basketball court, a soccer field and two netted cricket fields.

The suburban small town has approximately fifteen thousand residents and is considered a high crime neighborhood. According to the local newspapers, The Express and The Trinidad Guardian as they reported a shooting on August 14th, 2013, this community is a main "hotspot" of gang violence, drug trafficking and gun related offenses. The daily newspapers were reporting an alleged gang-related homicide. The incident had two gunmen firing an automatic weapon at a group of men sitting outside one of the apartment buildings. Although the nation has had a dramatic increase in violent crimes in the last five years, homicide and crime rates vary from one neighborhood to the next. According to the Trinidad and Tobago Police Service website, on October 9th, 2013 there were 303 murders and 522 reported incidents of shootings and serious violence incidents for this year to-date. Despite the veil of crime and violence in the country and community, the community center has continued to assist its residents with positive programs and events.

The facility is accommodates approximately 50 participants. The program offers arts and crafts classes such as sewing, macrame, knitting, batik, tie-dye, crocheting. They also offer physical activities as chi-gong, salsa dance lessons, and
"pilates" which was similar to Yoga exercise. On the last Friday of each month, the center holds a meet-and-greet event which is open to the community. This social event was designed to bring community members together as a unified group while developing positive social bonds in a neighborhood beleaguered by crime and violence. This suburban community center committee has held bake sales and bazaars to raise funds to finance new projects and assist in outreach programs for the older adults within the community. This north-eastern community Adult Day Program is relatively new addition to the community, in existence for less than three years. The program was developed through a governmental initiative grant to address the issues of aging and wellness in urban communities.

**Informed Consent**

The Institutional Review Board (IRB) of the Graduate Center of the City University of New York approved the proposed study. IRB approval from the North-eastern community Day Program Center was not necessary as approval was obtained from the researcher's affiliated institution. Additionally, there was no IRB operating within this north-eastern community Day Program system in place. When the potential participants were recruited from the program and local college, they were all given the
informed consent to carefully read and sign at their leisure if they agreed to participate.

**Procedure**

Having recruited the participants, informed consent was obtained from each participant, and data were collected over an eight week period. One week before the intergenerational activity, the Geriatric Depression (Sheikh & Yesavage, 1986), Quality of Life (Hide, Wiggins, Higgs & Blane, 2003), Life Satisfaction (Barrett & Murk, 2009) scales as well as the self-report instruments and demographic questionnaires developed for this study were administered to the participants (Appendices C,D,E,F,G,H,J, and K). After eight weeks at the conclusion of the intervention, with the exception of the demographic questionnaire, the same measures were administered to the participants to be completed. The questionnaires, pens and pencils were given to each participant when they submitted the signed consent form.

The older adult participants were given a paper journal with the instructions to write frequently about any thoughts, feelings, behaviors, beliefs and any related ideas they believed to be related to or associated with growing older and the aging process. They were instructed to continue with their journaling
exercise consistently for eight (8) consecutive weeks throughout the intervention. Throughout the study participants were gently reminded to continue the journaling aspect of the research when they felt comfortable to do so.

The digital communication technology mentoring was given for two hours each week, for six consecutive weeks. The adolescent participants visited the Adult Day program center where they were paired with an older adult. A group of twenty older adults were initially recruited but four participants dropped out at the post-test stage. The adolescent participants guided the older adults in learning to use the specified technologies according to the protocol (see appendix H). The group met on Thursdays from 2:00pm to 4:00pm for six consecutive weeks for the intervention following the protocol provided by the researcher. Using the laptops provided, adolescents assisted the older adults in setting-up email accounts. The older adults were also instructed in Instant Messaging, setting-up Facebook profiles and maintaining their Facebook accounts.

Adolescents assisted their partners in setting up Twitter accounts, although this was not included in the original protocol. The youths demonstrated the process of focused internet searches using Google, actual examples as observed, “holistic treatment for diabetes” done by Mrs. F and “true
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sponge cake recipe” by Mrs. T. Upon setting up the older adults’ Facebook profiles, their "Friend" contact list was generated. The purpose of this initial search for “friends” was noteworthy as it gave the elder significant persons with whom to communicate.

At the end of the eight week period, depression inventory, life satisfaction index, quality of life scale and open-ended questionnaire were re-administered to participant as indicated earlier. Participants were also given an open ended questionnaire regarding their experience in the intergenerational intervention. Questions included “How do you feel about the program?” and “What was it like spending time with an adolescent?”

After completing the inventory, the older adults were asked to participate in a focus group. The discussion was initiated by minimal prompts and open-ended questions from the researcher, thereby allowing the discussion to take its natural course. The discussion was not steered in any direction by the researcher, with the exception of the opening question, “what does old age and growing older mean to you?” The prompt was the same as in the open-ended questionnaire the older adult participants completed earlier in the day. Although the questions were the
same, the intention was to encourage another form of communication to enhance the qualitative data collection.

The journals were collected at the end of the eighth week, all and any identifying notations were removed. The journals (which were not fully utilized) and focus group notes were transcribed into a software program by the researcher. The software used for qualitative thematic analysis was Atlas ti. 7.0 version. When all identifiable information was removed from the raw data, transcriptions were done in a word processing software. The electronic file of raw data was then fully exported into software program, and the data were analyzed thematically. The handwritten materials were then shredded. The completed instruments were transferred to SPSS and hard copies were shredded.

Intergenerational researchers, Ward, Kamp and Newman (1996), stated that initial interaction between the groups should be spontaneous. With this suggestion in mind, the current study allowed the individuals to self-select pairs. Tse and Howie (2005) discussed the elder's need for companionship and activity. Based on the results of Tse and Howie's research, it was expected that the elders would benefit from the interaction. The researcher gave instructions to work in pairs but did encourage the selection between older adults and the
adolescents. Other intergenerational studies suggested that it was important for the older participants not to have previously interacted with the adolescents. Familiarity or previous contact with the adolescents may affect their selection when choosing a partner for the intervention.

On the first day of the intervention, the participants were reserved in their feelings during the initial meeting. The participants appeared to be bashful when they were asked to sit in pairs at each laptop station. In reference to previous intergenerational research, it can suggested that the participants should be given the opportunity to select their study partners (Aday, Rice, & Evans, 1991). As the participants continued to be reserved about choosing a partner the researcher decided to move the process along. The researcher eventually placed the participants in random pairs using a random draw system. All adolescent participants' names were written on plain white paper, folded and placed in a paper cup. Then the older adult participants were asked to draw one name from the prepared names in the paper cup. The adolescent whose name that was drawn from the paper cup became the elder's partner for that first session. Thereafter, the pairs were created according to individual's preferences and without researcher's prompts. As the participants continued to interact on a weekly basis, the
elders and adolescents became more comfortable, as another adolescent claimed, "it turned out much better than I thought, it was cool, I made some friends [shaking hands, talking and laughing before intervention, exchanging contact information, etc].

According to informal observations by the researcher, many of the participants from both age group arrived at the site between 60 to 30 minutes before the scheduled start of the structured activity. During this time, there was lively and jovial discussion among small groups of both generations. Informal observations of the intervention have demonstrated positive anecdotal outcomes within the confines of the research settings. It is unknown how the participating groups will interact outside research settings or the whether the behaviors observed will be maintained long after the intervention has ended. Therefore, this study was intended to develop a weekly routine, build a relationship between the adolescents and the older adults, while at the same time keeping the theme of communication technologies as the focal point of all involved.
Instruments

The older adults’ socio-demographic data collected at the beginning of the study consisted of information regarding gender, birth date, religion, ethnicity, years of education completed, diagnosed and perceived health status, number of children and grand-children. Open-ended questionnaires on perceptions of aging and growing older were also collected for baseline data. Other data that were collected at baseline related to older adult's life satisfaction, quality of life and depression levels. No baseline or socio-demographic data were collected on the adolescent participants. The younger group received one opened-ended questionnaire pertaining to their notions of older adults, growing older and their experience in an intergenerational research project (Appendix G).

Sheikh and Yesavage's (1986) Geriatric Depression Scale (GDS) is a brief 15-item depression scale which took participants approximately 10 to 15 minutes to complete. The instrument was created to be used by cognitively intact or mildly impaired older adults between the ages of 65 to 80 years. This measure is not intended as a diagnostic tool but to indicate the severity of symptoms when present (Yesavage,
Abrams, Young & Shamoin, 1983). The scale reveals affective and/or behavioral symptoms of depression. Examples of questions include: "Are you in good spirits most of the time?" Do you often feel helpless?" "Do you enjoy getting up in the morning?" and "Do you find life very exciting?". The cut-off score for this measurement is six points which indicates probable depression.

Likely depression scores are calculated based on instructions provided by Sheikh and Yesavage (1986). The instrument's ability to identify individuals with symptoms indicative of depression is high. Yesavage, Abrams, Young and Shamoin (1983) validated the GDS's use for both hospitalized and normal elderly living in the community without complaints or history of depression. Yesavage, Abrams, Young, and Shamoin (1983) stated the instrument had a .94 alpha reliability coefficient in their study of mixed participants. Their 1983 study consisted of depressed and non-depressed older adults, where the GDS showed high internal consistency and reliability.

Hide, Wiggins, Higgs and Blane (2003) constructed the Quality of Life Scale Early Old Age 65 years to 80 (CASP-19) around four themes affecting well-being. This self-report short form consists of 19 items for individuals who are cognitively intact or mildly impaired. The items are composed in a likert
scale ranging from “often” to “never”, taking the participants
approximately 15 minutes to complete the entire questionnaire.
The questions were geared to tap into notions of pleasure,
autonomy, control and self-realization. The questions on control
include: “I feel what happens to me is out of my control” “I can
do the things I want to do”. Questions such as, “I enjoy the
things I do” and “I look back on my life with a sense of
happiness” were created to capture experiences of pleasure in
the older adults. Another line of question such as, “I choose to
do things I have never done before” and “I feel that life is
full of opportunities” attempts to tap into the issues of self-
realization.

Barrett (2005) designed an innovative instrument geared
towards measuring successful aging in individuals within their
third age. This scale was based on a theoretical framework from
earlier works by Neugarten, Havigh, and Tobins (1961) on life
satisfaction. The LSITA original 35-item instrument has shown to
be valid and reliable when used for its specific population age
group, individuals between the ages of 65 and 80 years. The
short form used in this project has not been used in any
published study to date with less than 600 participants. More
recently, researchers have used 35-item instrument with
individuals as young as 50 years old with good validity
(Nickcolich, Feldhaus, Cotton, Barrett, & Smallwood, 2010).
The Life Satisfaction Index for the Third Age: Short form (LSITA) created by Barrett and Murk (2009) was generated as a concise 12-item measurement of life satisfaction for individuals over the age of 65 years old. The instrument poses such questions as, “As I grow older, things seem better than I thought they would be”, “This is the dreariest time of my life” and “I am just as happy when I was younger” on a Likert scale from strongly agree to strongly disagree. The LSITA short-form consists of 12 questions, taking the respondents approximately 15 minutes to complete. This measure can be used as a strong indicator of fulfillment in the older adults' golden years.

The Older Adult Qualitative Measurement was constructed for the current study. This instrument was designed to tap into the specific feelings and experiences of growing older at the study site. The instrument is an open-ended measure posing questions to provoke thoughts specific to the responder within their environment. Questions such as, “What does growing older and old age mean to you” and “What are some advantages of old age to you” address the respondents' personal and intimate experience with old age within their village in Trinidad and Tobago. This 7-item open ended questionnaire was completed by the respondents in approximately 15 minutes. As an observation by the researcher, the older adults appeared to be significantly
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contemplative, taking a longer time than anticipated while completing this instrument.

Focus group session among the older adults was held after the written instruments were completed and returned to the researcher. There was an hour break between the completion of the written instruments and the start of the focus group. The participants were provided with refreshments and the seating arrangements were modified into a circle. The seating arrangement was created to allow the participants full view of each other thereby promoting dialogue within the group. There was minimal prompting by the researcher to the group. The questions from the Older Adult Qualitative measure were verbally repeated to the group, “What does old age and growing older mean to you” and “what are the advantages and disadvantages to growing old”? These questions were posed and the participants were then invited to carry the dialogue. There was little to no interruptions from the researcher, extensive notes were taken on the main and recurring points of discussion.

The older adult participants were given journals at the beginning of the first week of the intervention with instructions to write frequently about their experiences, emotions, thoughts and beliefs concerning old age and growing older. They were asked to engage in free writing as often as they felt comfortable. The older adults were advised that they
should not focus on grammar and spelling but to write when they felt inspired to do so without concern for syntax or language rules. They were re-assured of their confidentiality and that any and all identifiable details or information will be removed from the raw data and before data analysis.

Research Design

The quantitative portion of the current study used a repeated-measures design where the same dependent variables were administered more than once. The current study lasted eight weeks which allowed for measurements to be taken twice, at the initial meeting and after eight weeks. Although the number of participants was small, this group size is typical in these types of intergenerational and realistic for adult-day program setting. The group size also allows for optimal control of the activity and accurate monitoring by the researcher. These limitations were carefully considered and addressed with the use of analytical methods as using multiple research methods, incorporating qualitative methods, using repeated measures within the quantitative data and using a mixed methods approach to data collection.

Operational Hypothesis
Quality of life, depression, and life satisfaction were the dependent variables studied among the adult day program participants. As mentioned before,

Hypothesis 1: Lower levels of Geriatric Depression scores (GDS; Sheikh & Yesavage, 1986) on the second measurement at the eighth week of the intervention.


Hypothesis 3: The older adults beliefs about aging and growing older would be affected by the intervention as seen in their answers on the pre-test and post-test questionnaires, as well as in the focus group discussion at the end of the intervention.

Auerbach and Silverstein (2003) discussed the importance of transparency in interpretation, reading and re-reading raw data, communicability, and addressing personal prejudices to lessen the likelihood of the researcher's arbitrarily imposing subjectivity into the data. These measures are meant to increase objectivity when interpreting raw data. The nature of qualitative data implies that the researcher’s subjectivity is present in analysis and interpretation, making qualitative data a much more difficult
Hendricks (1995) emphasized the importance of qualitative research in social gerontechnology as the most suitable approach as it gives a voice to older adults.

Qualitative methods, more so than other research methods used in research on aging issues, are employed to elucidate meaning, develop situated knowledge of processes unique to the research site with the goal of social advocacy and raising general awareness of issues related to the research topic. The major strength of qualitative research, especially when studying processes in older adults, is that it enriches our understanding of their experiences and allows a greater appreciation for their lives and issues.

The researcher, at every step of coding and analysis consistently checked and re-checked for transparency and communicability. This is done to ensure objectivity, that is, representing the participants perspectives authentically. Ensuring that another coder would have the same interpretation of the material being analyzed. Being aware of the task ahead, and the biases involved, the present study is an attempt to determine the benefits to be gained from intergenerational relationships mediated by teaching and learning digital technology.
CHAPTER IV: RESULTS

The current study was designed to determine the extent to which participation in an intergenerational program affected the older adult participants, their levels of depression, life satisfaction and quality of life. Also examined were the effects of expanded social networks through digital communication technologies on quality of life and life satisfaction levels in the older adults. The researcher sought to investigate the effects of this intervention on aging attitudes and the meaning of growing older in Trinidad and Tobago. The descriptive analyses of the variables will be discussed in the first section of the results followed by the qualitative analyses will be used to examine each specific hypothesis. All quantitative data were statistically analyzed using SPSS (Version 21.0, 2012). Atlas.ti. (version 6.2, 2011) was used to conduct all qualitative data analyzes.

Descriptive Statistics

The study included 16 older adult participants who self-reported being cognitively intact. Twenty older adults were recruited for this project. Four older adult participants
discontinued participation within the first two weeks of the study. After careful review, the participants who left the study did not share any specific commonality which may have resulted in their attrition. Attendance and punctuality remained consistent until the end of the project. Among the individuals who participated in the intervention, at Time 1 prior to initial attrition, three (3) older adults of the 20 (15%) scored as being likely to have depression. At Time 2, the number of participants who met the criteria for probable depression had not changed although the number of participants in the sample had changed. The number of participants with probable depression was now 3 of the 16 (18.75%) participants. Time 1 and Time 2 means scores as well as the standard deviation for the Geriatric scale increased as shown in Table 1.

<table>
<thead>
<tr>
<th>TIME</th>
<th>GDS MEANS</th>
<th>GDS STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.87</td>
<td>1.62</td>
</tr>
<tr>
<td>2</td>
<td>3.29</td>
<td>2.82</td>
</tr>
</tbody>
</table>

Note. n=16
The self report health inventories were closely evaluated as a means of assessing the extent to which pain, mobility challenges, mental status, or other health issues may affect these outcomes. Evaluation of the self report where the participants were asked to answer questions such as, "Do you live with constant pain?" or "Do you have any mobility limitations?" The overwhelming majority of participants answered "No" to these questions and reported good overall health. Table 2 shows the self-report health status of the older adult participants taken at Time 1. This measure was taken once at the start of the intervention as the researcher believed health statuses are unlikely to change significantly over an eight week period.

Table 2. Self-report Health Status taken at Time 1

<table>
<thead>
<tr>
<th>HEALTH STATUS</th>
<th>PERCENTAGE (NUMBER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>12.50 (2)</td>
</tr>
<tr>
<td>Good</td>
<td>62.50 (10)</td>
</tr>
<tr>
<td>Not Good</td>
<td>25.00 (4)</td>
</tr>
</tbody>
</table>

Note. n=20

In response to the question on mental health status, all participant stated that their mental health status was good and
no issues were reported on this question. Likewise, no mobility limitations were reported in the questionnaires. All of the participants appeared to have good locomotion throughout the eight week period of the study. The research site was located within walking distance from their homes. Walking time from their homes to the community center took between 5 to 15 minutes for the older adult participants.

Barrett and Murk's LSITA short form (2009) was administered at Time 1 and Time 2 to the older adult participants. Individual scores ranged from 36 to 49, the higher scores representing unsuccessful aging techniques and lowered life satisfaction concepts. The results are shown in Table 3.

Table 3. LSITA short form Mean and SD scores

<table>
<thead>
<tr>
<th>TIME</th>
<th>LSITA MEAN</th>
<th>LSITA STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150.75</td>
<td>8.39</td>
</tr>
<tr>
<td>2</td>
<td>154.25</td>
<td>11.62</td>
</tr>
</tbody>
</table>

Note. n=16
The quality of life measurement used in this study was Hyde, Wiggins, Higgs and Blane's (2003) CASP-19. This measure has a special psychometric quality as it can be used as a domain model of the four separate components or in totality as a single factor model. According to Sim, Bartlam and Bernard (2011), although the CASP-19 has been validated in totality, domain modeling should not be used as perceptions of quality of life is difficult to assess and must be suited to its population. Sim, Bartlam and Bernard (2011) further added that factors such as control and self-realization were assessed with questions such as, "I feel free to plan for the future" and "I choose to do things I have never done before" are suspect. The analysis will look at the CASP-19 as a single model rather than to look at each of the four factors measured.

Table 4. CASP-19 instrument Mean and SD scores

<table>
<thead>
<tr>
<th>TIME</th>
<th>CASP-19 MEAN</th>
<th>CASP-19 STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.01</td>
<td>4.53</td>
</tr>
<tr>
<td>2</td>
<td>42.25</td>
<td>2.86</td>
</tr>
</tbody>
</table>

Note. n=16
Although the individual domains scores for the CASP-19 were not considered, it should be mentioned that the mean scores for self-realization fell significantly from Time1 to Time 2 from 13.2 to 9.6 respectively.

**Inferential Statistics**

**Hypothesis I**

The study's findings as related to the hypotheses are discussed in this section. The first hypothesis inquired into the effect that the six week intervention would have on the older adults' depression scores as determined using the GDS. The underlying assumption was that geriatric depression scales post-intervention would yield lower scores. To analyze the data, a within-subjects design was used to measure the effectiveness of the intervention after an eight-week gap between Time 1 and Time 2. A paired sample t-test was carried out to determine whether the lowered levels of the Geriatric Depression Scale (Sheikh & Yesavage, 1986) scores was a result of the treatment. The dependent variable in the hypothesis was the Geriatric Depression Scale scores and treated as interval data. The independent variable was participation in the intergenerational intervention and represented as categorical data.

The paired sample t-test compared the mean of Time 1 at the initial meeting to Time 2 one week after the intervention ended. There was no significant difference in depression after the
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intergenerational intervention (M₂=3.29, SD₂=2.82) when compared to Time 1 (M₁=2.87, SD₁=1.62; t(16)=.4012, p>.05) The magnitude of the treatment difference in the means was medium based on Cohen's d. As the Geriatric Depression scale has a cutoff 6 points or greater to indicate probable depression, the mean scores suggest the average older adult participant was unlikely to be depressed.

Graph 1: Participants' G.D.S. pre and post test results

**Hypothesis 2**

The second hypothesis assumed that older adult participants' life quality and life satisfaction will be affected as a result of learning and using digital communication technologies in the intergenerational intervention. The notion that by adopting digital technological cultural tools into their
lives, older adults can gain an additional skill. Their new ability enhances the possibility of social interactions, expand social networks and increased their connectedness to family, friends and age-mates.

A paired samples t-test was performed to determine if there was a significant effect of learning new technology in the intergenerational intervention. Enhanced levels of the dependent variables scores, life quality and life satisfaction, would be observed among the older adults who participated in the intervention.

The life quality measurement scores on the CASP-19 (Hyde, Wiggins, Higgs, & Blane's, 2003) was the dependent variable, while the independent variable was the intervention's participation. Based on the analyses, it can be concluded that there was no significant difference between the pre-test (M=44.01, SD=4.53) and post-test (M=42.25, SD=2.86; t(16)=.1853, p>.05) scores.
Graph 2: Participants' CASP-19 pre and post test results

Barrett and Murk's (2009) life satisfaction instrument designed specifically for older adults was used in a paired-samples t-test. This test was conducted to determine whether lower levels of the Life Satisfaction Index for the Third Age (Barrett & Murk, 2009) scores would be seen. The dependent variable was the Life Satisfaction Index for the Third Age, LSITA and the independent variable was participation in the intervention. The paired-samples from Time 1 to Time 2 showed no significant difference ($M_1=150.75$, $SD_1=8.39$, $M_2=154.25$, $SD_2=11.62$; $t(16)=0.1047$, $p>.05$).
Outliers in the Dataset

In further statistical analyses, removing the four scores that represented the most extreme scores from the dataset, the results showed a completely different outcome for the two of the three measurements used in this study. The life quality measurement scores on the CASP-19 (Hyde, Wiggins, Higgs, & Blane’s, 2003), when re-analyzed after removing the four outermost scores can be concluded that there was significant difference between the pre-test (M=42.15, SD=3.287) and post-test (M=44.25, SD=3.186; t(12)=0.0487, p<.05) scores.
Likewise for the life satisfaction measurement, Life Satisfaction Index for the Third Age (Barrett & Murk, 2009) scores were also significant after re-analyzing the dataset without the four outermost scores. The results of the paired-samples from Time 1 to Time 2 showed significant difference ($M_1 = 147.71$, $SD_1 = 7.31$, $M_2 = 157.71$, $SD_2 = 10.43$; $t(12) = 0.037$, $p < .05$). On the other hand, while the Geriatric Depression Scale (Sheikh & Yesavage, 1986) also changed when re-analyzed, the results did not show significance of the intervention in a paired-samples t-test of $t(12) = 0.74$, $p > .05$.

**Hypothesis 3**

The third hypothesis posited that the intergenerational intervention will have an effect on the older adult participants' ideas of aging and growing older. As the hypothesis is supported by qualitative data, the results will be discussed later in the section, Qualitative statistics.

Hypothesis three focused on the same open-ended questions given to the participants before and after the intervention. The analysis considered the themes discussed by the participants before their interaction within a specific setting with the adolescents. This hypothesis anticipated that after six consecutive weeks of intervention, the older adults' perception...
of aging and growing old would be changed in a positive direction.

**Qualitative Statistics**

In the open-ended narratives and focus group session, differing patterns of beliefs about growing older and aging emerged. In the initial responses to the questions such as "What does old age mean to you?" and "What are some advantages and disadvantages of growing older?", the notions of powerlessness, challenges of adaptation and transition to senior status were major themes. In the post-test responses, cultural values such as respectability, reputation, wisdom and religion were prominent.

In the focus group discussion, individual and cultural values were debated. Although not depicted in the open-ended questions, health and gender issues were discussed energetically. Minor recurring themes of isolation, family and other forms of network support, and shifts in identity were also mentioned in both the open-ended questionnaire, but more so in the focus group session. A content analysis of the narratives revealed common themes within each of the narratives as follows: a) health and healthcare, b) governmental and community support, c) happiness, d) technology, e) financial freedom, f) respect and reputation, g) isolation, g) religion and spirituality and
family. These themes are discussed in greater detail in the qualitative findings section of the study.

Hypothesis 3 (qualitative findings continued)

The older adult participants were given open-ended questions at the pre-test and post-test stages of the study. This hypothesis posited that participants’ understandings of aging will change as a result of their participation in the intergenerational intervention. When asked the questions, "What does old age mean to you?" and "What are some advantages and disadvantages of growing older?" in the pre-test session, the responses were generally negative.

Powerlessness and lack of autonomy were the two themes raised as the participants discussed their feeling about their financial future. These themes were mentioned by more than half of the participants as a disadvantage of growing older. The older adults living on a fixed income were concerned about their financial inflexibility as a draw-back to aging, as reflected in the statements: "...we live on pension, we can't do the same things " and "everything is very expensive, it's hard for people our age to buy food etc." Considering that the Carnival celebrations were imminent (at the end of December), two respondents listed feeling left out of the festivities as a
disadvantage as a result of their age, health and high participation costs to join a carnival masquerade band.

The participants also mentioned their fear of crime in their neighborhood and the country in general. They saw growing older as a deterrent to move from the high crime areas to safer neighborhoods. As one respondent wrote, "we have plenty crime, people not able to move [financially unable to relocate to safer neighborhoods]..." There is some concern by the older adult participants being potential crime victims. They briefly mentioned this point in the questionnaire but elaborated extensively in the focus group session.

Powerlessness and lack of autonomy were depicted through the discussion of health and health care concerns. One respondent wrote as a disadvantage, "sickness will come" and "I feel tired a lot" and yet another wrote, "poor hospital and clinics", and "takes longer to get better as you get older". As discussed in the introduction (Addington-Hall & Kalra, 2001; Atchley, 2006), sickness, physical decline and rate of aging vary from one individual to the next. Atchley (2006) has written extensively on the correlation between the rate of age related declines and physical activity and diet. Therefore, according to Atchley (2006) and Addington-Hall and Kalra (2001), degeneration in old age is not an inevitable consequence. Slowing down the processes related to decline and successfully
aging can be dependent on the lifestyle choices. The participants in the study believed that physical deterioration and illness are an inevitability rather than an avoidable consequence of aging and growing older.

Other themes highlighted in the questionnaires were isolation, distance from family members, lost networks and loneliness were notions representing disadvantages of old age. Although the questions were neutrally posed, overall, the elicited responses were negative such as, "they [children] grow up and move out, you're alone... you have to keep yourself busy", "miss my co-workers but enjoy having my time to do what you want", "...as a widower, living by myself and cooking and washing for myself [is] hard cause nobody will do it for free", "nothing to do if by yourself or a little friend [a companion]" and "staying home more by yourself".

The results from the open-ended pre-test and post-test questionnaires were thematically analyzed. In total, there were forty-three (43) referenced disadvantages mentioned by the twenty respondents on the pre-test questionnaires. The respondents referenced issues which can be possibly addressed with lifestyle changes based on successful aging theories (Moody, 2009; Linderberger, Lovden, Schellenbach, & Kruger, 2008; Fry, 2009; Atchley, 2006; Baltes & Mayer, 1999; Erikson, 1997)
such as, "...don't party anymore...", "...can't lime [socialize usually with alcoholic beverages] with friends as much...", "...diabetes prevents me from enjoying certain foods", "developed high blood pressure", "we have a few more years before sickness come knocking", "poor hospitals", "put on a lot of weight", and "can't exercise and keep fit". These concerns about growing older and aging, according to aging theorists are avoidable or can be diminished greatly. Linderberger, Lovden, Schellenbach and Kruger (2008) have demonstrated that the rate of aging, age related illnesses such as diabetes, hypertension, and certain cardiovascular related ailments can be influenced by exercise, diet, and quality of life. While many of the respondents commented on the healthcare system negatively, successful aging theories have indicated that hospital visits can be shortened or non-existent which is dependent on an older adult's physical fitness or activity level. Continued cardiovascular workouts and healthy diets into older adulthood can have a direct affect on life quality, aging processes and health. In contrast, with a sedentary lifestyle, and high-trans fat, high-carbohydrate and high calorie diet, ill-health can be a likely outcome.

Comparatively, in the pre-test open-ended questionnaires, there were only thirty-one references classified as advantages in response to the posed questions. The elicited responses were
thematically analyzed under the following constructs: wisdom, knowledge, increased sense of religion, interpersonal relationships and increased appreciation. Of the twenty respondents, fourteen (14) listed wisdom or increased knowledge as an advantage of growing older and the meaning of old age, using descriptors such as becoming "smarter", "having more knowledge" and "knowing what is important and what is not important".

Other participants wrote, "being a grandmother is very good", "getting along with family and friends", "father/mother type figure to members of their community", "being kind to others", and "appreciating family and friends". These direct quotes are in response to the question about advantages of old age and growing older focused on appreciation of family, and enhanced interpersonal skills.

According to Erikson's (1963; 1997) model of aging and development, the critical tasks are related to generativity, self-reflection, self-evaluation, and identity exploration during the seventh, eighth and ninth stages of life. Considering the age range of the participants of the present study, Erikson's model can be used to examine their responses on the completed surveys. The older adults discussed issues of wisdom, interpersonal relationship, loneliness, health, new roles and identities, and family concerns in their written responses.
Persons trapped in the seventh developmental stage are plagued with boredom and continual focus on past events (Erikson, 1963; Erikson, Erikson & Kivnick, 1986). The psychological task at this seventh stage is generativity, that is, sharing and giving back to other members of the society. The generativity can be seen in the elders new roles as mentors, advisors and being like "mother and father to the community".

Self-reflection and self-evaluation in the eighth developmental stage is unique as it involves a personal meaning making of experiences in the earlier years. This can engender feelings of integrity, fulfillment and harmony when achievements outnumber failures and disappointments. In the current study, based on the surveys, measures and observations, the participants in general felt fulfilled. The majority of the participants, that is, fourteen elders (87.5%) believed they achieved wisdom and knowledge. Others embraced their new role as grandparents, and enjoying their relationships with their family members and other relatives.

In the ninth stage, looking at adults in the 70's, 80's, 90's and older, issues of mistrust or apprehension regarding their health, re-examination of identity, concerns with close relationships, and coming to terms with universal oneness and end of life are at the forefront (Erikson, 1963). The vast concentration on health, illness and fear of being hospitalized
is demonstrated in the participants' survey responses as well as their focus group discussions. Church attendance, oneness with God, and considerations of end of life issues are ideas associated with the ninth developmental stage. Some of the participants reported regular church attendance and increased spirituality and religiosity as advantages of old age. The notions of religion and spirituality that increased with age were discussed to a greater extent in the focus group session. Glicksman and Aydin (2009) have also discussed the positive relationship between aging and religion in their cross-cultural study.

The post-test responses showed a significant difference on the question "what are the advantages and disadvantages of old age and growing older?" after eight weeks intervention. Although there was a marked decrease in overall number of responses, the respondents’ responses regarding the disadvantages decreased. For the post-test data collection meeting, there were sixteen participants. There were twenty nine positive responses. These positive responses were coded as an advantage of growing old and being an older adult. The respondents stated again that wisdom was a main advantage of older age. Other advantages were their positions as respected members, role-models and parental figures within the community. In comparison, responses that were coded as negative decreased to thirty-three (compared to how many?).
In the post-test analysis of the open-ended questionnaire, the elders listed a total of 33 disadvantages of growing older. There were many one-word answers at the post-test session such as "money", "finance", and "health". Since these were listed under the question asking the respondent to state the disadvantages of aging and growing older, it can be assumed that the respondents are indicating a lack of or deficiency of "money", "finance" and "health".

The adolescents also completed an open-ended questionnaire about their beliefs about aging and growing older. Their responses are in keeping with previous research on Caribbean university students’ perspectives of older adults. Prudent and Tan (2002) concluded that students from the University of the West Indies Trinidad campus in general had positive feeling towards older adults. They were particularly fond of other adult females between the ages of 65 and 74 years old. The least favored group of older adults were old-old adult males between the ages of 75 to 99 years old. Prudent and Tan (2002) believed these positive feelings about older adult females can be explained by the students' self-reported surveys (Barrett & von Rohr, 2008; Jarrott & Bruno, 2007) in which the majority of the students reported having a close positive relationship with an older adult female family member, extended family member and neighbor.
The students from this intergenerational project overwhelmingly used positive adjectives to describe the process of growing older and old age. All of the 18 adolescent respondents listed wisdom, or knowledge as an advantage of old age in their survey. Another widely held perceived advantage of aging in Trinidad and Tobago was the attribute of kindness. Twelve students felt that as an individual grew older, they became kinder with time. Generosity was another positive attribute given to older adults listed by 9 respondents. The adolescents stated that being "generous", "sharing", "giving", "free-handed [generous with money]", or "unselfish" are benefits to growing older. "Trustworthy" and "reliability" were listed by four student participants as advantages, while another four adolescents listed "friendly" as a trait of older adults. Adolescents felt that old age was a time of financial stability in spite of the elders complaints of financial insecurity (Barrett & von Rohr, 2008; Jarrott & Bruno, 2007). Other listed one word advantages including "happy", "interesting", "tolerant", "worry-free", "optimistic", "free-time", and "freedom".

Other adolescent participants listed advantages which were contrary to the older adults’ perspectives, such as "to own your home or no mortgage payments", "to be able to travel when after retirement", "you can enjoy your life without problems", 
"stress-free living, and no bosses". The adolescent participants believed that old age brought financial and personal freedom. The older adults did not indicate financial freedom and stability as an advantage to growing older. On the contrary, the elders felt financially confined and listed lack of economic resources as a main disadvantage to growing older.

The adolescents' survey of disadvantages were just as varied, stating that old age and growing older means "complaining", "sometimes miserable", "unhealthy", "sick", "unattractive", "fat", "tired", "death", "dependent", "bored or boring", "loneliness" and "unproductive". Adolescents wrote, "as you age you get wrinkles, and unattractive". Student participants generally stated that sickness was an unavoidable eventuality to growing older in Trinidad and Tobago. Fourteen of the adolescents either stated "sickness", or specified an age related disease as a disadvantage to old age, such as diabetes or "sugar", heart disease, stroke, cancer and high blood pressure or hypertension. For the purposes of analysis, these were classified as one and categorized as sickness in spite of the respondent listing various ailments.

The younger participants held the view that old age was directly associated with these diseases and not as a consequence of lifestyle. For this study, based on the thematic analysis, the adolescents indicated more positive adjectives and
advantages of old age than disadvantages. Overall, there were 18 different themes indicated as advantages to growing older and old age, while the adolescents listed 11 themes as disadvantages. Although sickness was classified as one theme in the analysis, many of the students listed specific perceived age related sickness as disadvantages.

The open-ended questionnaires depicted a significant change in the older adult responses after the eight week intervention. In their pre-test responses, many of the older adults produced extensive sentences, while in the post-test session, one-word and two-word responses to the disadvantages were prevalent. The significant decrease in the amount of both advantages and disadvantages from pre-test to post-test phase should be noted. The respondents overall communicated less in the open-ended questionnaires, and they were less likely to respond in complete sentences as in the pre-test using instead one and two word statements. When the participants were asked to complete the post test open-ended surveys, they were less enthusiastic and took less time than the pre-test session. In between the completion of the surveys and questionnaire and the focus group session, there was a 30 minute break for refreshments.

Focus Group

The focus group discussion was animated and diverse and approached with enthusiasm by the older adult participants.
Throughout the focus group session, dessert, pastries, water and sodas were available to the participants. It can be concluded that the elders felt a greater sense of freedom to verbally describe their perceptions and beliefs of aging and their individual meanings of aging as well as cultural values associated with growing older within that context. During the forty-five minute long session, there were some major themes that dominated the discussion, such as wisdom, happiness, technology, family, health and healthcare, spirituality and religiosity, finance as a mode of being, respect and reputation. There were some minor themes that addressed network support, shifts in identity, love, sexuality, and education.

Wisdom

The elders discussed the cultural importance of attaining wisdom as an aspect of their transition into the older adult stage of development. Younger members of the Trinidadian society expect the older adults to have acquired knowledge, understanding and awareness through their life experiences. In addition to having a greater level of insight into life, there are expectations of mentoring and nurturing relationships with younger generations. As Mr. C. C. stated, "it's good and bad that people believe age brings wisdom and reason. [It's] good because [they] ask what you think about something, right and wrong, for advice. Wisdom and reason comes with experience and
the life you live, not age." The respondent further added that Trinidad and Tobago society equated chronological years with the extent of one's wisdom and understanding. He believed this was not a realistic construct, but a fallacy. Wisdom should be associated with the quality of the lived experiences and the understanding garnered from those experiences. As he stated jokingly, "... if you stay home watching the young and restless [a soap opera]" this is not a conducive environment to enhance wisdom and understanding.

Happiness

The issue of happiness opened the discussion as an older adult questioned the researcher, "...the survey asked about happiness plenty times. Nobody could say honestly that this is the happiest time...". To address the discussion, the definition of the word was sought in an online dictionary and read aloud to the group. The Merriam Webster online dictionary (2013) defined happiness as "the state of well-being and contentment and a pleasurable or satisfying experience." The question was posed to the focus group about their feelings on the topic of happiness.

Interestingly, the concept of happiness was being considered from a Western perspective, and was not conceivable to the focus group elders. To the older adult Trinidadian, happiness or unhappiness is not conceptualized or discussed , in
Successful aging

contrast with American society. An evaluation of one's happiness did not have meaning to the participants in the focus group, but was regarded as illogical and bizarre question. When asked about if they were happy, everyone answered in the affirmative,"...of course...","...I have life...","...why wouldn't we be happy?"

Considerable discussion was undertaken in an attempt to best describe and define the concept of happiness as mentioned in the instruments presented. Enid asked rhetorically, "why shouldn't we be happy?" In an attempt to make sense of the questions in the depression, life satisfaction and quality of life instruments, the conversation to understand "their" meaning of happiness persisted. The older adults did not come to a consensus on its meaning but they did agree that it may not be the same for everyone and rather, can change from developmental stage to the next. The elders believed that happiness as conveyed in the measurements, was a state of continuous bliss or pleasurable experiences, and therefore that was no longer possible. An elder female pointed, "you should ask if we were satisfied with life. Happiness is when you're young and in love, and doing things and having fun everyday..." Finally, one respondent concluded, "my happiness isn't your happiness. Even the things that made me happy when I was 25 can't make me happy now that I'm a big woman...", at this point the discussion shifted to the topic of health and the national health care system. One
can conclude from the group's difficulty to conceive of and make meaning of the question of happiness versus unhappiness that this might be categorized as a cultural difference. The group members did not allow themselves to consider the possibility of not having happiness, as they stated, "...of course" they were happy.

Socio-emotional selectivity theory offers an explanation for the perspective of these older adults and their outlook on happiness. Carstensen, Mikels and Mather (2006) stated that as a part of the socio-emotional aging process, older adults attend to and remember positive situations. While, disregarding, downplaying, and selecting to ignore negative situations. Positivity effects in memory, emotion regulation, thoughts of the present and future have been showed in several empirical studies. Carstensen, Mikels and Mather (2006) explained that as older adults are more focused on not their number of years lived, but to the time they may have left before they die, they choose to perceive positive experiences. While negative experiences and mundane events such as balancing a checking account are viewed as a waste of their valuable time.

Health and the availability of health-care

In Trinidad and Tobago, there are substantial disparities between the public health-care services and the private medical
services (Rawlins & Crawford, 2006). Private health services are available to individuals with private health insurance policies or those who have the ability to pay out of pocket for medical services. According to the elders, they took advantage of both systems which were available to them. Therefore, they attended the public clinics as well as visiting private medical centers in-between their scheduled public clinic appointments. In many situations, clinic visits are scheduled months apart, making visits to privately run medical centers a necessity and not an indulgence.

Although the public health care services were free for all, they claimed that waiting times were long, and services were substandard in many cases. Additionally, for non-emergency services, such as a visit to the dermatologist, this type of appointment would take weeks or even months whereas, the physician in a privately owned medical center would see you immediately, be more attentive and courteous and would answer your questions. Interestingly, many of the physicians who work in the public health-care system also work in the private clinics and offices.

As an elder noted, "the same doctors work in St. Claire Medical [an upscale clinic in the Port of Spain area] work in Port of Spain General [public hospital]... if you're in St. Claire and you get bad and they can't deal with it, they send you to
Successful aging...". The elders hoped that for a shift in the health-care emphasis from curative to taking a proactive and preventative stance to medicine (Rawlins & Crawford, 2006). Additionally, with the trend of holistic medicine and health promotion becoming popular in the Trinidad, they believed this form of health-care was beneficial to the older adult population. As one female stated, "the doctors are too quick to give out a prescriptions...", while another praised the approach of alternative care practitioners over traditional type medicine. The general belief was that alternative /holistic medicine treats the "whole person" rather than the disease, which leads to overall better health as one grows older.

The lack of health education was another issue critiqued by the elders. Traditional medicine, they noted, did not seek to educate about health. These older adults wanted to be better informed of medical conditions for which they were being treated, as well as information on new information to stay healthy. The focus group agreed that an important component of successful aging was having good health. As traditional medical doctors operating within the public health-care system did not spend adequate time educating patients, they believed the internet and the use of technology can be a resolution to their issues of limited information (Cohen-Mansfield & Wirtz, 2007).
Rawlins, Simeon, Ramdath and Chadee (2008) discussed the relationship between loneliness, health, income and family structure. Their sample consisted of 864 elders ranging in age from 65 to 101 years old. Although the mean age was 73 years, only 9% of the participants reported their health as "bad". Rawlins and colleagues (2008) indicated that 0.6% of the respondents had no income while 99.4 % had one or more sources of monthly income. Despite being in overall good health with regular sources of income, 33% of the sample reported feelings of loneliness. Twenty eight percent of the elders who reported feelings of loneliness and isolation lived with others such as spouse, family members or other relatives. Some of the older adults believed they were a burden to their relatives and stated that they ate alone which felt like a form of punishment. Based on their sample, the authors concluded that there was no direct correlation between health status, source of income and loneliness in older adults in Trinidad and Tobago. Rawlins, Simeon, Ramdath and Chadee suggest that families should hire companions for the older adult relative or get them involved in intergenerational programs to diminish or alleviate feelings of loneliness. Therefore, interventions like the current study can positively impact the issue of loneliness experienced by the elders discussed in the Rawlins et al study.
Technology and its Social Benefits

Technology was an integral part of this research project as it was used as the common point for the intergenerational experience. The role of technology and its uses in society were perceived positively by the elders. Their discussion was centered on their ability to integrate the digital technology, specifically the internet into their everyday experiences. The participants saw the internet, social networking and web browsing as a tool to interact with others who would normally be out of their social circles. Many of the participants, with the assistance of their adolescent project partners, were able to "friend" family members, co-workers and friends residing outside of Trinidad and Tobago as well as their neighbors using the

![Pie chart](image-url)
Facebook social networking website (Kubeck, Miller-Albrecht, & Murphy, 1999). As an elder stated, "my son and other people children leave the island for betterment. This is a way be a part of their life."

The use of computers and digital technologies were categorized as a source of social support for the older adult participants (Blaschke, Freddolino, & Mullen, 2009). The support mentioned was in the form of personal ties, contacts with individuals with similar interest and issues, outreach services from governmental and helping agencies, and intimate relationships. The focus group participants indicated that getting in touch with others who may be like-minded or experiencing similar challenges can be a part of their support base. Many of the elders admitted that they currently depend on relatives for social support. Expanding their networks outside of the immediate set of connections, and getting different perspectives is beneficial (Czaja, Charness, Fisk, Hertzog, Nair, Rogers, & Sharit, 2006).

Currently, the Trinidad and Tobago government is transitioning to using more technology in its agencies in keeping with global trends. Therefore, information and announcements are available to residents about current and upcoming events and programs. Information of this nature can notify seniors about the programs and services available to
them. The concept of online dating and romantic relationships was introduced. The focus group respondents unanimously stated that they would not be interested. Although they declined the idea of online romantic relationships, peer-support groups were embraced. Their concern about online relationships is in keeping with the cultural customs that family history, personal and family reputation, and schooling are important factors in long-term unions.

The ease of accessibility to a wide variety of topics via the internet was seen as a major advantage to technology use and integration (Charness & Boot, 2009; Hara & Kashimura, 2010). The ability to use the internet for health, medical information and general wellness was highlighted as a main advantage of the intergenerational study. Czaja and Chin-Lee (2003) have described the internet as tool for older adults that allows them to live independently longer. One elder stated that the internet can allow the individual to get a second opinion and other medical information that doctors do not share with patients (Charness & Boot, 2009; Hara & Kashimura, 2010). The focus group participants were strongly advised that the internet and doing internet searches should not replace the role of their health-care professional or the need for regular check-ups. The internet should be seen as supplemental source of information. Additionally, the source of the information should be taken into
account. The elders were counseled that online information should be not be accepted as fact since there are innumerable unsubstantiated articles, blogs, websites and the like. It was stated that when considering health information from the internet and online data sources, it is important to use critical thinking skills and confirm any information with a medical professional (Jopp & Hertzog, 2010).

Finances

The respondents described a wide variation in finances and access to economic resources. Five years ago, in 2008, the Trinidad government raised the monthly old-age pension from $700 to $1150 then again in 2010 to $1800. According to Rawlins, Simeon, Ramdath and Chadee (2008), 99.6% of their sample received government old age pension along with national insurance old age benefit, or other employment based or privately purchased retirement plan. Every Trinidadian is entitled to this pension. To be a pension recipient, an individual must be 65 years old and the holder of a national identification card and an affidavit that the applicant is alive. In addition to national old-age pension, seniors are given National Insurance Board pension. To access this pension, individuals must make a nominal number of payments throughout one's career and is based on an individual’s salary at retirement. This pension is given to individuals on their 60th
birthday. Finally, the focus group listed the employer pension which is given at 60 years as well. In the case of government agencies and corporate companies, employees receive a lump-sum package, monthly payments or both. The amount received is relative to your salary on retirement and the length of service given to your employer. One elder admitted that he receives an employer pension that is equal to 40% of his salary, in addition to his old-age and N.I.B. pensions. In other literature, findings suggested a relationship between income levels and well-being in older adults. Diener and Biswas-Diener in their 2002 study found that countries with mean lower income levels generally had lower wellbeing throughout all age groups and more significant among the older populations.

Another respondent's earlier occupation was a homemaker. She said, "our pension is not enough. It's because of my children and my widow's pension that I can live comfortable". Ground travel can be expensive to get from home to their destination for elders. Although seniors citizens travel on the buses and other forms of public transportation free of charge, bus schedules can be unreliable. Because of this, many elders are forced to take taxis to get to doctor's appointments and other meetings.

Although many of the respondents demonstrated that lack of finance was a hindrance to their optimal well-being, taking paid
positions was not seen as an option. The elders did not believe that working, even in paid part-time positions, was not desirable. They maintain that "keeping busy" was important to both physical and psychological health and wellness. At the same time, they believed that they have "done [their] part already" and "it's my time now, I worked too hard to work again". For those participants with lower levels of education or formal schooling, they would be relegated to unskilled or manual employment opportunities. And as such, in many cases this type of employment requires physical strength and endurance with minimal compensatory wages.

**Spirituality and Religiosity**

Another common theme discussed was religion and a concept of being closer to the concept of divinity. The older adults felt that growing older was an opportunity to become more religious, as well as to achieve a higher level of spirituality. Participants produced the following statements in this area: "I am being active in church", "age bring reason and closeness to the Father…", "teaching young people about praying and [reading] the bible" and other ideas that one gets closer to their concept of divinity as a part of growing older. There was a consensus among the respondents, although some held stronger convictions than others, that their old age translated to spiritual wisdom and greater responsibility to mentor the younger generations.
Another aspect of religiosity was that of social support and participation, especially to the older generations. The elders held their religious entities as a secondary source of support to their family unit. The respondents referred to their fellow church attendees as "brothers and sisters". As an elder stated, "...Sundays we visit anyone who sick, and carry Sunday lunch... sometimes they don't have children around them...". Religious organizations have an important role to the community, especially for the older adults, as that of a place where peers can congregate on a regular basis. Additionally, some church networks provide financial assistance and organize social events for older adults, especially during holidays. Other services provided by religious organizations are advocacy services, legal clinics and medical informational fairs. Religious organizations have taken on an active social role in the community in addition to providing spiritual guidance to its members. The elders discussed the importance of religion and spirituality to their overall wellbeing and life satisfaction.

**Respect and Reputation**

In Trinidadian culture, the concept of having a good reputation and feeling respected in the village is critical to a positive sense of self. The respondents discussed this topic with more emotion and gravity than any of the previous themes. The female elders emphasized the importance of having a good
reputation among fellow villagers and its role on the respect that one receives in turn. They briefly mentioned the ways and means of transitioning from young to old. As Mrs. J. T., an older female stated:

> When you get to a certain age, you need to be proper. Stop wearing certain clothes, relax in the fetes [public party], conduct yourself to your age. You can't be wining and getting on bad. After 40, it's time to put away the short pants because you need to respect yourself. Men can continue to do whatever they want. It's different for them, but women have to be careful. Trinidad is a very small place and everybody knows everybody.

The focus group's demeanor was somber as they discussed this subject matter. The participants of both genders weighed in on the topic with equal sincerity, emphasizing the importance to behave responsibly and respectfully in order to gain and maintain the respect of others, especially the children. As another elder male pointed out, "[children] these days are very disrespectful, easy for them to get out of hand, you can't lapse [to give children latitude or flexibility but to strictly enforce rules and boundaries] with them at all..." The older adult
females expressed their views on the topic more so than the males, who agreed with brief statements.

CHAPTER V: DISCUSSION

Given that life expectancy has dramatically increased within the last forty years in Trinidad and Tobago, the older adult population, the segment known as the third age, has also expanded exponentially (Serow & Cowart, 1998; Kalache, Barreto, & Keller, 2005). Interventions geared to promote life satisfaction and quality of life among the third age population
are supported by human service and medical professionals alike. In these intervention programs, living well is given as much regard as length of life (Rawlins, Simeon, Ramdath & Chadee, 2008).

The present study considered the ways in which involvement in an intergenerational digital technology intervention program may have affected life satisfaction, quality of life and depression levels of the adult day program participants (Wirthwein & Rost, 2011). Traditionally, intergenerational studies have focused on the effects of the younger participants, while in this project, the older adults were the focal point (Aday, Rice, & Evans, 1991). Involvement in the six week intergenerational intervention was hypothesized to have positive affective outcomes in older adults. Specifically, the elders would show lowered levels of depression, increased levels of quality of life and life satisfaction as determined by qualitative and quantitative items. Participants involved in this study were of both genders, as well as different socio-economic categories, educational backgrounds and ethnic groups. Results from this mixed method study provided results from standard quantitative measurements and qualitative thematic analyses. The following section consists of discussions of the findings, limitations of the study, and research and practical implications of the intervention.
The results from the descriptive statistical analysis showed that the depression scores after eight weeks had risen slightly, despite the elders’ involvement in the intervention. This was the opposite of what was expected by the researcher. It was hypothesized that depression levels would decrease from Time I to Time II with an eight week gap between measurements. According to Barusch, Rogers, and Abu-Bader (1999) depression and depressive moods, especially in older adult populations, can cycle between low and high variations naturally. At Time I, participants' depression levels measured were normal to below average overall. Therefore, at Time II, depression levels could naturally increase based on Barusch, Rogers, and Abu-Bader's 1999 study of geriatric depression. Another possible explanation for the unexpected finding may be that the negative change in depression could result from the time of year when the pre-test measures were taken. The pre-test data were collected during the first Thursday after the New Year's day holiday, this is a time of year with many cultural activities taking place in Trinidad and Tobago. The first phase of measurements was carried out during the first week of January. It may be that there were residual positive effects of the festive Christmas and Boxing day celebrations. According to Alea, Thomas, Manickchand, Ramirez-Simon and Bacchus (2010), depression levels among older adults in Trinidad were related to their childhood memories,
especially of specific events or occasions. The festivities may have had an effect on lowered depression levels of the elders at Time I. Future studies should control for the time of year considering festivities and cultural events. Another consideration would be to limit participation of the intervention to individuals with higher levels of depression at the initial phase of the research.

The probability of finding significant results was low, taking into consideration the small sample size, and therefore low power. The unanticipated shift in depression results for the first hypothesis can also be an issue with the instrument. As discussed earlier, the GDS is a highly reliable and consistent instrument in American and European clinical environments (Yesavage, Abrams, Young & Shamoin, 1983; Jackson, Brown, Antonucci, & Daatland, 2005). The existing literature on the instrument does not contain information on its use, reliability or consistency among Caribbean populations. It is likely that if a more culturally sensitive instrument was used, the outcome may have been significantly different (Jackson, Brown, Antonucci, & Daatland, 2005).

It was also hypothesized that the older adult participants’ quality of life and life satisfaction levels will be increased as a result of their participation in the intervention. This second hypothesis was not supported by the
results of the quantitative analyses when the complete dataset used. It is noteworthy that when the four outermost scores were removed from the analyses, the results did show the intervention to be significant. While the researcher must include all the participants' data in the analyses, it was interesting to see the difference in the outcomes when the outliers were removed.

Involvement in the intergenerational intervention, specifically by learning digital technological cultural tools, did not significantly relate to their increased wellbeing and life satisfaction as measured by the particular instruments employed in this study. The results showed that both life satisfaction and quality of life decreased from Time I to Time II.

Despite the unexpected finding on the life quality measurements, the CASP-19 (Hyde, Wiggins, Higgs & Blane, 2003) and Barrett and Murk's (2009) life satisfaction instrument, the probability of obtaining significant outcomes was low. Hector, Anderson, Paul, Weiss, Hays & Kaplan (2010) demonstrated in their empirical research in Trinidad the positive relationship between aging and life quality (Kalache, Barreto, & Keller, 2005). Their study concluded that older adults scored the lowest on the life quality measures compared to younger participants. Quality of life disparity between younger and older adults
resulted from the perception of availability of economic and social resources.

Another explanation for the results of this study may have to do with the size of the sample. Detecting significance in a relatively small sample size, with very low power is not highly likely. The quality of life and life satisfaction scores were in the normal range when measured at TIME I. Even though it is speculative, elders with lowered life satisfaction and quality of life scores would possibly have shown significant outcomes as a direct result of their participation. Noteworthy, as the older adult participants were completing the CASP-19 (Hyde, Wiggins, Higgs & Blane, 2003) and life satisfaction instrument (Barrett & Murk, 2009), clarification and amplification were needed at several items. This was not an issues of illiteracy or an inability to comprehend the words but the confusion was a result of cultural context of the questions. The elders believed that some of the questions did not make sense to them nor have meaning applicable to their lived experiences. As one respondent reasoned regarding an item on the CASP-19, "I can do the things I want to do", "...what do you mean specifically? Nobody could do what they want to cause of responsibilities. You [researcher] could do anything you want?" Time II data collection phase was twice as long as Time I. The elders were more conscientious in their responses on the CASP-19 instrument and the LSITA scale,
while questioning the items' meaning during Time II. A possible explanation for this change in the participants' demeanor may be a result of an increased comfort level between the participants and the researcher after 7 weeks of interaction and many one-on-one and small groups discussions. Presumably, it can be inferred that if the same level of attention was taken in completing the surveys in the pre-test data collection phase, the outcome would have been significant.

While the intervention did not demonstrate significant changes in the measured scores, review of the qualitative answers provided interesting results. The third hypothesis pertained to examining the effects of the intergenerational intervention on the older adults' perceptions of and beliefs about aging. Open-ended questions given to the participants before and after the intervention were used to measure the number of positively and negatively referenced themes evoked about aging and growing older. In addition to the open-ended questionnaire item, a focus group was held to discuss the third hypothesis.

The opened-ended questionnaire provided encouraging results about the older adults and their perceptions of old age in Trinidad and Tobago. The current old age policy in Trinidad and Tobago engenders feelings of vulnerability among citizens over 60 years old. During the first phase of data collection, the
tone in responses to the questionnaire was generally negative. Participants discussed their desire to "keep busy" and their ability to afford basic necessities for their survival. Their financial hardship may be as a result of their relatively early retirement at 60 years compared to global retirement age standards. Negative reactions to growing older and old age decreased significantly from Time I to Time II.

The older adults felt some level of trepidation about their health and their reliance on the public healthcare system. According to Hector, Anderson, Paul, Weiss, Hays and Kaplan (2010) the private healthcare network in Trinidad is comparable to that of the United States of America, yet the public (free) clinics are deficient and unsatisfactory. Public healthcare was discussed critically by participants of the focus group and similar feelings were expressed in response to the open-ended questions. The participants believed that they would eventually become patients at one of the nation's public hospitals, as an inevitable outcome to old age and growing older in Trinidad. The underlying assumption was that age related illnesses would eventually lead to hospitalization. Considering the elders' limited financial resources, that is, their reliance on fixed incomes, private medical care is not an option for them.

On some measure, there was some sense of powerlessness when discussing their current and future health options. Although the
respondents were interested in preventative medical care rather than the current curative approach to medicine, this was not offered in the public clinics. As lack of health related information and general health education were believed to be a problem with the beleaguered public health care system, the participants thought that the internet with such websites as Web MD was the solution. To remedy this gap in their proactive approach to healthcare, the elders believed that technology and medically based websites could be a possible answer (Quadagno, Keene & Street, 2005).

On examination of the post-test responses, the participants mentioned the benefits of family life, the importance of being a grandparent, their increased spirituality and taking their position as a mentor and guide in their community.

The focus group allowed the elders to discuss their issues more freely as compared to journaling or open-ended surveys. The group discussion gave the participants an opportunity to express their perceptions of and beliefs about old age specifically within Trinidadian society, while gender roles informed the discussion in various ways. As expressed in the focus group discourse, the older men in the group although fewer in numbers, did tend to dominate the discussion. The older adult males discussed aging from a deficit perspective, generally. Much of their discussion focused on the traits, activities and
other vulnerabilities as part of their aging process. They listed those characteristics which were missing from their lives: their physical strength, their attractiveness, their sexual prowess, the ability to party or drink alcohol, high wage earning capacity, and good overall health. According to Rawlins (2010) in her recent case study on aging in Trinidad, there are relatively high levels of undiagnosed depression among older adults in Trinidad. As she quoted one participant, "it's not easy being an older person in Trinidad". In her analyses, she found that financial issues were the greatest concern among her participants. Healthcare inadequacies, loneliness, and lack of respect from the teenagers in the community were other major issues affecting older adults' wellbeing in Trinidad as discussed (Gubrium, 2005; Quadagno, Keene & Street, 2005).

The men in the focus group perceived aging and growing older as the absence of virility and youthfulness. Therefore, growing older was discussed in terms associated with mourning and reminiscing for their lost youth. Additionally, older male participants' understood the process of aging in terms of characteristics dissociated from youthfulness and other vibrant traits. Conversely, growing older was associated with negative descriptors and characteristics.

As the male participants debated their notions of old age and meaning of growing older within the focus group, the
discussion focused and descriptions included physiological aspects of their development. Extensive examples were by the men in the group talking of days when they were physically stronger, enjoyed superior strength, having muscles and larger arms, and higher levels of physical fitness. Although there was a general agreement that wisdom was a trait associated with growing older it was not perceived as significantly as expected by the older adults. As one male participant, Mr. F. stated, "...what is the point of having wisdom if nobody will listen when you talk...". Mrs. J. F., a female participant responded to that comment with, "wisdom not automatic, if you're stupid when you're young, you're going to be stupid when you're old...". She then added that growing older increases the feeling of being respected by others and having a good reputation.

Self acceptance and positive relations were also expressed as important themes that appeared to be interconnected. The female participants appeared to be more accepting of themselves and their experiences than men. Unlike the male participants, the older females did not reminisce over their youth, beauty, or perceived losses from earlier years. The older adult females generally focused on psychological traits age and health concerns rather than lost physiological markers of youthfulness. Erickson (1963) discussed the need for change and novelty and identity formation in the earlier developmental stages.
Erickson (1963) added that individuals in the later developmental stages, the middle and older adulthood, are much more self-accepting and tolerant. Important components to successful aging are positive relations with others and position within one's society.

The female participants debated the importance of gaining respectability and improved reputation as an advantage of growing older. Cultural values such as honor, being a respected member of the community, were the main focus of the female participants' discussion during the focus group session. Positive relationships in the older adult process is critical to successful aging and well-being. Alea, Ali and Arneaud (2012) concluded that positive social interactions were important to Trinidadian in all age groups. Although the other variables negatively correlated with age, such as that social acceptance and purpose of life decreased among older participant, social relations was a significant component to wellbeing for all participants from 18 to 70 year-olds. Alea, Ali and Arneaud (2012) found health status to be a better predictor of well-being among Trinidadians than age (Kalache, Barreto, & Keller, 2005).

In the focus group discussion, less attention was placed on issues regarding physiological attributes of youth and advantages of earlier stages of their lives. The concept of
being esteemed and having good standing may be important to this society for many reasons. This is in keeping with the research by Alea, Ali and Arneaud (2011). The first reason, as one participant suggested, is that high levels of interdependence and the feeling that "we are one" is integral to the Trinidadian culture. And secondly, the population size facilitates easy flow of information by word of mouth. Information is disseminated rapidly from person to person, village to village as the degree of separation is relatively small in this relatively small country. As one respondent stated, "everybody knows everybody, you can't hide anything and people real fass [curious]. It's very easy to get a bad reputation...you always got to be on your P's and Q's [to be on one's best behavior]". Although the intergenerational study did not result in significant outcomes on the measures of depression, quality of life and life satisfaction, the focus group data revealed interesting culturally situated results about aging constructs in Trinidad and Tobago.

While the hypotheses were not supported by the quantitative data results, noteworthy results were obtained when reviewing the qualitative results. It has been reported that the program was enjoyed by all the participants and they would be willing to participate in another intergenerational program if given the opportunity. In addition, they would recommend participation in
an intergenerational program to their peers if the chance was presented to do so. The participants made statements such as, "I was always looking forward to coming" and "those students were delightful to be around, very pleasant children (adolescents)". The adolescent expressed that their experience was pleasurable and would like to participate in an intergenerational study again. As one adolescent stated, "the first day was kinda weird, but then it was normal [fine]".

Despite the fact that the hypotheses were not statistically supported by the quantitative data, on review of the information available, one can suggest that positive influences of the interactions were outwardly evident. Based on the discussions and comments from the North-eastern community Adult program staff, the older adults and the younger participants, the program was enjoyed and they would like to be involved in an intergenerational program on a long-term basis.

**Limitations of the Study**

The limitations of the study include issues of methodology. As the study was conducted in a small adult day program in Trinidad, and included a small segment of the population, the findings cannot be generalized to other adult day programs or populations. When making comparisons to other intergenerational or adult day programs research, careful consideration should be taken. The small sample size is considered to be a contributing
factor to the lack of power and unsupported hypotheses. At the same time, the small group allowed the research project to be kept in control allowing for more careful and accurate recording of protocols and focus group activity. Typically, intergenerational programs are conducted with small groups, therefore this study can allow other researchers the opportunity to replicate these findings under similar conditions.

Another limitation of the present study, based on the existing literature, was that the instruments used to measure depression, life quality and life satisfaction were not previously used in this population. Therefore the reliability and validity of these measurements when used with a Caribbean population is not known. Therefore, it is unknown if these instruments were valid and the techniques used for this research were appropriate for this particular study (Jackson, Brown, Antonucci, & Daatland, 2005).

The intervention attempted to gather qualitative data through a journaling exercise for the older adult participants to which they did not respond favorably. The elders with the exception of two participants did not undertake their journaling exercise. The two participants who did endeavor to write in their journals, wrote on topics unrelated to aging but listed their daily activities. For future studies, journaling and other
writing intensive data collection projects should not be viewed as a viable instrument.

**Practical Implications**

Many of the outcomes can be valuable to researchers, clinicians, gerontologists and policy makers concerned with adult day programs, older adult populations and intergenerational programs (Kalache, Barreto, & Keller, 2005). A similar study on intergenerational intervention by McCrea and Smith (1997) has demonstrated the positive effects on depression, well-being, self-esteem, life satisfaction, isolation, and loneliness. According to Atchley (1999), the prevalence of depression and depressive symptoms are high in the older adult population, which is increasing at a consistent rate (U.S. Census Bureau, 2010). In reference to the positive behaviors, the constructive remarks about intergenerational programs and upbeat interactions observed, similar programs can have a positive effect on older adults in other adult day sites (Hess, 2006). Programs that address issues of adult depression and their wellbeing are important to helping professionals. It should be highlighted that the participants, especially the females in the group, of this present study appeared to be significantly more assertive and outspoken after the intervention. Therefore, following on McCrea and Smith (1997),
it can be suggested that this intergenerational intervention had a significantly positive effect on the self-esteem and positive behaviors on the elders.

This study, although not statistically significant, did show that all the participants were responsive to the intergenerational and computer technology activities. The intervention allowed the participants to advocate and empower themselves by using their newly adopted technology. The program gave the elders an opportunity to be proactive about their health issues and concerns which can have great long-term psychological and physical benefits. As the medical field is evolving, health care professionals have been using digital technology not only for record keeping and transferring information but as a treatment and diagnostic tool as well (Goodwin, 2013).

Helping professionals in the Caribbean are advised to use similar intervention programs to benefit older adults social isolation issues associated with advanced aging (Rawlins, Simeon, Ramdath, & Chadee, 2008). Digital technologies can be used to assist older adults to be informed about medical issues, to be up-to-date with new treatments available, and stay healthy longer (Liu & Park, 2003). Therefore, this can lead to enhanced self-advocacy among the older adult population.
The participants in this study used the internet as an empowerment tool to diminish their health and medical concerns. Additionally, the internet allowed these older adults to be actives partners in their healthcare protocol along with their medical practitioner. Therefore, technology allows the older adults to be effective participants with information and ideas about aging and other health related issues. This approach to health and wellness can have positive short and long term effects on well-being, longevity as well as their general health.

Proposed intergenerational interventions with adolescents teaching elders to use computer technology for healthcare and wellness, for example, can be used in medical clinics with diabetes patients. This type of intervention would assist in teaching the elders about the disease, the ways it can be controlled and blogs connecting other diabetes patients with each other worldwide. It is important to note that although technology was the main interface used in this model, technology was but one component of this dynamic intergenerational interaction. The relationship between the older adults and the adolescents can be described as bi-directional, multidimensional and non-linear. As part of the researcher's observation, the pairs were generally engaged in discussions on politics, life,
social issues and in addition to the technology related topics as specified by the study's protocol.

The present study introduced the concept of learning computer technology and intergenerational activity in a relaxed and informal setting. According to Griff, Lambert, Dellman-Jenkins and Fruit (1996), expected conclusions are not always the outcome when a researcher places older adults with a younger generation. On many occasions, in intergenerational programs there can be resistance from the groups if the program is not well organized, structured rigidly, not well prepared or produce unrealistic expectations (Newman & Ward, 1993). The present study, although structured by a protocol, allowed for refreshments, pre-intervention socialization between the groups, and allowed the participants to choose their partners. According to Dabelko (2005), adult day programs are on the increase as they provide a caring, educational and socializing environment for older adults. Despite the limitations of this study, it can be concluded that intergenerational technology program can be used and provide positive outcomes in other adult day facilities and other older adult clinical and recreational group settings.
CHAPTER VI: SUMMARY

The world population is aging at a rapid pace as baby-boomers are transitioning from middle adulthood to their older adult developmental stage. Wellbeing, depression, life satisfaction and other psychological challenges are more prevalent in the older adult developmental stage than earlier
Successful aging 163

stages (Erikson, Erikson & Kivnick, 1986; Erikson, 1997; Atchley, 1995). Some of the challenges with growing older and old age are organically occurring illnesses and chronic pain, mobility issues, shrinking networks and limited financial resources (Atchley, 1995).

The focus of successful aging is to extend the human life-span while simultaneously enhancing life quality and satisfaction. Adult day programs are viewed by helping professionals as a way to promote productive aging and improve variables associated with quality of life and life satisfaction (Schaber, 2010; Schmitt, Sands, Weiss, Dowling & Covinsky, 2010). Adult day programs have shown to have significant effects on wellbeing, physical performance, social functioning and mental health (Gitlin, Reever, Dennis, Mathieu, & Hauck, 2006). Although an established alternative to old-age residential programs in western societies, adult day programs are relatively new to Trinidad and Tobago. The first adult day center was started 2009 with limited participation, in central Trinidad (Rouse, 2008; Ministry of Social Welfare policy paper, 2006).

Intergenerational programs have been embraced by psychologist and other helping professionals within the last 30 years. Newman and Ward have defined intergenerational programs as those which bring the old and young together for mutual benefit (1993; Hess, 2006). Traditionally, intergenerational
programs have focused on the benefits of the activity to the younger generation (Dellman-Jenkins, 1997; Chapman & Neal, 1990). Whereas in the present study, the purpose was to uncover the beneficial effects this intervention may have on the elders. The primary goal of this study was to examine the effects learning digital technology within an intergenerational intervention on the older adults' psychological health.

The current study added to the field intergenerational activity between older adults and adolescents, cultural research, gerontechnology, life satisfaction and quality of life. Information was obtained from self report instruments and focus group data. Although the quantitative analyses did not support the hypotheses presented in the current project, suggested limitations such as time of year the data were collected or the instruments may have affected the results. The qualitative collected in the open-ended questionnaires and the focus group bore interesting insights and perceptions of aging and growing old in Trinidad and Tobago. The attempt to collect data using the journaling method was not successful as the older adults chose to opt out of this aspect of the study.

Practical implication for the present study can be important to researchers, social workers, psychologists, clinicians and even policy makers in Trinidad and Tobago. Considering the challenges of growing older and old age in the
Caribbean which can be more difficult than developed countries (Kalache & Coombes, 1995), interventions that positively affect depression levels, life satisfaction and quality of life should be encouraged and embraced by researchers and other helping professionals. Keeping in mind the limitations of the present study, understanding the beneficial effects of intergenerational interventions, the advantages of adult day program on life quality, depression and life satisfaction and the empowerment and agency of adopting digital technologies into daily routines, similar programs can be valuable to gerontology and care for third-agers.

Future research along intergenerational interventions can use a similar protocol, that is, the use of technology as the interchange between older adults and the younger generation. Based on the qualitative data, in can be inferred that the significant aspect of the intervention was the dynamic and bi-directional interpersonal interactions. The relationship between the older adults and the adolescents were an important aspect to the older adults' experience in the intervention that impacted their concepts of isolation, loneliness and interconnectedness. Just as significant was the relationship between the facilitator/researcher and the older adults which became affable, warm and pleasant over the period of the study. Many of the older adult participants felt at ease to openly and freely
talk to the researcher about none study related matters and tender invitations to their social events. Therefore, future research should not be limited to technology related issues but focus on the human interaction and issue of interconnectedness. Additionally, the direction of the intergenerational intervention can also include the older adults teaching the adolescents as well as learning from the younger group, thereby creating a greater sense of reciprocity and equity between the groups.

Research and interventions geared toward conditions promoting and enhancing successful aging, improved life quality and increased life satisfaction among older adults are important to the target population as it can offer immediate insight. The process of aging is contextual, varying from culture to culture, from one individual to the next even within the same cultures. Aging, in all its variations, is inevitable, making these kinds of investigations beneficial to all generations.
APPENDIX A

CONSENT FORM

My name is Wendy Johnson and I am student in the Developmental Psychology Ph.D. Program at The Graduate Center of the City University of New York (CUNY), and Principal Investigator of this project, entitled “Intergenerational Activity in Adult Day Program Clients: Bridging the Gap with Communication”
Successful aging. This is a research study on the effects of digital communication devices in an intergenerational intervention. The study is expected to yield knowledge about the importance and benefits of interactions between the young and older generations using technology as their main interface. I would like you to fill out a 5-page questionnaire, use Facebook, email, and Yahoo instant messaging programs and keep a journal for 6 week period. Your journal entries will be focused on the benefits of intergenerational programs, your feelings and attitudes towards aging and growing older. The questionnaire should take approximately one hour. At the end of the 6 week period the journals will be collected and analyzed for changes in aging attitudes that may have resulted from your interaction with adolescents. You will be asked to participate in a focus group to discuss your feeling on aging. All information gathered will be kept strictly confidential, and will be stored in a locked file cabinet, to which only I, and my advisor, will have access. Journals and questionnaires will be shredded as soon as they have been analyzed. At any time you can refuse to answer any questions or withdraw from the study.

The risks from participating in this study are no more than encountered in everyday life. The benefits of your participation are that intergenerational activities have been found to help develop positive attitudes and relationships between adolescents and older adults. Programs between older adults and adolescents have been shown to positively affect academic performance and social behavior among younger participants. Likewise, increased self esteem, positive effects on health, mood, well-being and connectedness have been associated benefits to senior adults participating in intergenerational interventions. There will be approximately 40 of participants taking part in this study.
I may publish results of the study, but names of people, or any identifying characteristics, will not be used in any of the publications. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

If you have any questions about this research, you can contact me at (347) 427-8054 or Wjohnson@gc.cuny.edu, or my advisor Dr. Anna Stetsenko at (212) 817-8715 or astetsenko@gc.cuny.edu. If you have questions about your rights as a participant in this study, you can contact Kay Powell, IRB Administrator, The Graduate Center/City University of New York, (212) 817-7525, kpowell@gc.cuny.edu.

Thank you for your participation in the study. I will give you a copy of this form to take with you.

_________________________________________  ____________________________
Participant’s signature  Date  Investigator’s signature  Date

Appendix B

CALL FOR PARTICIPANTS

Inter-generational Relationships between Older Adults in Day Programs and Adolescents

My name is Wendy Johnson and I am student in the Developmental Psychology Ph.D. Program at The Graduate Center of the City University of New York (CUNY). This is a research study on the effects of digital communication devices in an intergenerational relationships.
- Are you between the ages of 18 and 21?
- Are you computer savvy?
- Can you show others to use Facebook?
- Do you know how to create a Yahoo email account?
- Can you teach others how to use mobile phone text messages?
- Can you spend two hours a week in a research study on learning about Inter-generational activities?

If you are interested in being a part of this inter-generational research project email or call:

For further info Wjohnson@gc.cuny.edu or 347-666-9297

All information will be kept strictly confidential

CALL FOR PARTICIPANTS

Inter-generational Relationships between Older Adults in Day Programs and Adolescents

My name is Wendy Johnson and I am student in the Developmental Psychology Ph.D. Program at The Graduate Center of the City University of New York (CUNY). This is a research study on the effects of digital communication devices in an intergenerational relationships.
- Are you an Older Adult interested in learning about computers?
- Would you like to use the internet to keep in touch with your family, friends and others?
- Do you want to know how to use Facebook and emails?
- Do you know how to set up an Instant Messaging Account with Yahoo and Gmail?
- Can you spend two hours a week with research study on learning about benefits of Inter-generational activities?
If you are interested in being a part of this inter-generational research project email or call:

For further information Wjohnson@gc.cuny.edu or 347-666-9297

All information will be kept strictly confidential.

Appendix C

OLDER ADULT EDUCATION MEASURE

Thank you for agreeing to be part of this research study. Your responses will help add knowledge to the field of intergenerational relations and help inform others of the possible benefits of these programs. Be assured that any information you provide will be kept completely confidential, and if you consider a question as too personal, feel free not to answer it.

Do you have any children?
Yes, how old? __, _____________,___________________________,_______ No

Do you have any grandchildren? NO or YES, how old? ___,______,______,_____,____,__,__,__,__,__,__,__,__,__,__

How many years of schooling did you complete?

Elementary school or less

Some High school

Completed High School

Some University

Completed University

Graduate or Professional School

Have you previously participated in any Intergenerational activities? Yes, approximately how many?

No

How would you rate your health at the present time?
Appendix D

Geriatic Depression Scale

Yesavage & Sheikh (1986)
Appendix E

Older Adults

What is your birth date? Gender (M) (F)

Does the resident have any of the following medical conditions?
Arthritis
Hearing Problems/Hearing Loss
Vision Problems/Vision Loss
Other, please describe

What is the resident's ethnic background? Black East Indian
White Asian Hispanic/White Other, please describe

Do you live with physical pain generally):__________________________
Eating Habits (generally): ________________________________

Do you problems with communication (generally):

Mental Status (generally):

Mobility (generally):
Limitations (generally):

Appendix F

OLDER ADULT QUALITATIVE QUESTIONS

1. What does growing old mean to you?
2. What are some of the advantages and disadvantages to old age

3. What do you think of the program and did it influenced you in any way? If so, how?

4. Did you enjoy interacting with the adolescents? Yes or No (Circle one)
   If so why?

5. Would you participate in a program like this again? YES or NO (circle one)
   Why?

6. Do you think other seniors should participate in programs like this? Yes No (Circle one)
   Why?
Appendix G

ADOLESCENT QUALITATIVE QUESTIONS

1. What does old age mean to you?
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
2. What are some advantages and disadvantages to growing old?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________


3. What do you think of the program and did it influenced you in any way? If so, how?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________


4. Did you enjoy interacting with the older adults? If so why?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________


5. Would you participate in a program like this again? YES or NO (circle one)

Why?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
6. Do you think other adolescents should participate in programs like this? Why?

Appendix H
Protocol for Intervention.

<table>
<thead>
<tr>
<th>Session #</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Welcome</td>
</tr>
<tr>
<td></td>
<td>Introductions and assignment of dyads. Rules of group and maintaining confidentiality and privacy of information discussed in group</td>
</tr>
<tr>
<td></td>
<td>Journal distribution</td>
</tr>
<tr>
<td></td>
<td>Introduction to journal keeping “Your earliest recollections of your feelings about older people”. To</td>
</tr>
</tbody>
</table>
be instructed to include scenarios, incidents and other details associated with earlier perceptions on older adults.

**Activity:** Forecast the schedule of activities for the next 5 weeks.
Reminder of dyads, group structure, brief review of last session

**Activity:** The dyads go through the process of logging on to the internet.
The dyads create email accounts for the Senior member using Yahoo.com and Senior with the guidance of adolescent will create and send an email to each other

**Reminder to keep journal**

2. Welcome

**Activity:** The dyads will set-up an Instant Message (IM) account for senior through Yahoo.com. An avatar for the senior member will be created
Adolescent will guide the seniors through the tools, changing fonts and letter size. Customizing their signature, colors, calendars, and other mail options.
**Reminder to keep journal**

3. Welcome

**Activity:** Open Facebook account. Add and search for contacts for “Friend List”. Create Facebook profile.
Add information to Facebook page. Log into Yahoo and Yahoo IM to write and respond to emails and IMs.

**Activity:** Texting on mobile phones will be shown.

**Reminder to keep journal**

4. **Welcome:**

**Activity:** Write and respond to emails at Yahoo.com. Sending E-Cards through Yahoo greetings. Log on to Yahoo IM. To locate online contacts. Log into Facebook to respond to notifications and search for additional contacts.

The dyads create email accounts for the Senior member using Gmail.com and Senior with the guidance of adolescent will create and send an email to each other

**Reminder to keep journal**

5. **Welcome:**

**Activity:** Write and respond to emails at Yahoo.com. Sending E-Cards through Yahoo greetings. Log on to Yahoo IM. To locate online contacts. Log into Facebook to respond to notifications and search for additional contacts.

**Activity:** Carry out internet searches. Write and respond to pending emails. Log into Yahoo Instant message to locate friends. Carry out Facebook user management, responding to notifications, placing updates for friends, responding to and making comments.
Reminder to keep journal

6. Welcome

Activity: Carry out internet searches. Write and respond to pending emails. Log into Yahoo Instant message to locate friends. Carry out Facebook user management, responding to notifications, placing updates for friends, responding to and making comments.

Debriefing: Seniors and adolescents will be briefed separately on research.

Reminder that journals are to be returned on the following week

Appendix I

Quality of Life Scale Early Old Age 65 years to 80 years

Appendix J

Life Satisfaction Index for the Third Age (LSITA) Scale – Short
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