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Conceptualizing Connectedness:

A study of Older Individuals

by

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ABSTRACT

The study of connectedness has been largely limited to interpersonal, intimate relationships, usually between married people. This study conceptualizes connectedness in a broader, more wholistic paradigm that includes three Spheres (Interpersonal, Environmental, and Metaphysical), six Contexts (Dyadic [non-sexual and sexual], Group, Nature, Object, Spiritual, and Transcendental), and three Ways of Experiencing connectedness (Physical, Emotional, and Cognitive).

One hundred eighty-four Calgary seniors, aged 55-94, participated in the study between February and June 2005. Participants completed a survey, entitled *Connectedness and Intimacy Survey: A Study of Older Individuals*, which consisted of 57 questions intended to examine seniors' experience of connectedness.

A Two-Way MANOVA (age by gender) revealed that male participants who are 55-64 years old are more connected in the Environmental Sphere compared to male participants who are 85-94 years old. Further, the 65-74 year old female participants are more connected in Environmental Sphere compared to males in the same age group.

Supplementary analyses of five independent variables (Marital Status, Income, Health, Education, and Living Arrangement) crossed with age and gender were conducted to explore other potential differences in the experience of connectedness. The results show that: (a) in Marital Category, participants who are not married are more connected in the Transcendental Context than those who are married, female participants are more connected in the Group Context than male participants, and those who are married are more connected in the Dyadic and the Object Contexts than those who are

not; (b) in income category, there are no significant differences in age and gender between those individuals with high income and low income; (c) in Health Category, female participants are more connected in the Group and Spiritual Contexts than male participants, participants who are in excellent/very good health are more connected in the Object and Transcendental Contexts than those who are in average/poor health, and significant interaction effects point to the following: male participants who have excellent/very good health are more are more connected in the (a) Dyadic, (b) Nature, (c) Spiritual, and (d) Transcendental Contexts than male participants who have average/poor health. However, females who have average/poor health are more connected in Spiritual and Transcendental Contexts than males who have average/poor health; (d) in Educational Category, female participants are more connected in the Group and Spiritual Contexts compared to male participants, and finally, (e) in Living Arrangement Category, female participants are more connected in the Group Context than male participants, and participants who are living with others are more connected in the Dyadic and Object Contexts than those who are living alone.

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Finally, I am indebted and grateful to my partner, Dr. Deane D. McIntyre, for his love, patience, and unwavering support all throughout my years of doctoral study.

DEDICATION

This work is dedicated to the most important people in my life:

My loving partner, Deane D. McIntyre;

My two wonderful sons, Jan Amcil L. Chaves and Soren Amcil L. Chaves;

My two precious grandchildren,

Ethan Dominic B. Chaves and Princess C. Chaves,

And one equally precious grandchild

Still in the womb of her mother as of this writing;

And in memory of these amazing people:

My parents, Placido Abrogar Labitad and Magdalena Pimentel Morales;

And Deane's parents, Ralph Douglas McIntyre and Leona Irwin Deane.

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CHAPTER ONE

Introduction

This study is an exploration of connectedness, focusing on examining individuals' linkages with others, with the environment, and with the world. Concepts pertaining to connectedness appear across disciplines. For example, connectedness may involve *relatedness* (Besser & Priel, 2005; Townsend & McWhirter, 2005), *embeddedness* (Snowden, 2001) and *social support,* which tie individuals to social and material resources (Cohen, 2004; Zunzunegui, Kone, Johri, Beland, Wolfson, & Bergman, 2004). Connectedness is also associated with *interconnectedness*, a collective web of connections and relationships (Montero & Colman, 2000). It also involves *belongingness* (Baumeister & Leary, 1995; Chipeur, 2001; Jang, Mortimer, Haley, & Graves, 2004; Ong & Allaire, 2005) and *intimacy,* which are associated with strong favorable attitudes and feelings of attachment and affection towards others (Baumeister & Bratslavsky, 1999; Carstensen, Graff, Levenson, & Gottman, 1996; Shea, Thomson, & Blieszner, 1998). An underlying theme in all of these conceptualizations is that individuals recognize they are part of something outside themselves and that they are meaningfully connected to that "something" (as evidenced by their positive attitudes and emotions). Thus, the operational definition of connectedness used in this study was, *the perception of having a meaningful relation or connection with something, whether it be significant other(s), the physical environment, and/or the world.*

Conceptualizing Connectedness

It is clear from the above discussion that people have different experiences of connectedness in various areas of their lives. For example, people's experience of

interpersonal connectedness may be different from their sense of being connected with the environment. The nature of their experience of connectedness may also be influenced by the context in which they are operating, and the manner (or way) of processing their experiences. Therefore, to understand connectedness it is important to have a conceptual model that encompasses a broad range of people's experiences. The conceptual model used in this dissertation contains *spheres* in which connectedness can occur, *contexts* in which connectedness can be experienced, and *ways* of experiencing connectedness. These terms are elaborated below.

Spheres of Connectedness

A sphere refers to a particular area of human experience in which connectedness may occur. It is possible to conceptualize interpersonal, environmental, and metaphysical spheres. The *interpersonal sphere* entails perceiving meaningful, close, and significant relationships with other human beings. The *environmental sphere* involves perceiving significant and meaningful engagement with one's environment in a non-human or non-social manner. The *metaphysical sphere* implies perceiving significant and meaningful engagement with one's spirituality and transcendental beliefs. These three spheres represent major areas in which individuals experience connectedness and influence the self, which in turn, influences the spheres in which connectedness may be experienced. Thus, there is a reciprocal relationship; the spheres influence people's sense of connectedness, and people's sense of self influences their perception of the spheres in which they are operating.

Contexts of Connectedness

Within each sphere where people experience connectedness it is possible to think of different contexts. In the interpersonal sphere, connectedness may occur between two individuals in a *dyadic context* (e.g., between spouses, best friends) or between an individual and several people in a *group context* (e.g., bridge group, hiking club). In the environmental sphere, connectedness may occur in a *nature context* (e.g., with pets, gardening) or in an *object context* (e.g., prized possessions, art objects, homes). In the metaphysical sphere, connectedness may occur in a *religious context* (e.g., having a religious faith, belief in God) or in a *transcendental context* (e.g., sense of oneness with the universe, believing everything in the cosmos as interconnected). Within each sphere, the context surrounding people's experiences can influence their sense of connectedness. For example, a person's sense of connectedness to a spouse or a best friend can be different than their sense of connectedness to a volunteer group or a church club. Similar examples could also be generated for the two other spheres.

Ways of Experiencing Connectedness

Within each of the six contexts identified above, connectedness could be experienced in three different ways, e.g., physically, emotionally or cognitively, i.e., the major areas of human experience studied by social scientists (Grossman, 1996; Lavouvie-Vief, 1996; Pankseep & Miller, 1996). Experiencing connectedness in a *physical way* involves the body and physical experiences or activities, e.g., holding hands, touching and making love; playing cards, gardening, holding important objects, or attending a religious service. Experiencing connectedness in an *emotional way* involves experiencing positive and/or negative affective states with someone or something, e.g., sharing one's

feelings such as worries, hopes, joy, and fears with a special person or with a social group of people; feeling emotionally immersed with Nature such as wild life, plants, and animals; feeling emotionally connected with important things one owns such as collections, art, and memorabilia; and feeling emotionally connected with a Higher Power or God. Experiencing connectedness in a *cognitive way* involves conscious mental processes, e.g., having deep discussions and being on the same "wavelength" with a special person or a group of people; understanding the complexity and importance of nature; understanding the significance, history, and memories associated with important objects; contemplation and understanding of the importance of a Higher Power or God in one's life. Figure 1 illustrates the combinations of spheres, contexts, and ways of experiencing connectedness.

Figure 1. Spheres, Contexts, and Ways of Experiencing Connectedness

Ways of Experiencing	Interpersonal		Environmental		Metaphysical	
	Dyadic	Group	Nature	Object	Spiritual	Transcendental
Physical						
Emotional						
Cognitive						

The Problem

An examination of psychological research on connectedness reveals an almost exclusive focus on dyadic, interpersonal and intimate relationships (e.g., Bagarozzi, 1997, 2001; Knobloch & Solomon, 2002; Lee & Robbins, 1995, 1998; Lippert & Prager, 2001; Vanderhorst & McLaren, 2005) whereas researchers in other disciplines (e.g., biology,

physics; Barlow, 1997; Crick, 1994) emphasize the connections not only between individuals but also the connections between individuals and the world around them. Thus, this study will extend the idea of connectedness to incorporate not just the interpersonal sphere of connectedness but also the environmental and metaphysical spheres. In addition, the last third of one's life is usually associated with increasing emotional loss in interpersonal connectedness (e.g., widowhood, divorce), decline in intimacy (e.g., spouse's illness), and lessening of social support (e.g., geographical mobility). However, there is little research that assesses multiple sources of connectedness (e.g., pets, important possessions, nature, religion, spirituality) that may be important and fulfilling in the lives of older individuals. Hence, there is a need to examine how older individuals experience connectedness and what types of connectedness they consider important for life satisfaction and meaning. Additionally, there have been few studies that examine how different kinds of connectedness may differ as individuals age, nor of possibly differing patterns for women and men. Thus, this study was undertaken to broaden the concept of connectedness to include the interpersonal, environmental, and metaphysical spheres, and to understand how age and gender may interact in these spheres.

Rationale of the Study

Despite considerable studies on connectedness, there has been no framework that examines this field of human experience from a wider perspective. The present study addresses a more comprehensive understanding of connectedness, involving three spheres, six contexts, and three ways of experiencing connectedness. The study was focused on older people, men and women, 55 years and older, who are more likely to

have experienced connectedness in various spheres, contexts, and ways, and whose stage of life may be characterized by important types of connectedness that are changing and interrelating in different ways as they age. Further, there is no systematic research that assesses different kinds of connectedness that may be important and fulfilling in the lives of older individuals, nor how the patterns of connectedness might be different for women and men. The intent of the study was to increase our understanding of the richness and diversity of experience in the meanings derived from connectedness in the lives of older individuals.

Overview

There are 5 chapters in this dissertation. Chapter 1 described the context of this study. Chapter 2 reviews the literature on the conceptualization of connectedness in relation to age and gender. Chapter 3 presents the methodology used in the present study. Chapter 4 explains the major findings of the present study. Chapter 5 discusses the implications of the findings as well as directions for future studies.

CHAPTER TWO

Review of Related Literature

There have been many previous attempts to conceptualize connectedness, most of them in the context of intimate relationships. For example, Oden (1974) conceptualized 14 types of intimacy: physical, sexual, emotional, intellectual, aesthetic, creative, recreational, work, crisis, conflict, commitment, spiritual, communication, and nature. All of the types Oden describes, except for the last type, pertain to interpersonal relationships. Similarly, Shaefer and Olson (1981) identified 7 dimensions of intimacy: emotional, social, intellectual, sexual, recreational, spiritual, and aesthetic. Bagarozzi (1997) identified nine dimensions of intimacy: emotional, psychological, intellectual, sexual, spiritual, aesthetic, social and recreational, physical, and temporal. Conceptualizing connectedness within the framework of intimate relationships is somewhat limiting, because it excludes other forms of relationships, such as a person's connectedness with the environment and with the world at large.

Some researchers have suggested that connectedness is a multi-dimensional construct that varies along several dimensions. For example, Townsend and McWhirter (2005) suggest that there is connectedness to one's self, to others, and to a larger meaning or purpose, and they vary according to various areas and the individuals experiencing them. However, even people who see connectedness as a multi-dimensional construct still have a somewhat narrow understanding of the scope of connectedness. Information gathered in this current study will enhance our understanding of connectedness as a multidimensional construct and will give valuable information about how older individuals in Calgary experience connectedness within a broader realm.

Interpersonal Sphere

Some writers suggest that there is a form of connectedness that is non-sexual and often is referred to as "psychological intimacy" (Eardley, et al., 2004; Gott & Hinchliff, 2003; Kingsberg, 2000; Trudel, Turgeon, & Piche, 2000). Psychological intimacy is considered a basic human need (Huddlestone, 1999; Matt & Dean, 1993; Mattiasson & Hemberg, 1998; Ornish, 1998) and can involve physical contact (e.g., touching, hugging) as well as psychologically feeling close to another (e.g., attachment, love). This need is as powerful in one's later years as it is in infancy and childhood; individuals who are denied connection with another human can become emotionally impaired (Kluger, 2004).

There is evidence demonstrating that being involved in a non-sexual connectedness with other individuals significantly contributes to well-being and health in older people (Gallagher, 2000; Ornish, 1998; Reis, 1984). On the other hand, the lack of close relationships contributes to the development of major illnesses (Carstensen, Graff, Levenson, & Gottman, 1996; Moss & Schwebel, 1993; Pearsall, 1994). Furthermore, people who have a deeper level of non-sexual connectedness, sometimes referred to as emotional connectedness, seem to be spared from "the deleterious effects of the aging process" (Carstensen, Graff, Levenson, & Gottman, 1996, p. 239). Therefore it seems that connectedness could be conceptualized as having an interpersonal component with a dyadic non-sexual context that contributes to the psycho-emotional health and well-being of older individuals.

Several writers also emphasize the effect on psychological and physical well-being resulting from dyadic sexual connectedness, usually referred to as sexual intimacy. Sexual

intimacy plays an integral part of intimate relationships with potential for causing joy, feeling of being loved, appreciated, and accepted. Sexual enjoyment seems to be associated with feelings of well-being and general satisfaction of a relationship, and couples who are generally satisfied with their relationship and experience a high degree of well-being are more likely to engage in sexual intercourse even in old age (Wilson & McLaughlin, 2001). In addition, older people who have a sexual partner report a higher degree of life enjoyment and satisfaction in their relationship (Young, Denny, Luquis, & Young, 1998). Overall, sexual intimacy helps to preserve psychological and physical well-being (Trudel, Turgeon, & Piche, 2000). It is associated with longer life, better heart health, an improved ability to ward off pain, a more robust immune system, and even protection against specific cancers (Lemonick, 2004; Park, 2004). Thus, interpersonal connectedness can also be conceptualized as having a sexual component, which can also provide enjoyment, satisfaction, and improve one's psychological and physical health.

Interpersonal connectedness is not limited to dyadic interactions but may also occur in a group context. For example, involvement in social groups (e.g., clubs, organized religion, volunteer work) has been shown to augment an older individual's social network, reduce social isolation, and provide sources of self-identity and self-esteem (Arber, 2004). Friendships in group settings among the elderly foster feelings of emotional intimacy, attachment, reciprocity, and companionship (Matt & Dean, 1993). Social activities result in a sense of meaning and purpose in life and have positive consequences for health (Antonucci, Okorodudu, & Akiyama, 2002; Glass, Mendes de

Leon, Marattoli, & Berkman, 1999; Mehl-Madrona, 2005; Yeh & Liu, 2003; Zunzunegui, et al., 2004). On the other hand, poor social connections, infrequent participation in social activities, and social disengagement contribute to greater risk of cognitive decline in older individuals (Zunzunegui, Alvarado, del Seran, & Otero, 2003).

Based on the above literature, it is clear that interpersonal connectedness may occur in both dyadic and group contexts. Older individuals fare better when they are connected with significant others and groups of people where they can derive psycho-emotional support as well as shared time and activities. Dyadic and group connectedness fulfill the need for love and belonging and help to avoid social and emotional loneliness. Hence, it is reasonable to conceptualize an Interpersonal Sphere of connectedness that occurs in both a Dyadic Context and a Group Context, and that the Dyadic Context can be subdivided into sexual and non-sexual components.

Environmental Sphere

Ecologists and ecopsychologists have long theorized the importance of human connectedness to nature. Research shows that connectedness to nature is an important predictor of subjective well-being and healing (Mayer & Frantz, 2004; Suttie, 1984). However, the Western cultural value of the superiority of humans to other life forms has created a sense of disconnectedness from the immediate surrounding which makes it problematic to relate to nature as a valuable aspect of the human world (Frantz, Mayer, Norton, & Rock, 2005).

It has been shown that feeling connected during encounters with nature can transform an individual (Schultz, Shriver, Tabanico, & Khazian (2004). For example,

feeling connected to nature by spending time in wilderness or camping in a forest can be beneficial for health and well-being (Suttie, 1984). Milligan, Gatrell, and Bingley (2004) point out that that having gardens and engaging in gardening activities provide a "therapeutic landscape" that gives restorative comfort to older people and is an important factor in their emotional, physical and spiritual renewal through increasing a sense of achievement, satisfaction and aesthetic pleasure.

Pets are also an aspect of nature with which older individuals can develop a sense of connectedness (Allen, 2003; Allen, Blascovich, & Mendes, 2002; Banks & Banks, 2002; Friedman, Katcher, Thomas, Lynch, & Messent, 1983; Odendaal, 2000). Albert and Bulcroft (1988) found that older individuals form attachments with animals and these relationships may have health benefits (Allen, Blascovich, & Mendes, 2003; Beck & Meyers, 1996; Savishinsky, 1992; Siegel, 1990). Pet ownership seems to produce positive effects on health and well-being (Fouts & Veal, 1997) and pets often serve as surrogate humans, through acting as companions, helpers, and friends (Bryant, 1979). It follows from the above literature that environmental connectedness can occur within the context of nature, through bonding with aspects of the natural environment, such as doing gardening or having pets.

Aside from nature, environmental connectedness also can occur with objects. Older individuals may experience a sense of connectedness with inanimate possessions, in the form of memorabilia and their immediate environment, such as heirlooms, treasured collections, art, music, and home (Rubinstein, 1989; Shenk, Kuwahara, & Zablotsky, 2004; Tobin, 1996; Wapner, Demick, & Redondo, 1990). Rowles (1993)

suggests that people have a propensity to develop a physical and emotional connectedness to their home which is nurtured and reinforced by the accumulation of artefacts and mementoes (e.g., furniture, favourite pictures, a treasured vase, scrapbooks), which in turn provides "a sense of physical, social and autobiographical insideness" (p. 66). Thus, among nursing-home residents, possessions, such as photos, gifts, and heirlooms provide historical continuity, comfort, and a sense of belongingness (Wapner, Demick, & Redondo, 1990). These possessions may represent "ties or bonds with others at a time of life when social losses tend to be greatest" (Kempter, 1989; cited in Tobin, 1996, p. 46). These possessions are also considered as the families' inalienable wealth because of their shared significance (Curasi, Price, & Arnold, 2004). Hence, cherished possessions are "eliciters" of memory that provide individuals with cognitive stimulation and connections to their own historical past (Tobin, 1996).

It is clear from the above literature that a sense of connectedness can occur within an Environmental Sphere and involves elements of the natural environment as well as important objects considered as cherished mementoes as. It is therefore reasonable to conceptualize the Environmental Sphere as having both a Nature Context and an Object Context.

Metaphysical Sphere

Research has shown that spirituality may become more important and meaningful in later life. Spirituality may be experienced as "communion" with God involving a dynamic, animated relationship with a sacred reality (Ramsey, 2001). It may also be associated with "meaning making" or a sense of life's purpose and an awareness

of being connected to one's innermost self (Daaleman, Cobb & Frey, 2001). Some older individuals experience spirituality as an integral part of who they are that allows them to experience a relational aspect of their faith (Fletcher, 2004). Heschel (1951) argued that a person's highest spiritual goal is to face "sacred moments."

There is increasing consensus among researchers in medicine, gerontology, and mental health of the positive relationship between physical health and spirituality, in the form of religiosity (Hatch, James, & Schumm, 1986; Kirpatrick, Shillito, & Kellas, 1999; Tornstam, 1999; Wink & Dillon, 2003). Religion provides stability, structure, and connectedness (Idler, 1995), especially during crises or serious illness (Astrow, Puchalski, & Sulmasey, 2001). Regular practice of any religion, independent of denomination, contributes to health and well-being of the elderly (Benjamins & Brown, 2004; Daaleman, Cobb, & Frey, 2001; Fry, 2000). The relaxation that comes with certain types of prayer and meditation, the power of positive thinking in relation to a benevolent Power (e.g., trusting God's will, an enduring life), and the support of religious community, are believed to contribute to health benefits (Astrow, Puchalski, & Sulmasey, 2001).

Connectedness may also be experienced within a transcendental context. It is suggested that Westerners approach the world "analytically" while Easterners tend to approach the world more "holistically" (Doidge, 2007). Regardless of cultural differences, research shows that people have an understanding of the interconnectedness of everything and a sense of oneness with the world (Brehony, 2003; Hallowell, 1999).

Transcendental experiences can occur in many environments, such as in wildlife or in contemplation, where people develop a sense of "union" with the universe or some other power or entity, and a sense of timelessness with everything in the world (Williams & Harvey, 2001). Aboriginals, for example, place emphasis on deep connections with land and place, such that the world is seen as being imbued with profound spirituality and interconnectedness (Zapf, 2005). Such profound experiences of unity with the world are considered psychologically beneficial since they are associated with feelings of ecstasy, union, reverential awe, and expansiveness, thus overcoming limits of ordinary experience (Williams & Harvey, 2001).

Vietnamese poet Thich Nhat Hanh (cited in Brehony, 2003) used the term "*interbeing*" to describe the "real, primal, and spiritual connections between each of us, our human family, and with life itself" (p. 107). A similar notion, that of interconnectedness of life, is echoed by La Chapelle (2001) who argues that the fields of physics, astronomy, and nature are conceived as distinct expressions of the oneness of life and of everything. Thus, connectedness may be conceptualized as having a Metaphysical Sphere with a Spiritual Context and also a Transcendental Context.

It is clear from the above literature that people experience being connected with a Higher Power or a sacred reality, and even experience the interconnectedness of life. These contexts of connectedness are meaningful because they promote a tri-level experience: horizontal connectedness (being connectedness with others such as church members), vertical connectedness (being connected with one's God or a higher power), and expansive connectedness (being connected with all of life and of everything).

Ways of Experiencing Connectedness

Within each Sphere and each Context, connectedness may be experienced in several ways. In much of the literature on human experience studied by social scientists (e.g., Damasio, 2003; Doidge, 2007; Grossman, 1996; Lavouvie-Vief, 1996; Meissner, 2006; Pankseep & Miller, 1996; Van Gelder, 2005) the focus has been on physical, emotional, and cognitive ways of experiencing the world. Virtually all human experience has physical, emotional and cognitive components.

Older individuals may have different ways of finding connectedness in emotional, physical, and cognitive ways; and these ways may change, interweave and/or dovetail one another as they age. Although each way of experiencing is distinct, they also are inter-related. For example, physical stress (e.g., sepsis or trauma) can have a negative impact on emotion (e.g., feelings of helplessness, fear) and on cognition (e.g., mental blackout). Mental deficits (e.g., slower mental processing) can have an effect on one's physical reaction time (e.g., inability to see traffic signs), which in turn affects one's emotions (e.g., fear of accident). Hence, the emotional, physical, and cognitive aspects of experience are interwoven (Meissner, 2006).

Physical. Human beings live with and through their bodies (Kim, 2001). The body is the fundamental aspect of the self through which one participates in and responds to the world; one meets the world through one's body (Reischer & Koo, 2004). It is through the body that the person perceives things and senses the world. Thus, to have a body means to be physically affected and moved by experiences as well as to put into motion one's self (self agency; Latour, 2004).

The desire to experience connectedness in a physical way is a basic human need and an individual who is denied of touch, affection, and connection with another human being can shrivel emotionally (Kluger, 2004). Physical contact, such as touching, holding hands, or hugging, is a positive form of physical connectedness (Fisher, 2004); whereas, physical violence is a negative form of physical connectedness that does not promote emotional and psychological support (Williams, 2006). In a conceptualization of connectedness, the physical way is the most basic form of connecting. Through the body, an individual perceives and senses the outer world and responds accordingly.

Emotional. In ordinary every day life, humans experience varying degrees of emotions in their interactions with others and with the world. Emotions are an important facet of understanding relationships and meanings in the way people connect with the world. Research show that experiencing connectedness in an emotional way can influence one's physical health and well-being either positively or negatively (e.g., organs, immune system; Coughlin Della Selva, 2006; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; May, Rahhal, Berry, & Leighton, 2005). Experiencing connectedness emotionally provides a sense of purpose, meaning, and belonging, especially to older people who have experienced losses and deficits (Ornish, 1999).

Cognitive. Cognition involves the complex and comprehensive fields of mental, intellectual, and psychological functioning, e.g., attention span, concentration, intelligence, judgment, learning ability, memory, orientation, perception, problem solving, psychomotor ability, reaction time, and social intactness (Bee, 2000; McDougall, 1995). Research indicates that all forms of connectedness are accompanied

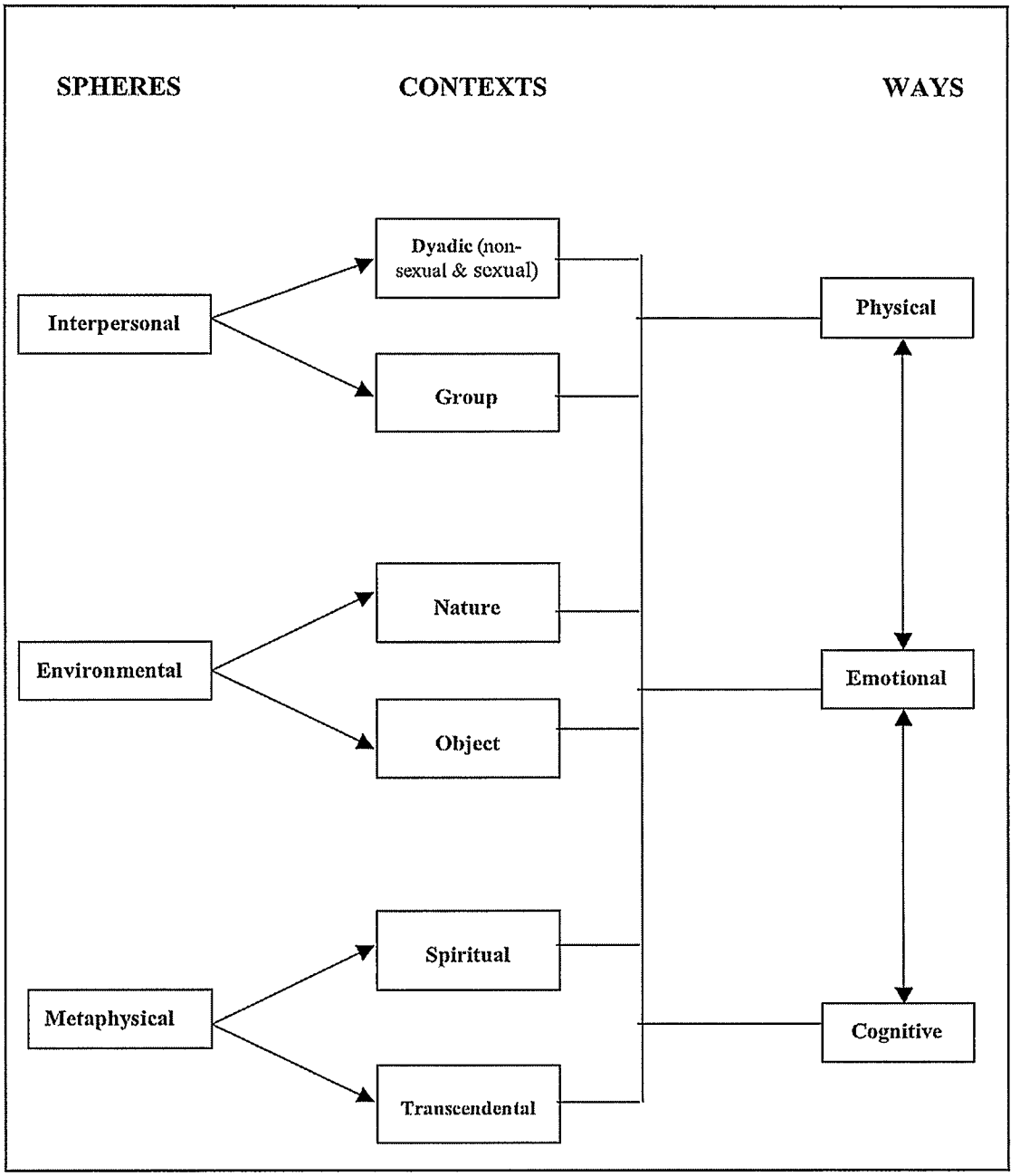
by cognitive experiences (McDougall, 1995).

Although there are claims of cognitive decline among the elderly (e.g., McDowell, Xi, Lindsay, & Tuokko, 2004; Ponds, van Boxtel, & Jolles, 2000; Singer, Hopman, & MacKenzie, 1999), there is also evidence that older people often develop an adaptive response to cognitive challenges, such as using "cognitive reserves," that enables them to continue functioning at a high level (Avlund, Lund, Holstein, & Due, 2004; Backman, Wahlin, Small, Herlitz, Winblad, & Fratiglioni, 2004; MacGregor, 2003). Cognitive reserves that occur as the result of larger brain size, having higher intelligence or higher education may delay the onset of dementia (Allen, Bruss, & Damasio, 2005; Lee, 2003). This is consistent with Moses' notion of "longevity vigour" which refers to the fact that many centenarians live vigorous lives, despite their age (Globerson & Barzilai, 2004). What are the effects of cognitive reserve and longevity vigor on older people? It appears that the more educated they are, the more they participate in physical and social activities, and the more they engage in mentally stimulating activities, the more likely they are to prevent the onset of dementia (Doidge, 2007). Hence, experiencing connectedness in a cognitive way depends upon cognitive integrity and the ability to adapt to cognitive challenges as well as living an active life.

Summary. Based from the above review of related literature, it is reasonable to conclude that connectedness may be experienced primarily in three ways: emotionally, physically, and cognitively. Although these three ways of experiencing connected are different, they also are interrelated, and when a person is experiencing connectedness, all three components are operating. These three ways of experiencing connectedness

continue to be critical even in old age. Hence, conceptualizing connectedness may not be complete unless a model includes the ways connectedness is experienced. To summarize, the model in this study attempts to enlarge and extend the conceptualization connectedness by incorporating three Spheres, six Contexts, and three Ways of Experiencing connectedness. The above review of literature supports this conceptualization, which is depicted in Figure 2.

Figure 2. Diagram of Conceptualization of Connectedness



Age, Gender, and Connectedness: A General Review

Age and Connectedness

Studies show there are several age-related changes that a majority of older individuals experience. For example, there are changes in vital social relationships (Butler, Lewis, Hoffman, & Whitehead, 1994); in psychological involvement in life (Doka & Lavin, 2003); and a decline of functional levels of most organ systems (Kaplan, Haan, & Wallace, 1999; Mattiasson & Hemberg, 1998). Thus, aging is frequently associated with experiencing loss (Coleman, 1990; Pinquart, 2002), such as loss of a loved one, being unable to experience Nature due to declining health.

Several studies have shown that connectedness contributes to the health and well-being of older individuals, particularly interpersonal connectedness, connectedness with pets, and religious connectedness. If the areas and ways of connectedness are found to differ according to age, then age-relevant prevention and intervention strategies can be developed to promote new and/or strengthen existing sources of connectedness, thereby increasing the health and well-being of older individuals. For example, if a woman loses her spouse (interpersonal-dyadic) or has to move to a care facility (environment-object), some new sources of connectedness may be fostered, such as joining a club (interpersonal-group), taking trips to parks (environmental-nature) or encouraging church-related activities (metaphysical-religion).

Age and the Interpersonal Sphere. Research suggests that the level of connectedness between long-term friends tends to remain high, even when there are age-related changes in circumstances, such as retirement, widowhood (Atchley & Baruch,

2004). Some research indicates that as one grows older, the number of friends and social support may decrease due to death and geographical relocation (Armstrong & Goldsteen, 1990). Friendships appear to be particularly limited among the elderly with developmental disabilities and those who are institutionalized (Doka & Lavin, 2003). However, for those in their late 70s and older who are still relatively healthy, there is a tendency to develop a greater number of younger friends, perhaps as a shield against peer attrition (Armstrong & Goldsteen, 1990).

More generally, social connection provides opportunities for companionship, sociability, and social activities (Avlund, Lund, Holstein, & Due, 2003); this is also true for the frail when there is little or no physical exertion (Glass, Mendes de Leon, Marottoli, & Berkman, 1999). One study reported the importance of nurses and caregivers providing non-sexual, physical connectedness (e.g., touch) to the elderly in nursing homes (Mattiasson & Hemberg, 1998).

The literature on the relationship between age and sexual functioning provides mixed results. For instance, there have been reports that when older individuals are in good health, the great majority remain intimate and sexually active on a regular basis (Driedger, 2002). They may even be sexually active until the end of life (Kaplan, 1990), although it is often difficult to determine at which point sexual activity actually ends (Butler, Lewis, Hoffman, & Whitehead, 1994; Kessel, 2001). However, some researchers (Arber, 2004; Daker-White & Donovan, 2002; Davidson & Fennell, 2002; Matt & Dean, 2004) report otherwise: that sexual functioning is adversely affected by the age-related physical changes and this, in turn, often affects the quality of the

intimacy in a relationship (Daker-White & Donovan, 2002). For example, sexual dysfunction in males (e.g., erectile dysfunction due to illness) often prevents elderly couples from engaging in sexual intercourse, which frequently results in feelings of decreased intimacy (Daker-White & Donovan, 2002). For both women and men and with increasing age, decreasing physical health and increasing disability exacerbate problems in experiencing sexual intimacy (e.g., Lamarca, et al., 2003). Following these views, it appears that for healthy older individuals who have access to a regular partner, sexual connectedness may continue until the end of life (Karlsson & Borell, 2002). However, increasing age and deterioration of health could negatively impact the quality of sexual connectedness.

Numerous studies show that social groups provide the context for enduring affection, mutual trust, love and belonging, and the sharing of time and activities (Kissane & McLaren, 2006; Litwin, 2006; Vanderhost & McLaren, 2005). They also help older individuals avoid social and emotional loneliness and the fear of dying alone (Brehony, 2003; Miles & Parker, 1999). Thus, group connectedness is the "glue" that holds people together in communities; it involves trust and reciprocity and ultimately enriches people's lives (Pooley, Cohen, & Pike, 2005; Putnam, 2001). Involvement with social groups is a means of enriching one's creativity, productivity and emotional integration and it has also been positively associated with well-being and biological longevity (Hook, Gerstein, Detterich, & Gridley, 2003; Ornish, 1998). Thus, if dyadic connectedness decreases (i.e., death of a spouse, loss of some family members), group connectedness may provide another means of connecting with others. Social groups

provide the involvement and stimulation one needs to continue growing, despite other age-related changes that may be occurring.

Age and the Environmental Sphere. Several studies have documented the supportive and beneficial role of connectedness with nature (Albert & Bulcroft, 1988; Allen, Blascovich, Mendes, 2002; Beck & Meyers, 1996; Bryant, 1979). For example, the presence of pets reduces loneliness and increases social contacts (Banks & Banks, 2002), acts as buffer against stress, and provides a positive influence on self-esteem for older individuals with disabilities (Allen, Blascovich, & Mendes, 2002). Similar benefits have been found with animal-assisted therapy for those still living in their own homes as well as those who are institutionalized (Allen, Blascovich, & Mendes, 2002; Albert & Bulcroft, 1998; Banks & Banks, 2002; Beck & Meyers, 1996). These beneficial effects are more common with older individuals who have the highest rates of pet ownership, e.g., never-married, divorced, widowed, childless couples (Albert & Bulcroft, 1988).

There is also some evidence that as individuals age, they may experience a greater sense of connectedness with particular inanimate objects and possessions in their immediate environment (e.g., favorite chair, pictures, heirlooms, collections). It is reported that possessions or memorabilias may increasingly serve as "foci for environmental" meaning and contribute to self-identity and historical context (Rowles, 1993; Rubinstein, 1989). For example, a picture frame on a table or a favorite chair may remind one of a deceased spouse; a drawing by one's child long ago may elicit fond memories of a daughter; family albums not only chronicle the births and deaths of two generations but can provide a sense of continuity and meaning in their world (Shenk,

Kuwahara, & Zablotsky, 2004; Tobin, 1996). Older individuals moving to nursing homes are often encouraged to take their momentos and collections with them; they act as "anchor points" and "comforters" in their transition to a new place (e.g., Wapner, Demick, & Redondo, 1990).

Age and the Metaphysical Sphere. Several studies indicate that the importance of religion increases after age 50 and continues to do so into late life (e.g., Benjamins & Brown, 2004; Fletcher, 2004; Krause, Ingersoll-Dayton, & Liang, 1999). It is reported that practicing a religion provides a sense of connectedness and a means of affirming that one is important, especially to God or a higher power (Fry, 2000; Idler, 1995). It is further suggested that the elderly have an implicit belief that faith heals and that God knows best (Jianbin & Mehta, 2003). It is unknown, however, whether connectedness with religion and transcendental beliefs are related and whether this relationship changes with age.

There are also suggestions in the aging literature that older people often move to broader attachments and connections. For example, Tornstam (1997) suggests that "gerotranscendence" may develop in which self-centeredness declines and broader affinities and commitments in religion and spirituality can appear. In this context, what people have and what they contribute become less important than what they believe in (Coleman, 2000). Further, an intriguing view of transcultural phenomenology supports the notion of universal connectedness, which offers a deeper understanding of human connectedness with the world and the universe (Dawson, 2004). This view holds that the human self is inherently related to the sacred realm and to the universe. These

suggestions imply a tendency that individuals can "go beyond" their immediate selves and find new ways of connecting in a broader sense.

In summary, older individuals may find connectedness in the Interpersonal Sphere, the Environmental Sphere, and the Metaphysical Sphere as part of their changing landscape while navigating age-related losses and limitations. They can find connectedness in being with a special someone or with groups of people, in being part of nature, in their treasured possessions, as well as in their spirituality and their sense of being part of the interconnectedness of life and world.

Age and Ways of Experiencing Connectedness

In the model developed in this dissertation, the Ways of Experiencing refer to the processes people utilize in developing a sense of connectedness. In the paragraphs below and in the section on Gender and Ways of experiencing connectedness, terms such as "physical connectedness" refers to the connectedness that is experienced primarily as a physical state which involves bodily contact and/or activities; "emotional connectedness" refers to connectedness that is experienced primarily as a feeling state, comprising love, joy, anger, hate, horror, fear and other emotional states; and "cognitive connectedness" refers to connectedness that is experienced primarily as a cognitive phenomenon, resulting from shared values, similar belief system, or similar ways of deriving meaning from the world.

Physical. Physical connectedness is closely related to a person's health. In short, one's physical integrity depends largely on the state of one's health. Health encompasses the absence of functional impairment, having positive mood and social

support, and being socially engaged (Ostbye, Krause, Norton, Tschanz, Sanders, Hayden, et al., 2006). Being in good health enables individuals to engage in physical connectedness because being healthy allows older individuals to engage more in social activities. Conversely, having an active social life brings improved mood and also contributes to general health and well-being.

Research indicates that advancing age may entail some losses and some gains (MacGregor, 2003). For example, one may lose physical strength and stamina but may gain more free time to develop friendships and attachments; sensory capacities may diminish with age but may lead to greater emotional completeness and fulfillment. Thus, physical connectedness can often be maintained until very old age by maintaining valued activities and active engagement in life (Rowe & Kahn, 1997), developing psychological and mental competencies (Ostbye, Krause, Norton, Tschanz, Sanders, Hayden et al., 2006), and finding purposeful and meaningful goals (MacGregor, 2003; Pinquart, 2002).

Emotional. There have been mixed results in studies pertaining emotions in older individuals. Research in aging and emotion shows that while some cognitive declines occur in later life, there appear to be some gains in emotional functioning (Carstensen & Mikels, 2005). In a meta-analysis of 125 studies (Pinquart, 2001), it was reported that there were greater declines in positive affect as well as larger increases in negative affect as individuals age, especially in the oldest old and those experiencing economic hardship. It is suggested that close personal relationships can diminish negative emotions, thus enhancing health, in part, through their positive impact on immune and endocrine regulation (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002).

According to socioemotional selectivity theory, the older people become, the more they value emotionally meaningful goals and the more they invest in cognitive and social resources in obtaining them. Thus, they direct attention to emotionally meaningful aspects of their lives, such as having a meaningful life or feeling socially interconnected (Carstensen & Mikels, 2005). This is consistent with recent research indicating that emotion remains important even when dementia occurs, such as those with mild to moderate Alzheimer's disease retain much of their ability to recognize non-verbal emotional cues in faces and voices (Bucks & Radford, 2004). Also, it appears that high positive affect can significantly lower the risk of frailty and be protective against functional and physical decline (Oster, Ottenbacher, & Markides, 2004). Thus, although there have been mixed results in the studies regarding emotions, it is clear that emotions play a strong influence in people's sense of connectedness.

Cognitive. There is evidence that some cognitive abilities may decrease as individuals age, especially for the very old. For example, a decline in physical activity in old age can be paralleled by declines in cognitive functioning, (MacKinnon, Christensen, Hofer, Korten, & Jorm, 2003). It is also reported that those having no close ties and living alone were more likely to develop dementia over a 3-year period (Fratiglioni et al. 2000, cited in MacKinnon, Christensen, Hofer, Korten, & Jorm, 2003). The Kungsholmen Project (Backman, et al., 2004) found that (a) cognitive decline in those 75 and older occurs in some cognitive domains (e.g., episodic memory, verbal fluency, visuoconsructive skill, psychomotor speed) but not in others (e.g., primary memory, visuoperceptive skill, motor hand coordination); and (b) there are many individual

difference variables that account for the wide variation in cognitive decline, such as demographic (e.g., sex, education), life-style (e.g., activity level), genetic (e.g., apolipoprotein E genotype), and health-related (e.g., vitamin B deficiency, depression, diabetes) domains.

Meanwhile, there is also evidence that cognitive performance can be improved while individuals age (Backman, et al., 2004) and that there is a "reserve capacity" in many very old adults that keeps them highly functional (Perls, 2004a, 2004b). For example, engaging in leisure activities (especially those requiring cognitive challenge) and in paid work have been associated with higher levels of intellectual functioning (MacKinnon, Christensen, Hofer, Korten, & Jorm, 2003). Some research suggests that level of education has a strong protective effect against cognitive decline, especially before 80 years of age (McDowell, Xi, Lindsay, & Tuokko, 2004). Finally, there is also evidence that mental health appears to remain stable even with the presence of chronic disease (Singer, Hopman, & MacKenzie, 2000).

In summary, the three Ways in which people experience connectedness continues to be a crucial factor influencing physical and mental health as people age. It is therefore important to take into account the ways in which people experience connectedness when studying the connectedness construct. In addition, the three Ways of Experiencing connectedness tend to have somewhat differential influences, so it is important to keep them separate, but these three Ways are also interconnected, so what happens in one dimension also affects the other two dimensions.

Gender and Connectedness

Gender is widely recognized as an important variable in understanding behavior (Perlman & Fehr, 1987; Stewart & McDermott, 2004). Some researchers argue that, overall, the differences between men and women have been exaggerated and that in most areas, men and women react in very similar ways (see Hyde, 2005). However, the majority of researchers believe there are significant and stable gender differences. For instance, although older men and women are, to a certain extent, "survivors", men are more positively selected than women (Consedine, Magai, & Krisvoshhekova, 2005). In addition, men and women are biologically different (e.g., body, reproductive, and hormones) such that there are pre-existing essential differences between them (Stewart & McDermott, 2004). This is shown in the differences in muscular structure and reproductive system (e.g., men are physically stronger than women; women undergo some dramatic changes during menopause; Foos & Clark, 2003). There are also differences in how women tend to view their bodies as compared to men. They are prone to become discontented with their bodies as they grow older, while men, regardless of age, are generally satisfied with their bodies (Oberg & Torstam, 1999).

There seems to be differences in how men and women view connectedness. For instance, women tend to associate intimacy with love, affection, and the expression of warm feelings while men believe intimacy means sexual behavior and closeness (Ridley, 1993, cited in Hook, Gerstein, Detterich & Gridley, 2003). Other studies suggest that women tend to emphasize verbal expressiveness, focus on warmth, and search for intimacy; whereas, men often de-emphasize the expression of feelings in their interactions and focus more on autonomy, self-reliance, and independence (Olson

& Shultz, 1994).

It is suggested that women are much more relational than men in the sense that they prefer being connected and place great emphasis on talking and emotional sharing (Hook, Gerstein, Detterich & Gridley, 2003). For men, togetherness is considered more as an activity rather than a state of being, as it is for women (Hook, Gerstein, Detterich & Gridley, 2003). However, there have been few studies that assessed gender differences in various areas of connectedness conceptualized in this study. It is therefore noteworthy to address gender differences in this study to ascertain how older men and older women differ in their experience of connectedness.

Gender and the Interpersonal Sphere. In general, older women appear to experience more interpersonal connectedness than men. For example, older women are more likely to have confidants than older men. Married men are more likely to rely on their spouses as their sole confidants, whereas married women are more likely to have same-sex confidants outside of marriage (Lowenthal & Haven, 1986).

It has been reiterated that sexual interest is highest in the early years of marriage and steadily declines until sometime in the middle years, rising again in old age but never returning to the high levels demonstrated by newlyweds (Baumeister & Bratslavsky, 1999; Ramey, 1976). It is reported that sexual potential and erotic pleasure only ends with death (Kaplan, 1990). This is confirmed in a recent large scale study which shows that sexual experience remains important for both genders throughout life, with men viewing intercourse as the most important aspect of sexual experience and women viewing tenderness and foreplay as the most important (Eardley, et al., 2004). According to Kingsberg (2000), the sexual developmental task of older couples is to

keep the pleasure going. It is unknown, however, whether there are gender differences in the sense of connectedness associated with sex or whether this connectedness may differ according to gender at different times during the last stages of life.

Gender differences also have been found in connectedness with groups and in social activities. For example, although more older women live alone than older men, they have stronger social relationships outside the home than older men (Arber, 2004; Avlund, Lund, Holstein, & Due, 2004). It is reported that older women have more extensive networks of friends than older men, with older women developing new friendships more readily in later life than older men (Arber, 2004). In addition, divorced older men and never-married men have lower levels of social involvement; however, there are some social organizations (e.g., Bingo games) and sports clubs (e.g., bowling, golf, tennis) that are primarily the province of older men (Arber, 2004).

There also is evidence for gender differences regarding how social contacts and belonging to groups may reduce the deleterious effects of psychological stress (Ornish, 1998; Pearsall, 1994; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). For example, under highly stressful conditions where friends are present, women have a greater lowering of diastolic blood pressure than do men (Dimsdale, 1995). It is unknown, however, whether these gender differences continue throughout life or whether different kinds of social groups produce different benefits for women and men.

Older women are more likely to interact within a neighborhood network while older men are more likely to socialize within a friendship network (Litwin, 2001). Women have larger and more supportive networks, are more satisfied in their connections, and have more frequent contacts than men, but as a consequence, they may

be more burdened since they often provide greater sick care and responsibilities than they receive (Acitelli & Antonucci, 1994). Overall, older women have affectively richer relationships than men (Booth, 1972; Heller & Wood, 1998) and are higher in self-disclosure than men (Brehm, 1985; Hook, Gerstein, Detterich, & Gridley, 2003). In their social interactions, men often de-emphasize the expression of feelings and most often focus on autonomy, self-reliance and independence; women, on the other hand, emphasize verbal expressiveness and focus more on warmth and intimacy (Olson & Shultz, 1994).

These differences, however, decrease if older men learn to display a more "feminine" orientation and older women a more "masculine" orientation (Henry, 1988). Coleman (2000) speculates that this may result in greater relatedness in older men (as they compensate for loss of certain competencies (e.g., physical strength) and greater independence in older women (as they compensate for all the time spent in child rearing and being a home maker). It is unknown, however, whether all these forms of interpersonal connectedness continue until the end of life or differ according to gender at different times.

Gender and the Environmental Sphere. There are several studies regarding pet therapy for the elderly living in nursing homes and how pets play a moderating role in assuaging loneliness and depression (e.g., Banks & Banks, 2002; Savishinsky, 1992). It is unknown, however, if there are gender differences in pet ownership and interaction or in other aspects of connectedness with nature.

There is research that indicates gender differences in the Object Context. For instance, one study found that older women had more cherished possessions than older men and that older women were more likely to associate important possessions with "self-other" relationships (Wapner, Demick, & Redondo, 1990). Another study (women only) found that older women are often attached to their home and possessions (Shenk, Kuwahara, & Zablotsky, 2004), with the underlying themes of this connection being meaning, historical continuity, comfort, and a sense of belonging (Tobin, 1996; Wapner, Demick, & Redondo, 1990). An ethnographic study involving three older men and four older women explored how they endowed the home environment with meaning (Rubinstein, 1989). Several themes were reported – the importance of ordering (where things go), accounting (inventory of things owned), personalization (involvement of self with things), extension (objects considered as part of the self), embodiment (objects and self as intimately bonded), entexturing (sensory experience in daily at-home routines), and centralization (manipulating the home environment to accommodate increasing physical limitation). However, there were no gender differences reported in this study.

Gender and the Metaphysical Sphere. Some researchers have examined gender differences in the Spiritual Context. For example, studies in the psychology and sociology of religion indicate that gender "…is the strongest, most consistent sociodemographic correlate of religious involvement" (McFadden & Levin, 1996; p. 360). That is, older women are more involved in religion than older men (e.g., Krause, Ingersoll-Dayton, Liang, & Sigisawa, 1999; Wink & Dillon, 2003). For example, religious beliefs and church attendance are greater for women than men regardless of

biomedical condition and psychosocial predictors (Contrada, et al., 2004).

Involvement in religion may also confer health benefits. For example, higher levels of spirituality or religiosity, prayer, and attendance at services are associated with lower blood pressure in men, although not in women (Tartaro, Luecken, & Gunn, 2005). Religious attendance is more closely related to positive mental health for women than men (Hintikka et al., 2000; cited in Consedine, Magai, & Krivoshekova, 2005). This is believed due to women having a larger social network (through their religious involvement), thus reducing psychological distress (Consedine, Magai, & Krivoshekova, 2005).

With regards to transcendental connectedness, there is little research examining gender differences in this context. Therefore, it is unknown whether women and men differ in having a sense of oneness with everything in the world or believing in the interconnectedness and meaning of everything in the universe. It is also unknown whether religious and transcendental connectedness are related and whether this relationship may differ according to gender. It is therefore essential to explore if there are gender differences in the transcendental connectedness.

Gender and Ways of Experiencing Connectedness

The gender of older individuals may influence the Ways in which connectedness is experienced. However, it is not clear whether these gender differences are the result of biological differences, different interaction patterns among men and women, socio-cultural norms, or people's ways of processing their experience. Since research is inconsistent regarding the gender differences between older men and women,

there is a need to further explore these differences in the Ways of experiencing connectedness.

Physical. It appears that the quality and quantity of physical connectedness is largely determined by an older individual's ability to live independently, the frequency of participation in daily activities, and the absence of physical illness (Ostbye et al., 2006). Physical resilience and remaining physically active through social activities are the most important criteria for physical connectedness among older individuals (Lee, 2005).

Researchers have observed a "gender paradox" in physical connectedness. Although women have a greater life expectancy than men, they tend to have more physical issues in old age (Arber & Cooper, 1999). Women had poorer health and needed more help from their children despite lower mortality rates than men (Walter-Ginzburg, Shmotkin, Blumstein, & Shorek, 2005). Other research found that older women were more likely to report functional limitations than men of similar age (Lee, 2005; Murtagh & Hubert, 2004). In the very old (90+ years), women were more disabled and needed twice as much assistance than men (Von Strauss, Aguero-Torres, Kareholt, Winblad, & Fratiglioni, 2003). It is also reported that older men are more physically resilient than older women (Consedine, Magai, & Krivoshekova, 2005). For example, one study has shown that older women have a greater tolerance for work requiring cognitive demands than men, but have more difficulty than men when work demands are physical (Barbini, Squadroni, & Andreani, 2005).

However, other studies indicate that women have greater physical resiliency than men (e.g., they recover from disability more quickly than men; Peres, Jagger, Lievre, & Barberger-Gateau, 2005). In the same vein, some researchers argue that since older women are more socially connected, they move forward in life, remain curious and generally have a practical approach to the challenges they face. That is, their relationships serve as a protective factor that benefits their health and well-being (Kinsel, 2005) and provides them with a certain degree of hardiness and resilience, thus ameliorating some of the deficits associated with aging. Hence, physical connectedness may be affected by the degree of one's health and ability to be socially connected.

Emotional. Research suggests that regardless of gender, emotionally-laden goals and information become increasingly important for older people, and priorities shift from knowledge-related goals (e.g., information seeking) to emotion-related goals, such as deriving meaning from life (Ben-Zur, 2002; May, Rahhal, Berry, & Leighton, 2005). Nevertheless, there appear to be gender differences in several areas of emotion. For instance, women appear to be more sensitive to emotional cues and are more emotionally responsive than men, e.g., women have greater ability to recognize, interpret, and express emotional information and to make emotional judgments than do men (Thayer, Rossy, Ruiz-Padial, & Johnsen, 2003). In addition, women are more "emotionally intelligent" than men, such that women have greater abilities to empathize, take perspectives of others, and feel emotional concern for others (Miville, Carlozzi, Gushue, Schara, & Ueda, 2006). Based on these studies, one may conclude that women are more emotionally connected than men.

It is suggested that the learning of expressing emotion occurs in different contexts, such as women tend to have larger and more emotionally supportive networks and they report having more frequent contact than men (Acitelli & Antonucci, 1994). It has been suggested that the differences mentioned above may, in part, be due to cultural norms and beliefs concerning men's and women's emotional expressiveness learned in early childhood. For example, boys and men receive relatively little support in expressing negative emotions in a positive manner, whereas, girls and women are encouraged to express their positive and negative emotions (Consedine, Magai, & Krivoshekova, 2005; Timmers, Fisher, & Manstead, 2003). Hence, it appears that emotional connectedness is learned from childhood and this ability is carried on until maturity.

Generalizing the above findings to emotional connectedness, it seems logical to expect that women have a greater tendency to experience connectedness on an emotional level than men. However, some research contradicts these findings, suggesting that depression affects older women more than older men (Nguyen & Zonderman, 2006). Depression may be exacerbated by disease, functional limitations and activity restriction (Jagger & Matthews, 2002) as well as women's lack of social power, gender role burdens and biological factors (Ferrucci et al., 1999). This greater incidence of depression may impair their ability to emotionally connect, thereby reducing the likelihood of finding gender differences in emotional connectedness. Based from these conflicting findings, it is thus relevant to examine gender differences in the emotional way of experiencing connectedness.

Cognitive. It is widely held that older individuals need to maintain a reasonably high level of cognitive function (e.g., memory, communication) in order to survive. There is evidence that particular aspects of cognitive activity decline with age, such as speed of processing information and memory (MacKinnon, Christensen, Hofer, Korten, & Jorm, 2003). These declines could affect cognitive experiences of connectedness but they may be reduced or delayed by cognitive training and/or maintaining mental workload (Bosma, van Boxtel, Ponds, Houx, & Jolles, 2003).

There also is some evidence for a gender difference in cognitive decline associated with dementia. For example, older women have a greater risk of developing Alzheimer's disease than men (Andersen et al., 1999); however, after 90 years of age, the incidence of vascular dementia is greater for men (Ruitenberg, Ott, van Sweieten, Hofman, & Breteler, 2001). Memory problems may serve as a threat to women's connectedness with their past and could manifest as a form of disconnection from others (Van Dijkhuizen, Clare, & Pearce, 2006). However, social support from family and friends appeared to cushion the effects of memory issues for these women, underscoring the importance of having good cognitive abilities through social connections.

Overall, older men and women appear to have similar cognitive experiences as they age, which contributed to decreasing heterogeneity as people get older (Dannefer, 1987; Gove, Ortega, & Style, 1989). For example, there are no gender differences in executive functions, such as organizing, planning, evaluating and integrating information (Helmes, Bush, Pike, & Drake, 2006). A recent study using MRI found no gender differences in the volume of gray matter in the brains of older people (Smith, Chebrolu,

Wekstein, Schmitt, & Markesbery, 2006).

The various studies mentioned above give contradictory findings about how men and women differ in the three Ways of Experiencing. Some research suggests that gender differences are inherent and may be physical or biological. Other studies indicate that the three Ways of Experiencing connectedness may be learned according to how men and women interact with people and their environment. Thus, the differences found may be due to social and cultural norms. Lastly, some research indicates that as men and women advance in age the differences narrow, suggesting a diminishing of gender differences.

Summary

Although most of the literature on connectedness focuses on only one aspect of connectedness, there is research that supports the broader conceptualization of connectedness that is the focus of this dissertation. This broader focus conceptualizes connectedness as having three Spheres (Interpersonal, Environmental, and Metaphysical), six Contexts (Dyadic, Group, Nature, Object, Spiritual, and Transcendental), and three Ways of Experiencing connectedness (Physical, Emotional, and Cognitive). This model brings together aspects of connectedness which were previously scattered in the literature and develops a wholistic synthesis, bridging the gaps of individuals' relationships with others, their environment, and their world. Hence the conceptualization in this dissertation may be used to understand connectedness in a wider perspective that accommodates the human, the non-human, the Divine, and the world at large.

Connectedness appears to be influenced by age and gender as indicated in numerous studies. Generally, advancing age seems to decrease an individual's capacity to connect in the Spheres, Contexts, and Ways of Experiencing connectedness. However, certain factors appear to ameliorate some losses that accompany aging, such as maintaining close friendships and being engaged in social activities. Although there have been contradictory findings in gender differences, it appears that these differences may be attributed to biophysical markers, social and cultural norms, and personal interaction styles. Research indicates that with advancing age, men and women appear to become more similar than different regarding the different dimensions of connectedness.

Research Questions

In the light of the above discussion and review of related literature, the following three research questions have been generated:

1. What are significant differences in the patterns of responses within the spheres, contexts, and ways of experiencing connectedness?
2. What are the significant age differences in the patterns of responses within the spheres, contexts, and ways of experiencing connectedness?
3. What are the significant gender differences in the patterns of responses within the spheres, contexts, and ways of experiencing connectedness?

CHAPTER THREE

Method

Participant Recruitment

Participant recruitment occurred from February 1 through June 30, 2005. Only seniors living in Calgary, Alberta were recruited. Three approaches were used to recruit potential participants: (a) contacting seniors in drop-in centres, (b) going to seniors residential centres, and (c) placing advertisements aimed at the general senior population in Calgary.

Drop-in Centres

Fifteen drop-in centres listed in the *Calgary Seniors Directory of Services* (2004) were initially contacted and 10 centres agreed to participate. The following were mailed to co-ordinators of the drop-in centres: a cover letter for contact person (Appendix A), the Connectedness Information Sheet (Appendix B), an invitation letter for seniors (Appendix C), and an information flyer (Appendix D) for bulletin board posting. Information sessions also were held at convenient times to provide more details for those who requested them. Seniors who wished to participate received the survey package, which they returned in a sealed enveloped (within 1 week) at their respective drop-in centre. The survey package contained a cover letter for seniors (Appendix E), the Information Sheet (Appendix B), the Connectedness and Intimacy Survey (Appendix F), the Debriefing Sheet (Appendix G), and the Consent Form (Appendix H). A total of 115 participants from these drop-in centres completed and returned the survey.

Senior Residences

Office managers of five senior residential centres were contacted; four agreed to

participate. The same procedures were used as those for recruiting seniors at drop-in centres. A total of 8 seniors from these residences completed and returned the survey.

Newspaper Advertisements

The study was advertised in two newspapers, *Kerby News* and *The Calgary Herald* ("Mature Living Section"). The survey package (with a return self-addressed, stamped envelope) was mailed to each volunteer. A total of 28 seniors responding to the advertisements completed and returned the survey.

Self-select Group

Several seniors (n = 33) volunteered based on the information they had obtained from relatives, friends, and by word of mouth. The survey package (with a return self-addressed, stamped envelope) was mailed to each; all were completed and returned.

A total of 230 questionnaires were distributed to various drop-in centres and senior residences. Overall, 184 completed questionnaires were received from the various drop-in centres, senior residences, and other volunteers.

Demographics of Sample

Demographic characteristics of the participants are presented in Table 1. About two-thirds of the participants were women and about 70% of the sample was in the 65 to 85 year age range ($M = 73.98$, $SD = 8.61$).

Table 1

Demographic Characteristics of Participants of the Connectedness Survey (N = 184)

Age	Gender		Total
	Male	Female	
Pre-Retired (55-64 yrs. old)	13	17	30
Young-Old (65-74 yrs. old)	21	41	62
Middle-Old (75-84 yrs. old)	19	51	70
Old-Old (85-94 yrs. old)	7	15	22
Total	60	124	184

Further details regarding the demographic characteristics of the sample are presented in Table 2. It is interesting to note that about one-third of the participants were married and about half of the participants were living alone. As a group, the participants were relatively well educated with two-thirds of them having some form of formal post-secondary education. By en large, they had a modest level of income and they considered themselves to be in very good or excellent health.

Table 2

Detailed Demographic Characteristics of Participants of the Connectedness Survey (N = 184)

Variable	Male				Female				Total
	Pre-Retired	Young-Old	Middle-Old	Old-Old	Pre-Retired	Young-Old	Middle-Old	Old-Old	
Marital Status									
• Married	8	13	12	3	9	14	14	2	75
• Widow	1	--	4	2	1	12	28	2	58
• Separated	--	1	--	--	--	--	1	--	2
• Divorced	2	6	3	1	6	13	5	1	37
• Single	2	1	--	1	1	2	3	1	11
Education									
• No high school	2	3	2	1	2	5	8	2	25
• High school	2	6	3	1	5	8	16	3	44
• Trades certificate	2	1	4	3	1	1	4	1	17
• University degree	1	2	7	--	3	10	5	2	30
• Post-graduate degree	3	4	2	2	1	6	5	2	25
Living Arrangement									
• Living alone	6	8	6	3	8	24	31	13	99
• Living with spouse	7	12	11	3	8	13	14	--	68
• Living with children	--	1	1	1	1	--	5	--	9
• Living with relatives/others	--	--	1	--	--	4	1	2	8
Housing									
• Owns home	7	15	13	6	12	30	35	10	128
• Rents	3	4	1		3	4	9	4	28
• Senior's home	2	2	4	1	2	6	5	1	23
• Other's home	1	--	1	--	--	1	2	--	5

Note: The dashes in the table means zero.

Table 2. Continued

Variable	Male				Female				Total
	Pre-Retired	Young-Old	Middle-Old	Old-Old	Pre-Retired	Young-Old	Middle-Old	Old-Old	
Health									
• Excellent	1	9	3	--	8	14	10	4	49
• Very Good	8	8	8	3	5	11	21	7	71
• Average	1	3	6	3	3	11	16	4	47
• Fair	2	1	1	1	1	4	3	--	13
• Poor	--	--	1	--	--	1	1	--	3
Religion									
• Christian	7	15	16	5	15	31	44	15	148
• Non-Christian	3	3	--	--	--	4	2	--	12
• No religion	2	3	3	1	2	6	5	--	22
Race									
• Caucasian	8	19	19	6	17	37	47	11	154
• Non-Caucasian	5	2	--	1	--	4	3	4	19
Income									
• Less than &19,999	5	5	1	1	5	12	9	2	40
• $20,000 -39,000	2	2	6	3	3	6	17	6	45
• • $40,000 - 59,999	2	5	6	--	4	10	5	4	36
• $60,000 and above	2	5	4	3	3	6	11	2	36

Note: The dashes in the table means zero.

Measurement

Data were collected using the *Connectedness and Intimacy Survey: A Study of Older Individuals*. The researcher developed the survey in the following manner: First a draft set of items was generated by the researcher and revised several times to improve readability and consistency. Several meetings were held between the researcher and her former supervisor, professor Dr. Greg Fouts (Dept. of Psychology), to further refine the items. Initially, seven individuals (seniors and non-seniors) were asked to complete versions of the questionnaire, focusing on comprehension and precision of questioning. Finally, a focus group of five people made suggestions and recommendations that further improved the clarity and format of the questionnaire. The final form of the survey contained 57 questions. Participants responded to each question using a 5-point Likert scale ranging from "strongly agree" to "strongly disagree;" with an option of "not applicable."

The questionnaire contains two sections, Background Information and About Myself. The Background Information section assesses the demographic information (see Appendix F). The About Myself section assesses participants' perceptions of their connectedness (see also Appendix F). This was designed specifically for this study using the conceptualization presented in the Introduction. It involves the 3 spheres (Interpersonal, Environmental, and Metaphysical), the 6 contexts (Dyadic, Group, Nature, Object, Spiritual, and Transcendental), with Dyadic having two components, the non-sexual and sexual, and the 3 ways of experiencing connectedness (Emotional, Physical, and Cognitive).

There are two primary reasons why the Dyadic context is conceptualized as having two components: First, this component refers to dyadic connectedness with close friends or special persons, which involve physical contact (hugs, touch) but does not involve sexual intimacy. This component is the non-sexual dyadic context. Second, the

dyadic context can also involve physical contact in the form sexual intimacy (sexual intercourse) with a spouse or partner. In the literature reviewed in chapter two, sexual intimacy is most often viewed as qualitatively different from other tactile interactions such as hugs (see Appendix F).

For each of the questions, participants used a five-point Likert scale to indicate their (a) *experience* with that particular type of connectedness, (b) *behavior* regarding that particular type of connectedness, and (c) *satisfaction* derived from that particular type of connectedness (Appendix I).

Dependent Measures

There are 12 dependent measures in this study, made up of the aggregate scores of 3 spheres, 6 contexts, and 3 ways of experiencing. The total scores for the aggregates were calculated by computing the mean scores within each sphere, context, and ways of experiencing.

Reliability of the Connectedness Scale

The internal consistency of the 57-item connectedness scale (Cronbach's alpha) was $\alpha = .97$. The internal consistency of the aggregate scores ranged from $\alpha = .89$ to $\alpha = .97$. The internal consistency of the spheres, contexts, and ways of experiencing are presented in Table 3. Thus, the survey instrument seems to measure consistently the constructs under examination. See Appendix K for the intercorrelations between aggregate scores.

Table 3

Reliability of the Spheres, Contexts, and Ways of Connectedness

Variable	Number of Items	Cronbach's Alpha
Spheres		
• Interpersonal	21	.95
• Environmental	18	.93
• Metaphysical	18	.94
Contexts		
• Dyadic	12	.95
• Group	9	.93
• Nature	9	.93
• Object	9	.93
• Spiritual	9	.95
• Transcendental	9	.91
Ways of Experiencing		
• Physical	21	.90
• Emotional	18	.89
• Cognitive	18	.91
Total	57	.97

CHAPTER FOUR

Results

This study incorporated a two (gender) by four (age) factorial design, using the aggregate scores for Spheres, Contexts, and Ways of Experiencing Connectedness as dependent measures. Initially, the variables were examined for normality, homogeneity of variance, multivariate normality, all of which were within acceptable limits. Subsequently, a Two-Way Multivariate Analysis of Variance (MANOVA) was used to compare age and gender on the dependent measures. This was followed by univariate tests (where permitted) to see which dependent measures were contributing to statistically significant effects, followed by post hoc tests and/or simple effects tests (where permitted) to see which cell means were significantly different. Furthermore, in order to explore other possible explanations for the results, a series of supplementary analyses were conducted to explore other possible factors contributing to the results. Although the Connectedness and Intimacy Survey: A Study of Older Individuals contained three open-ended questions, there were too few responses to those questions to permit meaningful analysis. Therefore, the open-ended questions were not reported.

Analyses of Spheres, Contexts, and Ways Of Experiencing Connectedness

Connectedness In Spheres

The results of the Two-Way MANOVA revealed the following: There was no significant main effect for age, $F(9, 404) = 1.47, p = .15$, nor was the main effect for gender significant, $F(3, 166) = 1.17, p = .32$. However, the age by gender interaction effect was significant, $F(9, 404) = 2.67, p < .01$. Follow-up univariate tests indicated that

the statistically significant effect was coming from scores on the Environmental Sphere: $F(3, 168) = 2.86$, $p = .04$. The means and standard deviations for the significant results are presented in Table 4. The means and standard deviations for all dependent measures are in Appendix J.

Table 4

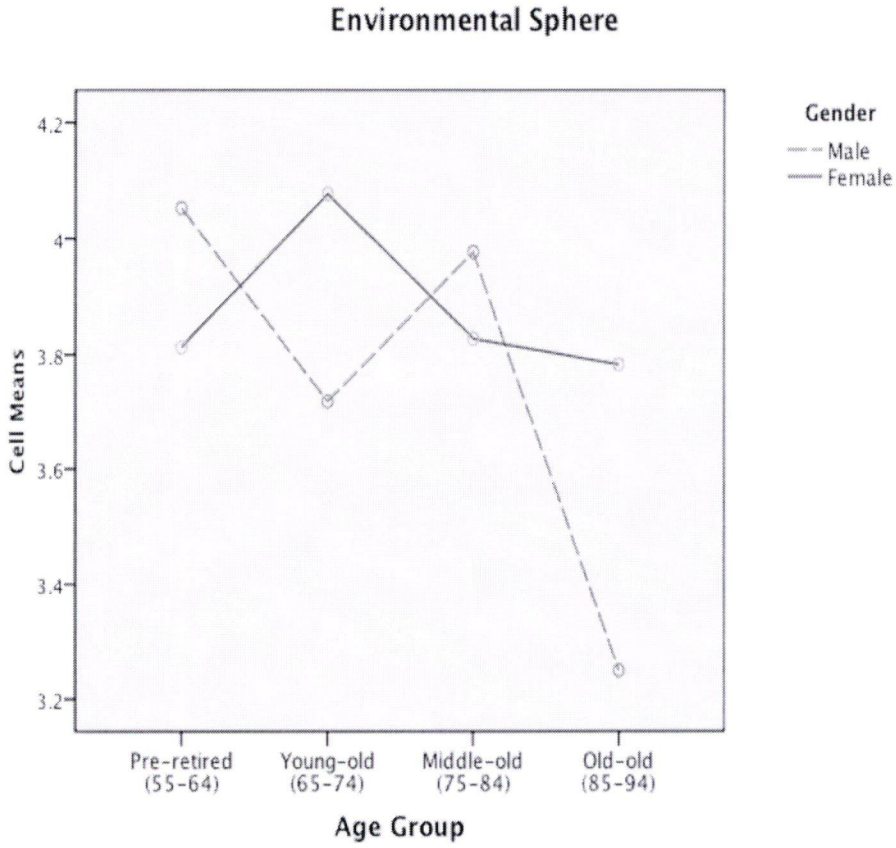
Means and Standard Deviations of MANOVA for Age and Gender in Environmental Sphere of Connectedness (n =176)

Variable	Age Group	Gender				Total	
		Males		Females			
		n	Mean(SD)	n	Mean(SD)	n	Mean(SD)
Environmental							
	55-64 yrs. old	13	4.05(.58)*	16	3.81(.63)	29	3.92(.61)
	65-74 yrs. old	21	3.72(.73)*	38	4.08(.60)*	59	3.95(.67)
	75-84 yrs. old	17	3.98(.48)	50	3.83(.63)	67	3.87(.60)
	85-94 yrs. old	6	3.25(.66)*	15	3.78(.64)	21	3.63(.67)
	Total	57	3.82(.65)	119	3.90(.63)	176	3.87(.63)

*$p = < .05$

The significant interaction effect indicates that the pattern of connectedness across the four age groups is different for males and females. See Figure 3.

Figure 3. Interaction Pattern of Age and Gender in Environmental Sphere



To determine which cells were contributing to the significant interaction effect, simple effect tests were performed, followed by post hoc Tukey tests where appropriate. The results showed that males who are 55-64 years old scored significantly higher than males who are 85-94 years old, $F(3, 171) = 2.83, p = .04$. In addition, there was a statistical significant gender effect indicating that for the 65-74 year age group, females had higher scores in Environmental Sphere than males, $F(1, 171) = 4.39, p = .04$. None of the other gender or age differences reached statistical significance.

Connectedness In Contexts

The results of the Two-Way MANOVA on Context scores revealed no significant main effect for age, $F(18, 394) = 1.32, p = .17$, nor was there a significant main effect for gender, $F(6, 139) = 1.65, p = .14$. There was a significant age by gender interaction effect: $F(18, 394) = 1.62, p = .05$. However, univariate analysis showed that none of the Context scores demonstrated a statistically significant effect. These results indicate that the participants have similar experiences of connectedness in the six Contexts of Connectedness.

Ways Of Experiencing Connectedness

Results from the Two-Way MANOVA on Ways of Experiencing Connectedness showed that there was a significant main effect for age, $F(9, 419) = 2.54, p = < .01$. However, there was no significant main effect for gender, $F(3, 174) = .92, p = .44$, nor was the age by gender interaction effect significant, $F(9, 419) = 1.64, p = .10$. Follow-up univariate results for the significant main effect for age revealed that none of the dependent measures reached statistical significance. These non-significant results suggest that males and females across the four age groups have similar experiences with the three Ways of Experiencing Connectedness.

Supplementary Analyses

In order to explore other factors that might be important in the data, a series of supplementary analyses were conducted. Each of the main independent variables (age and gender) were crossed with five demographic variables: (a) Marital Category, (b) Income Category, (c) Health Category, (d) Educational Category, and (e) Living Arrangement Category. Then a series of Two-Way MANOVAs were conducted to test

differences between age and each of the demographic variables and also differences between gender and each of the demographic variables. The main question guiding these supplementary analyses was: *What are the significant age and gender differences in the five demographic variables within the six Contexts of connectedness?* In each case the analyses were conducted according to the process outlined at the beginning of this chapter.

The six Contexts of connectedness were used as the dependent variables for the following main reason: Both the 3 Spheres and the 3 Ways of experiencing connectedness are embedded in the 6 Contexts. This was revealed by conducting correlation tests to determine how the 12 dependent variables (3 Spheres, 6 Contexts, and 3 Ways) are related to each other. Results indicate that the 3 Spheres are embedded in the 6 Contexts (from $r = .4$ to $r = .9$) and the 3 Ways of experiencing connectedness are also embedded in the 6 Contexts (from $r = .6$ to $r = .8$). The significance value of all these correlations is $p = < .01$. Thus, the six Contexts were used as the dependent variables in the Supplementary Analysis. The matrices for these correlations are found in Appendix K.

Marital Category

In order to obtain sufficient cell size to conduct a MANOVA, marital category was collapsed into two variables: (a) Married individuals, including those who are married, are living together, or are in significant relationships and (b) unmarried individuals, including those who are widowed, separated, divorced, and single. The same strategy was used for the rest of the supplementary analyses in order to have sufficient cell size to conduct the analyses.

Age and marital category. Results of the Two-Way MANOVA on age and marital category revealed the following: The multivariate tests did not show significant main effect for age, $F(18, 393) = 1.24, p = .23$, but the main effect for marital category was significant: $F(6\ 139) = 3.48, p = < .01$. The interaction effect was not significant: $F(18, 394) = .80, p = .70$. Follow-up univariate tests showed those who are not married are more connected in the Transcendental Context than those who are married, $F(1, 144) = 5.16, p = .03$. These results indicate that those who are not married are more engaged with interconnectedness in life, of being part of the unity of everything in this world. See Table 5 for the means and standard deviations.

Table 5

Means and Standard Deviations of MANOVA for Age in Transcendental Context in Marital Category (n = 152)

Context	Age Group	Not Married		Married		Total	
		n	Mean(SD)	n	Mean(SD)	n	Mean(SD)
Transcendental							
	55-64 yrs. old	13	3.89(.75)	14	3.64(.86)	27	3.76(.80)
	65-74 yrs. old	27	3.62(.90)	25	3.80(.83)	52	3.71(.86)
	75-84 yrs. old	32	3.80(.67)	25	3.28(.71)	57	3.58(.73)
	85-94 yrs. old	11	3.79(.54)	5	3.07(.15)	16	3.57(.57)
	Total	83	3.76(.74)*	69	3.53(.79)*	152	3.65(.77)

*$p = < .05$

Gender and marital category. The results of the Two-Way MANOVA on gender and marital status indicated a statistically significant main effect for gender: $F(6, 143) = 2.81, p = < .01$. There was also a statistically significant main effect in marital category: $F(6, 143) = 5.35, p = < .01$. However, the interaction effect was not significant, $F(6\ 143) = 1.43, p = .21$. For gender, follow-up univariate tests indicated that the significant statistical effect was coming from the Group Context, $F(1,148) = 6.04$, $p = < .01$, specifically, where female participants are more connected in the Group Context than male participants. For marital category, follow-up univariate tests indicated that the significant statistical effects were coming from two Contexts: (a) the Dyadic Context, $F(1,148) = 11.63, p = < .01$, and (b) the Object Context, $F(1, 148) = 5.73, p = .02$. In both cases, married people are more connected than unmarried individuals. See Table 6 for means and standard deviations.

Table 6

Means and Standard Deviations of MANOVA for Gender in Group, Dyadic, and Object Contexts in Marital Category (n = 152)

Context	Gender	Not Married		Married		Total
		n	Mean(SD)	n	Mean(SD)	n	Mean(SD)
Group							
	Male	20	2.99(1.00)	33	3.55(.78)	53	3.34(.90)**
	Female	63	3.78(.80)	36	3.64(.74)	99	3.73(.78)**
	Total	83	3.59(.91)	69	3.60(.75)	152	3.60(.84)
Dyadic							
	Male	20	3.40(1.09)	33	4.08(.95)	53	3.82(1.06)
	Female	63	3.66(.84)	36	4.06(.84)	99	3.81(.86)
	Total	83	3.60(.91)**	69	4.07(.89)**	152	3.81(.93)
Object							
	Male	20	3.28(.87)	33	3.86(.80)	53	3.64(.87)
	Female	63	3.77(.76)	36	3.84(.68)	99	3.79(.73)
	Total	83	3.65(.81)*	69	3.85(.74)*	152	3.74(.78)

*$p = < .05$

**$p = < .01$

Income Category

Income was recoded into two levels: (a) High income included those who have an annual income of $40,000.00 or more and (b) low income included those who have an annual income of $39,999.00 and below.

Age and income category. Results of the Two-Way MANOVA on age and income showed no significant main effect for age, $F(18, 343) = 1.08, p = .37; p = .37$, nor

for income category: $F(6, 121) = 1.48, p = .19$. Further, there was no significant interaction effect, $F(18, 343) = .60, p = .90$. These results show that income is not a significant factor in how the six Contexts of Connectedness are experienced by the four age groups.

Gender and income category. The results of the Two-Way MANOVA on gender and income showed no significant main effect for gender: $F(6, 125) = 1.88, p = .09$, nor for income category, $F(6, 125) = 2.07, p = .06$. Further, there was no significant interaction effect: $F(6, 125) = .52, p = .79$. These results indicate that income is not a significant factor in how males and females experience the six Contexts of Connectedness.

Health Category

Health was recoded into two levels: (a) Excellent to very good health included those individuals who rated themselves as having excellent and very good health and (b) Average to poor health included those who rated themselves having average, fair and poor health.

Age and health category. An examination of the results of the Two-Way MANOVA on age and health showed no significant main effect for age, $F(6, 391) = 1.12$, $p = .33$, nor for health category: $F(6, 138) = 1.94, p = .08$. Further, there was no significant interaction effect: $F(18, 391) = .97, p = .50$. These results suggest that health is not a significant factor in how the four age groups experience the six Contexts of Connectedness.

Gender and health category. Results of the Two-Way MANOVA on gender and health revealed that there was a statistically significant main effect for gender, $F(6, 142) =$

2.36, $p = .03$ and also for health category: $F(6, 142) = 3.46$, $p = < .01$. The interaction effect also was significant: $F(6, 142) = 2.15$, $p = .05$.

Follow-up univariate tests indicated that the statistically significant main effect for gender was coming from two Contexts: (a) the Group Context, where females are more connected when compared to males: $F(1, 147) = 8.89$, $p = < .01$, and (b) the Spiritual Context, where females are also more connected compared to males: $F(1, 147) = 8.51$, $p = < .01$. See Table 7.

The follow-up univariate tests for health category indicated that the significant effect was coming from two Contexts: (a) the Object Context: $F(1, 147) = 4.34$, $p = .04$, and (b) the Transcendental Context: $F(1, 147) = 13.25$, $p = < .01$. In both cases, those who are in excellent/very good health are more connected in the Object and Transcendental Contexts than those who are in average/poor health. See also Table 7.

Follow-up univariate tests for health category indicated that the significant interaction effect was coming from four Contexts: (a) Dyadic Context, $F(1, 147) = 3.81$, $p = .05$, (b) Nature Context: $F(1, 147) = 7.94$, $p = < .01$, (c) Spiritual Context: $F(1, 147) = 6.39$, $p = .01$, and (d) Transcendental Context: $F(1, 147) = 5.47$, $p = .02$. This suggests that in all four cases the pattern of connectedness is different for men and women when in the different health categories. See Figures 4, 5, 6, and 7.

Table 7

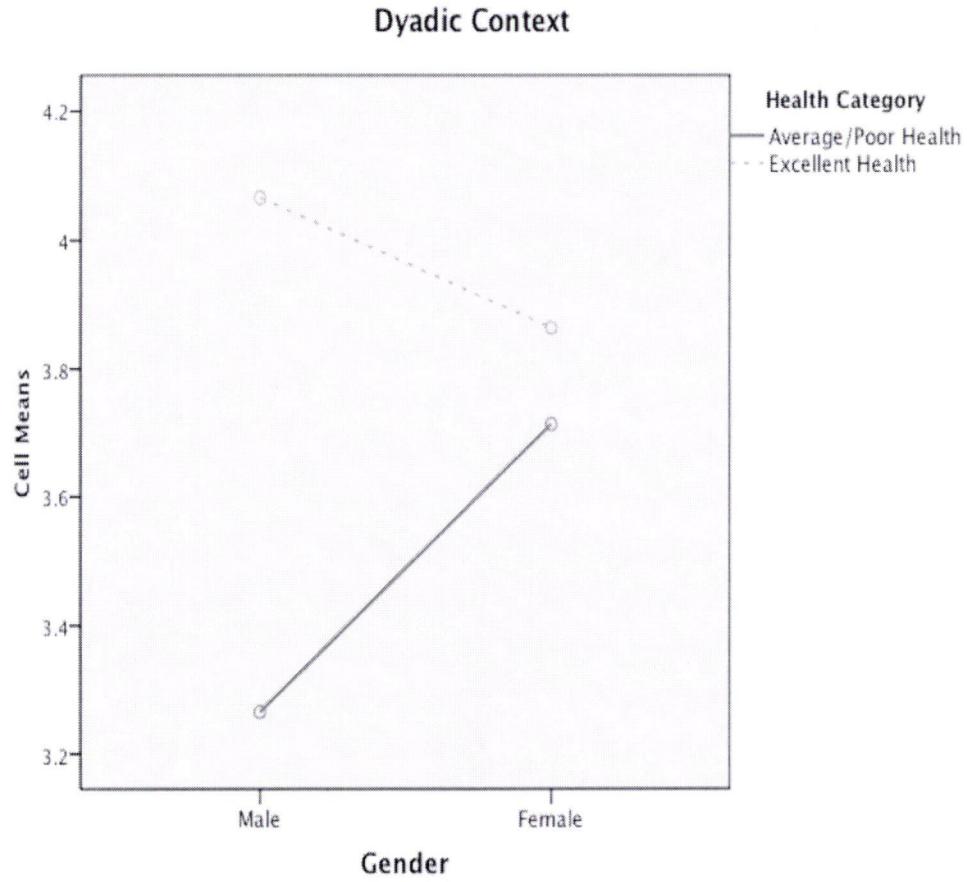
Means and Standard Deviations of MANOVA for Gender in Group, Spiritual, Object, and Transcendental Contexts in Health Category (n = 151)

Context	Gender	Average/Poor Health		Excellent/Very Good Health		Total	
		n	Mean(SD)	n	Mean(SD)	n	Mean(SD)
Group							
	Male	16	3.17(.85)	36	3.40(.93)	52	3.33(.91)**
	Female	37	3.76(.73)	62	3.72(.81)	99	3.73(.78)**
	Total	53	3.58(.81)	98	3.60(.87)	151	3.60(.84)
Spiritual							
	Male	16	3.10(1.46)	36	3.80(.80)	52	3.58(1.08)**
	Female	37	4.09(.95)	62	3.87(.99)	99	3.95(.97)**
	Total	53	3.79(1.21)	98	3.85(.92)	151	3.83(1.03)
Object							
	Male	16	3.28(.79)	36	3.79(.88)	52	3.63(.87)
	Female	37	3.74(.71)	62	3.83(.75)	99	3.79(.73)
	Total	53	3.60(.75)*	98	3.81(.80)*	151	3.74(.79)
Transcendental							
	Male	16	3.03(.74)	36	3.84(.73)	52	3.59(.82)
	Female	37	3.56(.87)	62	3.74(.65)	99	3.67(.74)
	Total	53	3.40(.86)**	98	3.77(.68)**	151	3.64(.77)

*$p = < .05$

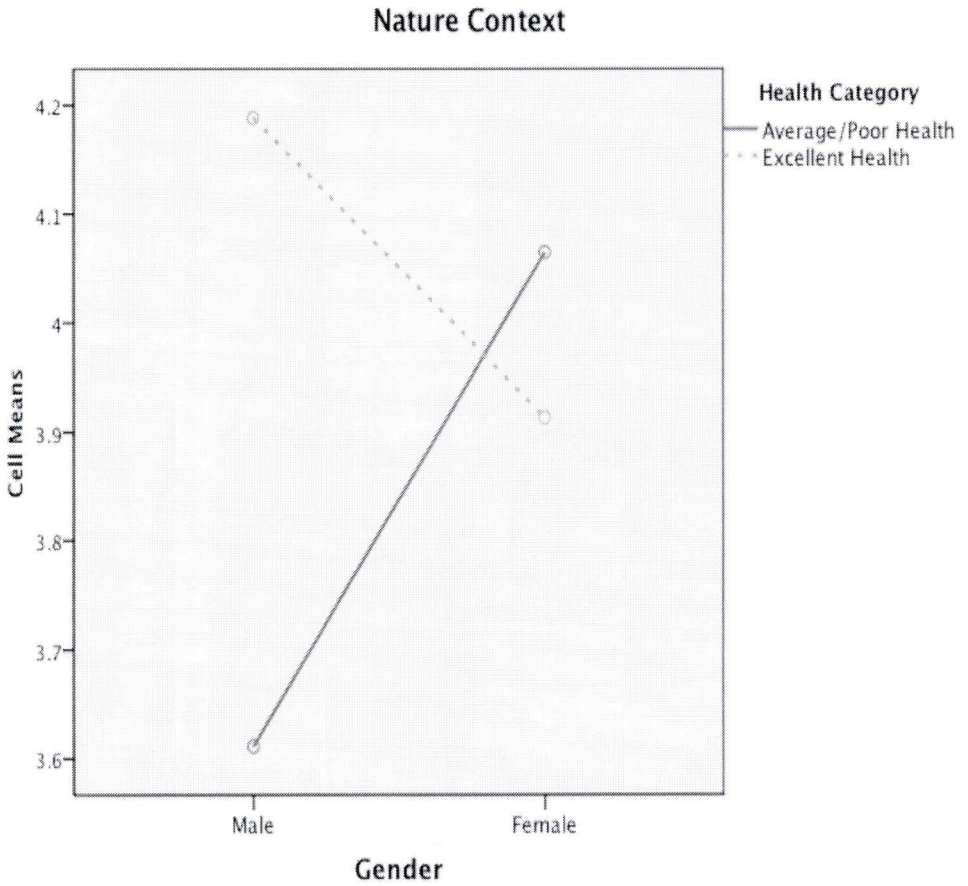
**$p = < .01$

Figure 4. Interaction Pattern of Gender and Health Category in Dyadic Context



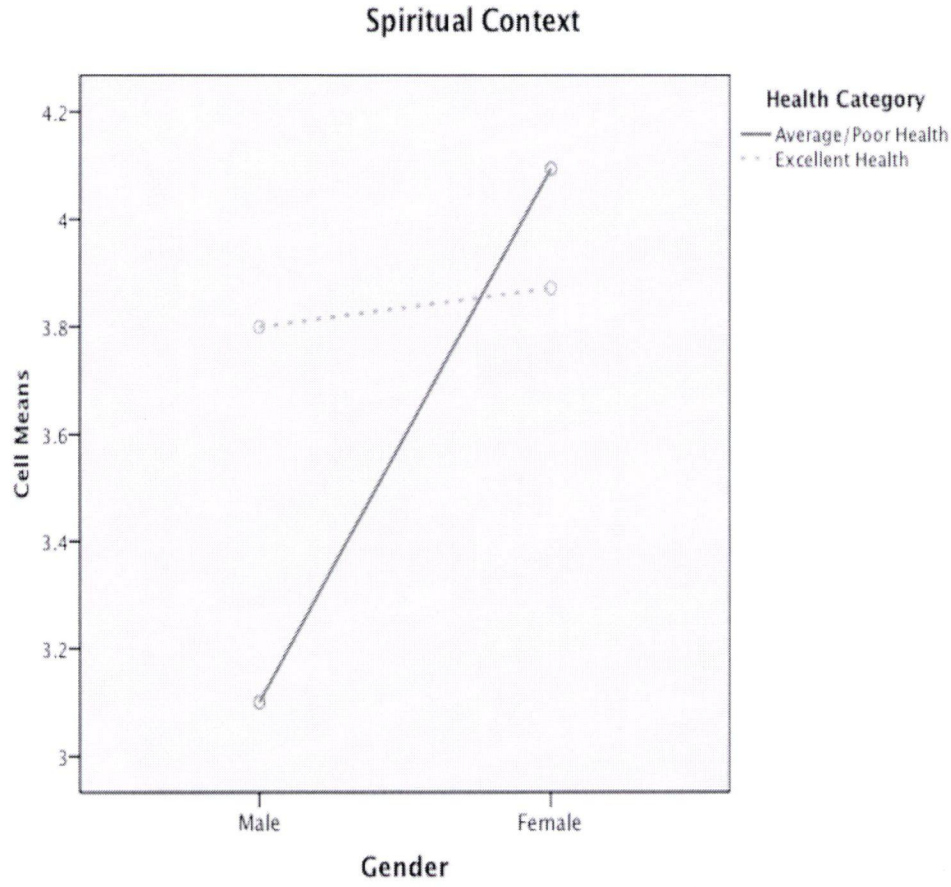
Simple effects testing revealed that males with excellent health were significantly more connected in the Dyadic Context than males with average or poor health, $F(1, 164) = 6.70$, $p = .01$. The results for females were not significant: $F(1, 164) = .45$, $p = .50$, nor were the gender results for those whose health is average/poor, $F(1, 164) = 1.71$, $p = .19$, and those whose health is excellent/very good, $F(1, 164) = 1.48$, $p = .22$. These results suggest that males who have excellent health are more connected with special people in their lives, such as their spouse and close friends, than males with average or poor health.

Figure 5. Interaction Pattern of Gender and Health Category in Nature Context



Simple effects testing revealed that males with excellent health were significantly more connected in Nature Context than males with average or poor health: $F(1, 170) = 7.17$, $p = < .01$. The results for females were not significant, $F(1, 170) = 1.11$, $p = .30$, nor were the gender results for those with average/poor health, $F(1, 171) = 3.44$, $p = .07$ or those with excellent/very good health: $F(1, 171) = .1.79$, $p = .18$. Based from these results, one can conclude that males who have excellent/very good health are more engaged in experiencing Nature through pets, gardening, the outdoor, and other Nature appreciation activities, than males with average or poor health.

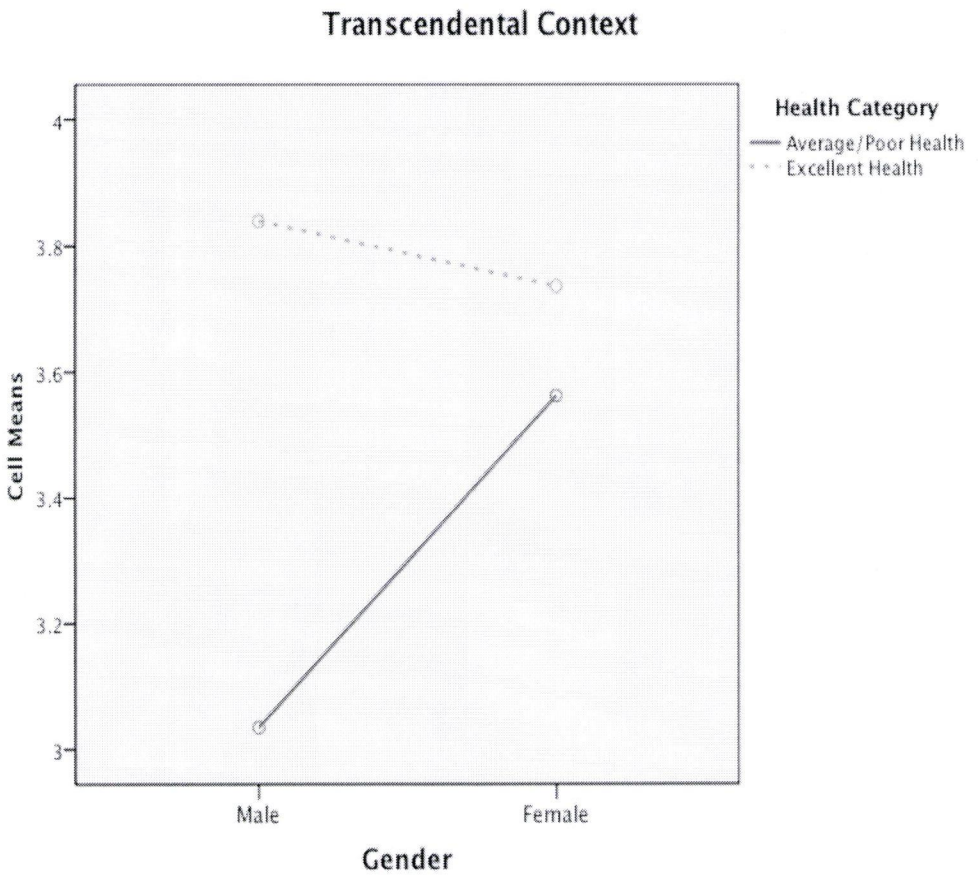
Figure 6. Interaction Pattern of Gender and Health Category in Spiritual Context



Simple effects testing showed that men who had excellent or very good health were more connected in the Spiritual Context than men with average or poor health: $F(1, 170) = 5.22$, $p = < .02$. There was no significant health category effect for females in Spiritual Context, $F(1, 170) = .77$, $p = .38$. However, for those whose health is average/poor, women are more connected in the Spiritual Context than men: $F(1, 170) = 10.52$, $p = < .01$. There was no significant gender effect for those whose health is excellent/very good: $F(1, 170) = .23$, $p = .64$. These results indicate that males who have average/poor health rated themselves lower in the Spiritual Context than males with excellent/very good health and women with average/poor health, suggesting that the latter

two groups feel more connected with a Higher Power or God.

Figure 7. Interaction Pattern of Gender and Health Category in Transcendental Context



Simple effect testing revealed that men who had excellent or very good health were more connected in the Transcendental Context than men with average or poor health: $F(1, 167)= 12.70$, $p = < .01$. There was no significant health category effect for females in Transcendental Context: $F(1, 167) = 1.54$, $p = .22$. However, for those whose health is average/poor, women are more connected in the Transcendental Context than men: $F(1, 167) = 3.40$, $p = .01$. There was no significant gender effect for those whose health is excellent/very good: $F(1, 167) = .08$, $p = .78$. These results indicate that males who have average/poor health rated themselves lower in the Transcendental Context than

males with excellent/very good health and women with average/poor health, suggesting that the latter two groups have a greater sense of interconnectedness, and of being connected with everything and everyone.

Educational Category

Education was recoded into two levels: (a) Low education included those individuals who did not complete high school, who graduated from high school graduate or obtained high school diploma, who obtained trades certificate or diploma, and who obtained a college certificate or diploma; and (b) higher education included those who obtained a university degree and those with post-graduate degree.

Age and educational category. An examination of the results of Two-Way MANOVA on age and educational category showed that there was no significant main effect for age, $F(18, 391) = 1.19, p = < .27$, nor for educational category, $F(6, 138) = 1.47, p = .19$. The interaction effect also was not significant: $F(18, 391) = .80, p = .70$. These results suggest that education is not a significant factor in how participants experience connectedness in the six Contexts.

Gender and educational category. Results of the Two-Way MANOVA on gender and educational category revealed that there was a statistically significant main effect for gender: $F(6, 147) = 2.48, p = .03$. The main effect for educational category was not significant: $F(6, 147) = 1.47, p = < .19$, nor was the interaction effect: $F(6, 147) = .66$, $p = .69$.

Follow-up univariate tests indicated that for gender, the significant effect was coming from two Contexts: (a) the Group Context, $F(1, 147) = 7.56$, $p = < .01$ and (b) the Spiritual Context: $F(1, 147) = 4.31$. In both cases, females demonstrated greater connectedness than males. See Table 8.

Table 8

Means and Standard Deviations of MANOVA for Gender in Group and Spiritual Contexts in Educational Category (n = 151)

Context	Gender	Low Education		High Education		Total	
		n	Mean(SD)	n	Mean(SD)	n	Mean(SD)
Group							
	Male	28	3.31(.86)	24	3.38(.99)	52	3.34(.91)**
	Female	44	3.79(.78)	55	3.69(.78)	99	3.73(.78)**
	Total	72	3.60(.84)	79	3.59(.85)	151	3.60(.84)
Spiritual							
	Male	28	3.79(.99)	24	3.41(1.21)	52	3.62(1.10)*
	Female	44	4.07(.90)	55	3.86(1.03)	99	3.95(.97)*
	Total	72	3.96(.94)	79	3.72(1.10)	151	3.84(1.03)

*$p = < .05$

**$p = < .01$

Living Arrangement Category

Living arrangement was recoded into two levels: (a) Living alone included those who live by themselves and (b) living with others included those who live with their spouse, children, and relatives.

Age and living arrangement category. Results of the Two-Way MANOVA on age and living arrangement showed no significant main effect for age: $F(18, 394) = 1.24$, $p = .23$, nor for the living arrangement category: $F(6, 139) = 1.99$, $p = .07$. The interaction effect also was not significant: $F(18, 394) = .93$, $p = .55$. These results indicate that living arrangement is not a significant factor in how the participants experience connectedness in the six Contexts,

Gender and living arrangement category. The results of the Two-Way MANOVA on gender and living arrangement showed a significant main effect for gender: $F(6, 143) = 3.05$, $p = < .01$ and a significant main effect for living arrangement, $F(6, 143) = 3.5$, $p = < .01$. The interaction effect was not significant: $F(6, 143) = 1.14$, $p = .35$. Follow-up univariate tests indicated that females were significantly more connected in the Group Context than males: $F(1, 148) = 10.25$, $p = < .01$. Univariate tests also indicated that individuals who are living with others were more connected in the Dyadic Context, $F(1, 148) = 7.54$, $p = < .01$, and in the Object Context: $F(1, 148) = 4.92$, $p = .03$ than those who are living alone. See Table 9.

Table 9

Means and Standard Deviations of MANOVA for Gender in Group, Dyadic, and Object Contexts in Living Arrangement Category (n = 152)

Context	Gender	Living Alone		Living with Others		Total	
		n	Mean(SD)	n	Mean(SD)	n	Mean(SD)
Group							
	Male	19	3.01(1.07)	34	3.53(.74)	53	3.34(.90)**
	Female	60	3.75(.81)	39	3.71(.74)	99	3.73(.78)**
	Total	79	3.57(.93)	73	3.63(.74)	152	3.60(.84)
Dyadic							
	Male	19	3.49(1.12)	34	4.01(.99)	53	3.82(1.06)
	Female	60	3.67(.86)	39	4.03(.81)	99	3.81(.86)
	Total	79	3.62(.93)**	73	4.02(.89)**	152	3.81(.93)
Object							
	Male	19	3.32(.98)	34	3.82(.75)	53	3.64(.87)
	Female	60	3.75(.76)	39	3.86(.69)	99	3.79(.73)
	Total	79	3.65(.83)*	73	3.84(.71)*	152	3.74(.78)

*$p = < .05$

**$p = < .01$

Summary

To summarize, male participants who are 55-64 years old are more connected in the Environmental Sphere compared to male participants who are 85-94 years old. Further, the 65-74 year old female participants are more connected in Environmental Sphere compared to males in the same age group.

In the supplementary analyses, three significant findings emerged for marital category: First, participants who are not married are more connected in the Transcendental Context than those who are married. Second, female participants are more connected in the Group Context than male participants. Lastly, those who are married are more connected in the Dyadic Context and the Object Context than those who are not.

For income category, there are no significant differences in age and gender between those individuals with high income and low income.

For health category, three significant findings emerged: First, female participants are more connected in the Group and Spiritual Contexts than male participants. Second, participants who are in excellent/very good health are more connected in the Object and Transcendental Contexts than those who are in average/poor health Third, significant interaction effects point to the following: male participants who have excellent/very good health are more are more connected in the (a) Dyadic, (b) Nature, (c) Spiritual, and (d) Transcendental Contexts than male participants who have average/poor health. However, females who have average/poor health are more connected in Spiritual and Transcendental Contexts than males who have average/poor health. Thus, health status seems to be a more significant influence in connectedness for men compared to women.

Two significant findings emerged in the Educational Category: First, female participants are more connected in the Group Context compared to male participants. Second, female participants are also more connected in the Spiritual Context than male participants in the educational category.

Finally, the Living Arrangement Category revealed the following significant findings: First, female participants more connected in the Group Context than male participants. Second, participants who are living with others are more connected in the Dyadic and Object Contexts than those who are living alone.

CHAPTER FIVE

Discussion

This study has not only revealed significant findings but has also contributed to the understanding of the multi-dimensional nature of connectedness. The data in the study have provided a foundation for extending the conceptualization of connectedness from intimacy between individuals to include environmental and metaphysical types of connectedness. The conceptualization of connectedness in this study has produced some useful information about how older people experience connectedness in the city of Calgary.

Major Findings of the Study

Spheres and Contexts of Connectedness

A major finding of this study indicates that male participants who are 55-64 years old show higher levels of environmental connectedness compared to male participants who are 85-94 years old. Further, female participants in the 65-74 age group also demonstrate a higher level of connectedness in the Environmental Sphere than male participants in the same age group. The finding that the Environmental Sphere is an important connection for older individuals is similar to a growing literature on connectedness with the natural environment. For example, connecting with the wilderness and woodland is accompanied by improved physical, mental, and psychological health (Suttie, 1984; Townsend, 2006), connectedness with nature is an important predictor of ecological behavior and well-being (Frantz, Mayer, Norton, & Rock, 2005), and older individuals can benefit from therapeutic landscapes as places of healing by experiencing

relaxation, peace, seasonal chance, and the chance to be immersed in the natural world (Jorgensen & Anthopoulou, 2007; Milligan, Gatrell & Bingley, 2004).

Second, the findings pertaining to the Object Context of the Environmental Sphere suggest that there may be a source of comfort and belonging associated with treasured objects and possessions. The immediate environment may contain treasured objects such as gifts, heirlooms, and photos, which provide a sense of history and continuity, and which also connect individuals to loved people and family members (Rowles, 1993; Rubinstein, 1989; Shenk, Kuwahara, & Zablotsky, 2004; Tobin, 1996; Wapner, Demick, & Redondo, 1990).

Why would older individuals feel more connected to the Environmental Sphere? The data from the current study suggest two things: First, the 55-64 year old male participants as well as the female participants in the 65-74 age groups, may have found a way of reducing loneliness and enhancing their emotional, physical, and mental well-being by connecting with their environment. Several studies report that opportunities for experiencing nature and the environment may give restorative comfort and produce health benefits on older individuals (Gross & Lane, 2007; Milligan, Gatrell, & Bingley, 2004). A second reason for these groups reporting stronger connection with the environment is that they no longer have child care responsibilities and may no longer be active in the labor force. Hence, being connected with the environment may provide comfort and satisfaction, reduce loneliness, provide a positive influence on self-esteem, as well as provide a sense of well-being for elderly people.

Supplementary Analyses

Gender

An important finding in Marital, Health, Educational, and Living Arrangement Categories is that women are more connected in the Group Context than men. Women who live alone have stronger and more extensive networks of friends than divorced, widowed, or never-married men (Arber, 2004; Avlund, Lund, Holstein, & Due, 2003). These women may have more time to join clubs and organizations than men. Other studies indicate that older women tend to interact within a neighborhood network, developing new friendships in later life, and therefore have richer relationships compared to older men (Arber, 2004; Heller & Wood, 1998). In addition, Savikko, et al. (2007) suggest that women suffer from loneliness more often than men, thus being connected with a group can ameliorate the effect of loneliness among unmarried women and may be considered a positive coping strategy.

Another important finding in Health and Educational Categories is that female participants are more connected in the Spiritual Context than males. As research indicates, older women are more involved in religion than older men (McFadden & Levin, 1996). Hence, this result suggests that female participants may find health benefits in being with others, such as being a member of a church. In addition, taking part in religious services may also reduce psychological distress due to the relaxation effect that prayers and belief in a benevolent Power may bring (Astrow, Puchalski, & Sulmasey, 2003). In addition, this significant finding suggests that women's connectedness with others and with God may come from a sense of faith and hope in a Supreme Being rather than from

knowledge arising from a rational mindset. Literature suggests that greater feelings of spiritual connection and faith are higher in women than in men, and those with less education reported greater faith (WH0QOL SRPB Group, 2006). Further, meaning-making, spiritual commitment and hope are stronger in women than in men (Ciarrocchi, Dy-Liacco, & Deneke, 2008). Thus, being with a group and being involved in some religious organization may provide women some forms of emotional benefits by being connected with others (Group Context) and with God (Spiritual Context).

Marital Category

An important finding in Marital Category is that those who are not married are more connected in the Transcendental Context than those who are married. A possible explanation for this is that people who are unmarried have more opportunity than married individuals, for pursuing philosophical beliefs and experiences that bring into focus the interconnectedness of things. These activities could be anything that promotes a greater awareness and understanding of the unity of everything and the interconnectedness of all human beings and non-beings. Since the Transcendental Context implies having a sense of unity and union with everyone and everything, unmarried individuals may find psychological comfort in being part of larger world. Another explanation is that a transcendental focus provides a way to avoid loneliness and to find meaning in life (Savikko, Routasalo, Tilvis, Strandberg & Pitkala, 2005). Hence, engaging in activities that promote transcendental connectedness may provide a sense of being part of a greater whole, thus alleviating feelings of loneliness and isolation.

Another important finding is that participants who are married are more connected in the Dyadic Context than those who are not. This result is consistent with other studies

(e.g., Bagarozzi, 1997, 2001; Knobloch & Solomon, 2002; Vanderhorst & McLaren, 2005), which report that marriage has a positive impact on individuals. A spouse, a partner, or a significant other may be considered as source of deep emotional, physical, and mental connection. A good marriage, for instance, provides protection against disability and psychological distress (Avlund, Lund, Holstein & Due, 2003; Barnes, Mendes de Leon, Wilson, Bienias, & Evans, 2004).

Further, married participants are more connected than unmarried ones in the Object Context. This refers to one's connectedness with possessions that are deemed valuable because they are reminders of special people and events. These possessions are meaningful and provide a sense of history and continuity from the past to the present. Married couples buy and own possessions together. There are heirlooms that are shared, important objects that remind them of their life before and after they got married, and the special momentos that come from children and grandchildren. Hence, owning possessions together (e. g., house, appliances, collection) can provide married individuals with a sense of "shared lives" represented by these objects.

Health Category

One important finding in Health Category is that participants who are in excellent/very good health are more connected in the Object and Transcendental Contexts than those who are in average/poor health. This is consistent with the literature showing the state of one's health largely determines the extent of one's connectedness (Ostbye, et al., 2006; Rowe & Kahn, 1997). Hence, participants who are healthy may have a better appreciation of possessions that are meaningful to them compared to those with average/poor health. They may buy and collect things that bring them emotional

satisfaction and they may be more likely to engage in pursuits that allow them to develop a sense of unity with the universe or some other power. These pursuits could be activities, such as meditation, wildlife appreciation, or philosophical studies that give them a deeper understanding of the interconnectedness of the human and the non-human aspects of the world.

Another important finding is that male participants who have excellent/very good health are more connected in the (a) Dyadic, (b) Nature, (c) Spiritual, and (d) Transcendental Contexts compared to those with average/poor health. In addition, female participants who have average/poor health are more connected in the Spiritual and Transcendental Contexts than males who have average/poor health. The former result is consistent with previous research indicating that health is a predictor of connectedness (Rowe & Kahn, 1997; Ostbye, et al., 2006) and conversely, connectedness is also a predictor of health (Ornish, 1998). Being healthy allows older male participants to engage more fully in these contexts compared to male participants who have average/poor health. On the other hand, female participants who have average/poor health may find comfort and healing in being connected with the Spiritual and Transcendental Contexts. Research indicates that religious support from church leaders and members is analogous to social support and that one's relationship with God appears to ameliorate feelings of depression and contributes to well-being (Lazar & Bjorck, 2008). Further, relational faith and religious practices seem to create positive values and beliefs, which may lead to greater hope and optimism (Ciarrocchi, Dy-Liacco, & Deneke, 2008). For these reasons, older women with health problems may find that spiritual participation and the sense of being connected with the larger transcendental reality may

help them deal with their health issues.

Educational Category

This category does not have a main effect for education but it has a main effect for gender, which was already previously discussed, namely, that female participants are more connected in the Group and Spiritual Contexts than male participants.

Living Arrangement Category

The main finding in the living arrangements category is that individuals who are living with others are more connected in the Dyadic and Object contexts than those who are living alone. When a person is living with someone, there is greater emotional disclosure, increased sharing of experiences and activities, and therefore, they may also share possessions that they consider as valuable—house, paintings, collections, and other memorabilia. It is perhaps the Dyadic context that determines the landscape for the Object context: the close relationship of some individuals who live together paves the way for the desire to share possessions and resources in a communal way.

Strengths and Limitations of the Study

A major strength of this study centers on the conceptualization of connectedness. The conceptualization examined people's relationships with others, with their environment, and with their sense of oneness with the world. Thus, connectedness as a concept was expanded from a focus on only the interpersonal sphere to include the environmental and metaphysical spheres. The data in this study suggest that it is legitimate to use this broad model of conceptualization.

The second strength is found in the survey itself. Results of the Cronbach's alpha for the instrument as a whole was .97, which indicates high reliability. Similarly, the

correlations for each of the aggregates (Spheres, Contexts, and Ways of Experiencing connectedness) are high, indicating that the survey demonstrates high internal consistency. Hence, the survey is a reliable test of people's sense of connectedness.

There are several limitations of this study. First, the sample consisted of inner-city dwellers, 55 years old and older, who were generally active, healthy and connected to various groups and organizations, and who volunteered to be part of the study. Hence, the results of the study might not be representative of the population of older Calgarians. Although a few seniors living in senior homes participated in the study, they were older people who were not as active and as socially engaged as those who were members of senior organizations.

Second, there were only 60 men compared to 124 women who volunteered to participate in the study. Further there were few cultural minorities who participated in the study. Only 9 were non-Caucasians compared to 175 Caucasians. This uneven sample in both gender and race is a limitation because it may not be representative of the population of older individuals in Calgary. Therefore caution must be exercised when generalizing the results of this study.

Implications for Counsellors

Results from this study point to the following implications for counsellors: First, this study will enable counsellors to become more familiar with the importance and protective factors associated with connectedness, and also the detrimental effects of social isolation and disconnection to an individual's physical, emotional, and mental health. Counsellors can use the Connectedness Survey in determining which domain of

connectedness may benefit clients who are struggling with loss of significant persons in their lives, loneliness, and general deterioration associated with aging.

Second, the Connectedness Survey may also inform the development of positive interventions in helping clients attain broader connections by using the Connectedness Survey as a diagnostic tool. For instance, a client may be connected in the Object Context but be disconnected in the Dyadic Context, which might be a source of depressive symptoms or loneliness. The counsellor and client can negotiate if there is need to augment connectedness in certain areas or decrease connectedness on some areas. It is therefore crucial for counsellors to ascertain if clients have limited or low connectedness so they could assist them in achieving broader connections, which in turn could promote greater health and well-being.

Suggestions for Future Research

There are excellent benefits in applying the connectedness construct to research and practice. For instance, future research could address issues of connectedness across the life-span, which includes adolescents, young adults, and individuals who are going through middle-age transition. A larger and more diverse sample could determine differences in connectedness among the various age groups. Some possible research questions include: What Spheres, Contexts, and Ways of Experiencing do adolescents, young adults, and middle age individuals experience? What are the significant differences in their experience of the Spheres, Contexts, and Ways of Experiencing connectedness, with age and gender as independent variables? These are some of the questions that could be raised by future researchers, which could inform and educate the public about the

experiences of connectedness by these various age groups in various settings.

The connectedness construct could also be useful in ascertaining the degree of connectedness in families who are Canadian-born and those families who are landed immigrants. This would ultimately help some government agencies deal with difficulties encountered by new immigrants who would likely find difficulties integrating into Canadian society. For example, research that would look into what Spheres, Contexts, and Ways of Experiencing connectedness that Canadian-born individuals and immigrants experience, and whether there are significant differences among them, could inform policies on multiculturalism. Results from this research could enrich our understanding of immigrants' experiences in connectedness and could subsequently help in shaping policies that would help newcomers integrate into Canadian society.

There is also utility in applying the connectedness construct with other constructs, such as resiliency. For example, it would be valuable to determine what links exist between people who are resilient and their level of connectedness in the three Spheres, six Contexts, and the three Ways of Experiencing connectedness. Hence, the following questions could be asked: Are resilient individuals also highly connected? If so, what Spheres, Contexts, and Ways of Experiencing connectedness predict resiliency among individuals? In linking the connectedness construct to the resiliency construct, researchers can also devise a survey assessing four areas of resiliency: physical, emotional, psychological, and spiritual. This resiliency survey, along with the connectedness survey, can guide researchers in predicting what type of connectedness predicts what area of resiliency or vice-versa. Results of this research could inform

policy-makers in determining how best to help individuals become more resilient by taping into their experience of connectedness.

Finally, there might still be certain domains that could be identified in future research such as family connectedness, pet connectedness, historical connectedness (i.e., genealogy), community connectedness (i.e., volunteer work), and political connectedness (i.e., political affiliation and participation). Important questions may be raised in these other domains of connectedness such as: What domains of connectedness bring about improved health and happiness? How do age and gender influence these domains of connectedness? Future research may want to include these categories, for a broader understanding of the experience of connectedness, and thereby draw conclusions as to what type of connectedness is associated with better health and well-being.

Summary And Conclusions

To summarize, the conceptualization of connectedness in this study has broadened its scope to include three Spheres (Interpersonal, Environmental, and Metaphysical), six Contexts (Dyadic, Group, Nature, Object, Spiritual, and Transcendental), and three Ways of Experiencing connectedness (Physical, Emotional, and Cognitive). One of the major findings indicates that age and gender play an important role in older Calgarians' experience of connectedness, especially when the context is considered and demographic variables such as marital status, health, education, and living arrangement are taken into account. One implication of this study points to the possibility of incorporating the Connectedness Survey in counselling as a diagnostic tool. Future research opens up avenues for enlarging the connectedness conceptualization to

include a larger and more diverse population including new immigrants, as well as identifying other domains of connectedness. The connectedness model can also be used to measure another construct such as resiliency.

The findings in this study suggest that a construct of connectedness is legitimate in our understanding of how human individuals connect to others, their environment, and the world in general. This construct reflects the complexity and multidimensionality of connectedness as experienced by individuals, specifically by older men and women. Hence, the connectedness construct is able to draw out a broad range of peoples' experiences of connections not identified previously in the literature. As a consequence, this study has identified older Calgarians' experience of connectedness and results of the survey have shown that age, and more importantly, gender, influence the way older Calgarians experience connectedness.

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Appendix A

Cover Letter (Contact Person)

March 3, 2005

_____ [Name of Coordinator]
Coordinator
_____ [Address]
_____
Calgary, AB [Postal Code]

Dear_____,

I am a Ph.D. student in Counselling Psychology at the University of Calgary. I am now in the process of gathering data for my dissertation research. I would like to ask your assistance in contacting older individuals in your seniors club who are 55 years old and older to participate in my research. My research topic is "Connectedness and Intimacy: A Study of Older Individuals." The University of Calgary Ethics Committee has approved this study.

Enclosed are the Information Sheet, an Invitation Letter to seniors, and an Information Flyer, for your information and reference. In addition, I am willing to meet with you to discuss the details of my research, possibly to meet some seniors at certain times, and to leave some questionnaires with you for those seniors who might be interested to participate in my research.

When the project is completed, I shall be happy to meet with all the seniors in your club and share the findings.

Thank you for your time and kind attention.

Amy L. Chaves
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Appendix B

Connectedness Information Sheet

Connectedness and Intimacy:
A Study of Older Individuals

What is the Connectedness Study of Older Individuals?

The Connectedness and Intimacy Study of older individuals is designed to assess three areas of connectedness and intimacy in seniors, namely, the interpersonal, environmental, and metaphysical spheres. The study intends to include older individuals who are 55 years old and above, living in the city of Calgary, and who are willing to participate in answering a survey questionnaire at a convenient place and time.

What are the Purposes of the Connectedness Study?

A major purpose of the project is to pay special attention to the physical, emotional and cognitive needs of seniors in their connections with significant others, social groups, Nature, important possessions, religion and spirituality. Previous researches on connectedness have only focused on romantic, marital, and family relationships and other significant relationships such as friendships and social groups. There is no systematic research that expands connectedness to include older individuals' intimate connectedness with **Nature** (e.g., pets, gardening), important **possessions** (e.g., heirlooms, treasured collections, art, home), **spirituality** (e.g., sense of the sacred, feeling close to God), and **transcendence** (e.g., sense of oneness and interconnectedness with the world).

Another purpose is to determine how age and gender may influence an older individuals' experience of connectedness across the life span. For example, do men and women differ in how they experience connectedness? Are the different kinds of connectedness become important as we age, especially in our later years?

Why is the Connectedness Study Important?

This research will help researchers, policy makers, service providers and seniors' organizations in the following ways: (a) Inform them regarding the importance of connectedness in the lives of seniors; (b) describe the many ways (and changing ways) as well as patterns in which seniors experience connectedness; (c) identify issues and barriers confronting seniors in seeking connectedness; and (d) suggest ways to help seniors find meaningful and satisfying activities that promote connectedness, thereby promoting greater health, well-being and life satisfaction.

Appendix B (Continued)

What are the Specific Objectives of the Connectedness Study?

This project gives older individuals an opportunity to participate in research that directly contributes to their well-being. The specific objectives are to systematically assess (a) the different kinds and degrees of perceived connectedness in several areas of experience (e.g., interpersonal, Nature, possessions, spirituality, transcendence); (b) the amount of engagement or behavior in each area; (c) the degree of satisfaction received in each area; and (d) how these all may differ according to the age and gender of seniors. Thus, this project will provide an overall picture of connectedness and intimacy that older individuals experience and how this picture may change as they age. It will also increase their awareness of the importance of meaningful connections with others, their environment, and spirituality.

For more information, please contact:

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Appendix C

Invitation Letter for Seniors

March 3, 2005

Dear Sir/Madam:

I am a Ph.D. student at the University of Calgary. I am inviting you to participate in a study regarding your experiences of connectedness, and how these have influenced your life. If you want to be a participant, you will be asked to complete a questionnaire at a mutually convenient time and place or by mail. For example, you will be asked questions about your relationship with significant persons (sexual and non-sexual), social groups, nature, important possessions, religion, and spirituality. Your answers will be completely voluntary and confidential.

To participate, you have to be 55 years or older and willing to give about half hour of your time to complete the questionnaire in a location of your choosing (home or organization) or by mail.

The purpose of the study is to learn more about seniors' experiences of connectedness so that agencies and organizations in the Calgary area can expand services that are relevant, important, and useful for the well being of seniors. The University of Calgary Ethics Committee has approved this study.

If you are interested in being part of this study, please contact me:

Amy L. Chaves
Office phone: (403) 220-5676
Home phone: (403) 289-9765
Cell phone: (403) 471-3449
Fax: (403) 282-9244
Email: chaves@ucalgary.ca

Appendix D

Information Flyer

I NEED YOU

This is your chance to help me help you and other Calgary seniors.

Are you 55 years old or older? If so, you may be the person I am looking for.

I am a Ph.D. student at the University of Calgary. I am inviting you to participate in a study regarding your experiences of connectedness and how these have influenced your life. If you want to be a participant, you will be asked to complete a questionnaire at a mutually convenient time and place or by mail. For example, you will be asked questions about your relationship with significant persons (sexual and non-sexual), social groups, nature, important possessions, religion, and spirituality. Your answers will be completely voluntary and confidential.

To participate, you have to be at least 55 years or older or older and willing to give about half hour of your time to complete the questionnaire in a location of your choosing (home or organization) or by mail.

The purpose of the study is to learn more about seniors' connectedness so that agencies and organizations in the Calgary area can expand services that are relevant, important, and useful for the well being of seniors.

Appendix D (Continued)

The University of Calgary Ethics Committee has approved this study.

If you are interested in being part of this study, please contact me:

Amy L. Chaves
Office phone: (403) 220-5676
Home phone: (403) 289-9765
Cell phone: (403) 471-3449
Fax: (403) 282-9244
Email: chaves@ucalgary.ca

Or contact:

[Name of Contact Person]
Outreach Worker
[Address]

Phone: [ ]

Copies of the Connectedness Survey are available from [contact person] upon request. Each questionnaire comes with an envelope, which can be readily sealed and returned to [contact person]. The questionnaire may take 30 minutes or less to answer.

Thank you for your help!

Appendix E

Cover Letter (Seniors)

March 3, 2005

Dear Sir/Madam,

Thank you very much for agreeing to participate in my research. Taking part in this survey will be a tremendous help, not only to me, but also to other seniors in Calgary.

Enclosed are the following: the Information Sheet, the Consent Form, the Connectedness Survey, and the Debriefing Sheet. Please take time to read the Information Sheet and
the Consent Form before answering the survey. You may want to read the Debriefing Sheet **after** completing the survey.

Kindly return the completed survey **within 3-5 days** in a self-sealing, self-stamped envelope provided for your convenience.

Sincerely yours,

Amy L. Chaves

Division of Applied Psychology
3rd Floor, Education Tower
University of Calgary
Calgary, AB T2N 1N4

Office phone: (403) 220-5676
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Email: chaves@ucalgary.ca

Appendix F

Connectedness Survey

Connectedness and Intimacy Survey:
A Study of Older Individuals

Thank you for agreeing to participate in this survey. This survey is about having a sense of "connection" and the experiences of older individuals. We appreciate that some seniors may not feel comfortable providing some of the information requested in this survey. Please remember that complete information will provide the most useful information for developing programs for seniors that promote life satisfaction and well-being. You are free, however, to choose not to answer any questions if you feel uncomfortable. Be assured that your answers will be treated with complete confidentiality.

This survey is anonymous.
All answers are strictly confidential.

Background Information

Directions. Please complete this section as honestly and as precisely as you can. If you do not wish to answer a question, please leave it blank. Please circle the appropriate letter or fill in the blank spaces.

1. Your gender?	A	B
	Male	Female

2. Your date of birth?	Month	Day	Year

Appendix F (Continued)

3. Your current marital status?	A	B	C	D	E	F	G
	Married	Common law	Significant Relationship	Widow/ Widower	Separated	Divorced	Single

4. Are you retired?	A	B	If yes, year of retirement?
	Yes	No	

5. Do you have children?	A	B	If yes, number of children?
	Yes	No	

6. Your race?	A	B	C	D	E	F
	Caucasian (German, Swedish, American, Italian, Ukrainian, others)	Black (African American, African Canadian, others)	Aboriginal	East Indian, Pakistan, others	Asian (Chinese, Japanese, others	Other (write in)

7. Your religious affiliation?	A	B	C	D	E	F	G
	Christian	Jewish	Islam	Buddhist	Hindu	Other religion (write in)	No religion or church

Appendix F (Continued)

8. Your highest educational level?	A	B	C	D	E	F	G
	Did not complete high school	High school graduate or certificate	Trades certificate or diploma	College certificate or diploma	University BA or BSc degree	Post-graduate degree (MA, MBA, MSc, Ph.D.)	Other education (write in)

9. Your present living arrangement?	A	B	C	D	E	F
	Living alone	Living with spouse or partner	Living with children	Living with relatives other than children	Living with someone other than spouse/partner, children or relatives	Other (write in)

10. Your housing? I live in...	A	B	C	D	E
	My own home or condo	Rental apartment, condo	Senior's home, lodge, residence	Children's/relative's home, condo or apartment	Other (write in)

11. Your health? I believe my health is...	A	B	C	D	E
	Excellent compared to other seniors	Very good or above average compared to other seniors	Good or average compared to other seniors	Fair or a little below average compared to other seniors	Poor compared to other seniors

12. Taking medication? Circle each that applies.	A	B	C	D	E
	For diabetes	For high blood pressure	For arthritis or joint pains	For cancer	Other ailments (write in)

Appendix F (Continued)

13. Are you currently employed?	A	B	C	D
	Yes	No	If yes, full time	If yes, part-time

14. Your total, yearly household income?	A	B	C	D	E	F	G	H
	Less than $10 k	$10 k to $19,999	$20 k to $29,999	$30 k to $39,999	$40 k to $49,999	$50 k to $59,999	$60 k to $69,999	$70 k or more

15. Do you belong to any social group, e.g., club, dance group, organization?	A	B	If yes, how many groups?
	Yes	No	

16. Do you engage in activities that get you in contact with Nature, e.g., hiking, gardening, bird-watching?	A	B	If yes, how many hours per week?
	Yes	No	

17. Are there things or possessions that are particularly important to you, e.g., collections, art, memorabilia?	A	B	If yes, approximately how many things?
	Yes	No	

18. Do you attend church, temple or synagogue?	A	B	If yes, how many times per month?
	Yes	No	

19. Do you have some neighbors with whom you interact?	A	B	If yes, how many times per week?
	Yes	No	

20. Do you reflect and contemplate about the meaning of life or philosophy?	A	B	If yes, how many hours per week?
	Yes	No	

Appendix F (Continued)

About Myself

1. This section is about "connection" and the experiences of older individuals. Please answer the way you personally feel **at this time**.

2. Answer each question by circling the appropriate letter using a pencil or pen.

A If you strongly agree
B If you agree
C If you don't feel strongly one way of the other (no opinion)
D If you disagree
E If you strongly disagree
F If not applicable (N/A)

About Myself and A Special Person							
The following questions relate to a particular person in your life, such as spouse, partner, or close friend.		Please rate each item					
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	N/A
1.	I feel emotionally connected and close with a special person in my life, e.g., spouse, partner, close friend.	A	B	C	D	E	F
2.	I share my deepest feelings with a special person in my life, e.g., worries, hopes, fears.	A	B	C	D	E	F
3.	I am satisfied with the amount of emotional connection and closeness I have with a special person.	A	B	C	D	E	F
4.	I am physically (non-sexually) connected and comfortable with a special person in my life, e.g., hugs, touch.	A	B	C	D	E	F
5.	I show my physical (non-sexual) connection and comfort with a special person, e.g., give hugs, touch.	A	B	C	D	E	F

Appendix F (Continued)

The following questions relate to a particular person in your life, such as spouse, partner, or close friend.		Please rate each item					
		Strongly Agree	**Agree**	**No Opinion**	**Disagree**	**Strongly Disagree**	**N/A**
6.	I am satisfied with the amount of physical (non-sexual) connection and comfortableness I have with a special person.	A	B	C	D	E	F
7.	I am sexually connected and physically celebrate my sexuality with a special person in my life, e.g., sexual intercourse.	A	B	C	D	E	F
8.	I show my sexual connection and sexual celebration with a special person, e.g., sexual intercourse.	A	B	C	D	E	F
9.	I am satisfied with the amount of sexual connection I have with a special person.	A	B	C	D	E	F
10.	I am mentally connected with and understand a special person in my life, e.g., have "deep" discussions, on the same "wavelength."	A	B	C	D	E	F
11.	I share my deepest thoughts with a special person in my life, e.g., ideas, beliefs, philosophy.	A	B	C	D	E	F
12.	I am satisfied with the amount of mental connection and mutual understanding I have with a special person.	A	B	C	D	E	F

Appendix F (Continued)

About Myself and Others							
The following questions relate to social groups, e.g., clubs, dance groups, organizations.		Please rate each item					
		Strongly Agree	**Agree**	**No Opinion**	**Disagree**	**Strongly Disagree**	**N/A**
13.	I feel emotionally connected and close with a social group of people, e.g., clubs, dance group, organization.	A	B	C	D	E	F
14.	I share my deepest feelings with a social group of people, e.g., worries, hopes, fears.	A	B	C	D	E	F
15.	I am satisfied with the amount of emotional connection and closeness I have with a social group of people.	A	B	C	D	E	F
16.	I am physically connected and comfortable with a social group of people, e.g., we meet, shake hands, give hugs, pats on back.	A	B	C	D	E	F
17.	I engage in activities that help me be physically connected and comfortable with a social group, e.g., organizing, driving others, clean-up.	A	B	C	D	E	F
18.	I am satisfied with the amount of physical connection and comfortableness I have with a social group.	A	B	C	D	E	F
19.	I am mentally connected with and understand a social group of people, e.g., we have "deep" discussions, on the same "wavelength."	A	B	C	D	E	F
20.	I share my deepest thoughts with a social group of people, e.g., my ideas, beliefs, philosophy.	A	B	C	D	E	F

Appendix F (Continued)

The following questions relate to social groups, e.g., clubs, dance groups, organizations.		Please rate each item					
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	N/A
21.	I am satisfied with the amount of mental connection and mutual understanding I have with a social group.	A	B	C	D	E	F

About Myself and Nature							
The following questions relate to Nature, e.g., wild life, plants, animals.		Please rate each item					
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	N/A
22.	I feel emotionally connected and close with Nature, e.g., wild life, plants, animals, all of Nature.	A	B	C	D	E	F
23.	I engage in activities that help me experience my deepest feelings with Nature, e.g., bird watching, walking in a park, gardening.	A	B	C	D	E	F
24.	I am satisfied with the amount of emotional connection and closeness I have with Nature.	A	B	C	D	E	F
25.	I am physically connected and comfortable with Nature, e.g., my body feels at ease, my body resonates with Nature.	A	B	C	D	E	F
26.	I engage in activities that help me be physically connected and comfortable with Nature, e.g., bird watching, walking in a park, gardening.	A	B	C	D	E	F
27.	I am satisfied with the amount of physical connection and comfortableness I have with Nature.	A	B	C	D	E	F

Appendix F (Continuation)

The following questions relate to Nature, e.g., wild life, plants, animals.		Please rate each item					
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	N/A
28.	I am mentally connected with and understand Nature, e.g., its complexity, interconnectedness, magnificence.	A	B	C	D	E	F
29.	I engage in activities that help me experience deeper thoughts and profound beliefs about Nature, e.g., Nature walks, learn more, discussions with others.	A	B	C	D	E	F
30.	I am satisfied with the amount of mental connection and understanding I have of Nature.	A	B	C	D	E	F

About Myself and Important Possessions

The following questions relate to important possessions, e.g., collections, art, memorabilia.		Please rate each item					
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	N/A
31.	I feel emotionally connected and close with the important things I have, e.g., collections, art, memorabilia.	A	B	C	D	E	F
32.	I engage in activities that help me experience my deepest feelings with the important things I have, e.g., hold them, touch them, put them in a special place.	A	B	C	D	E	F
33.	I am satisfied with the amount of emotional connection and closeness I have with the important things I have.	A	B	C	D	E	F

Appendix F (Continuation)

The following questions relate to important possessions, e.g., collections, art, memorabilia.		Please rate each item					
		Strongly Agree	**Agree**	**No Opinion**	**Disagree**	**Strongly Disagree**	**N/A**
34.	I am physically connected and comfortable with the important things I have, e.g., my body feels at ease, my body resonates with these things.	A	B	C	D	E	F
35.	I engage in activities that help me experience a physical connection with the important things I have, e.g., hold them, touch them.	A	B	C	D	E	F
36.	I am satisfied with the amount of physical connection and comfortableness I have with the important things I have.	A	B	C	D	E	F
37.	I am mentally connected with and understand the important things I have, e.g., their significance, history, memories.	A	B	C	D	E	F
38.	I engage in activities that help me experience deeper understanding of the important things I have, e.g., learn more about them, discussions with others.	A	B	C	D	E	F
39.	I am satisfied with the amount of mental connection and understanding I have with the important things I have.	A	B	C	D	E	F

About Myself and Spiritual Experience							
The following questions relate to your religious or spiritual experience.		Please rate each item					
		Strongly Agree	**Agree**	**No Opinion**	**Disagree**	**Strongly Disagree**	**N/A**
40.	I feel emotionally connected and close with a Higher Power or God.	A	B	C	D	E	F

Appendix F (Continued)

The following questions relate to your religious or spiritual experience.		Please rate each item					
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	N/A
41.	I engage in activities that help me experience my deepest feelings with a Higher Power or God, e.g., prayer, meditation, attend a place of worship.	A	B	C	D	E	F
42.	I am satisfied with the amount of emotional connection and closeness I have with a Higher Power or God.	A	B	C	D	E	F
43.	I am physically connected and comfortable with a Higher Power or God, e.g., my body feels at ease, my body resonates with His Presence.	A	B	C	D	E	F
44.	I engage in activities that help me experience a physical connection with a Higher Power or God, e.g., hold a religious object, sing hymns, go to a religious location.	A	B	C	D	E	F
45.	I am satisfied with the amount of physical connection and comfortableness I have with a Higher Power or God.	A	B	C	D	E	F
46.	I try to mentally connect with and understand a Higher Power or God, e.g., His power, complexity, interconnectedness, magnificence.	A	B	C	D	E	F
47.	I engage in activities that help me experience deeper thoughts and profound beliefs about a Higher Power or God, e.g., learn more, discussions with others.	A	B	C	D	E	F
48.	I am satisfied with the amount of mental connection and understanding I have of a Higher Power or God.	A	B	C	D	E	F

Appendix F (Continued)

About Myself and Transcendental Experience							
The following questions relate to your philosophical beliefs and transcendental experience, e.g., experience of oneness and connectedness with the world and universe.		Please rate each item					
		Strongly Agree	**Agree**	**No Opinion**	**Disagree**	**Strongly Disagree**	**N/A**
49.	I feel emotionally interconnected and "one" with everyone and everything.	A	B	C	D	E	F
50.	I engage in activities that help me experience my deepest feelings of interconnectedness, e.g., show loving kindness and respect, give acceptance and forgiveness.	A	B	C	D	E	F
51.	I am satisfied with the emotional connection and the sense of "oneness" I have with everyone and everything.	A	B	C	D	E	F
52.	I am physically interconnected and comfortable with everyone and everything, e.g., my body feels at ease, my body resonates with this interconnectedness.	A	B	C	D	E	F
53.	I engage in activities that help me experience physical interconnectedness, e.g., I try to be "in the moment" and connect, I immerse myself in the unity of the universe.	A	B	C	D	E	F
54.	I am satisfied with the amount of physical interconnection and comfortableness I have with everyone and everything.	A	B	C	D	E	F
55.	I try to mentally connect with and understand the interconnectedness of everyone and everything, e.g., the complexity of the interconnectedness, its beauty.	A	B	C	D	E	F

Appendix F (Continued)

The following questions relate to your philosophical beliefs and transcendental experience, e.g., experience of oneness and connectedness with the world and universe.		Please rate each item					
		Strongly Agree	**Agree**	**No Opinion**	**Disagree**	**Strongly Disagree**	**N/A**
56.	I engage in activities that help me experience a deeper understanding of the interconnectedness of everyone and everything, e.g., look for its meaning, ask what I can learn from every experience, learn more.	A	B	C	D	E	F
57.	I am satisfied with the amount of mental connection and understanding I have about the interconnectedness of everyone and everything.	A	B	C	D	E	F

OPTIONAL QUESTIONS (You may choose to or not to answer them):

1. Are there other areas of "connection" that are important to you? If so, please describe.

2. Is having a sense of "connection" important to you? Why or why not?

3. Do you have any comments about this study that you would like to share?

Thank you so much for completing this survey!

Appendix G

Debriefing Sheet

Debriefing Sheet
Connectedness and Older Individuals

This study assessed three areas of connectedness in seniors, namely, to what degree seniors feel connected in the interpersonal, environmental, and spiritual areas of their lives. Past research has only focused on seniors' connections with significant people (e.g., partners, social groups); the present study expanded this to other kinds of connections seniors may have. Therefore, you were asked questions about nature (e.g., pets, gardening), important possessions (e.g., heirlooms, treasured collections, art, home), spirituality (e.g., sense of the sacred, feeling close to God), wholeness (e.g., sense of oneness or interconnectedness with the world). This is important because connectedness is related to our health and well-being as we mature.

Another purpose was to see how age and gender are related to seniors' experiences of connectedness. More specifically, we were interested in seeing how a sense of connection changes with age and whether different kinds connections can replace, offset or substitute for certain losses such as physical decline or loss of a spouse. We were also interested in seeing whether men and women differ in how they find connections with others, the things around them, and spiritually.

We need to understand seniors' connectedness because researchers, policy makers, service providers and senior organizations need to be aware of the issues facing seniors in order to develop meaningful and satisfying activities that promote greater health, well-being, and meaningful connections.

We hope that you enjoyed participating in this study and we thank you for your help. If you would like a brief summary of the findings of this study (available Summer 2005), please contact:

Amy L. Chaves
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Division of Applied Psychology
Education Tower
University of Calgary
Calgary, Alberta T2N 1N4

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Fax: (403) 282-9244 Email: chaves@ucalgary.ca

Appendix H

Consent Form

Consent Form For Research Participants

I, the undersigned, hereby give my consent to participate in a research project entitled "Connectedness: A Study of Older Individuals".

I understand that such consent involves answering a 10-page survey that may take about approximately 30 minutes to accomplish.

I also understand that my participation is completely voluntary, anonymous, and confidential. At any time, I can choose not to answer any question or withdraw my participation.

I understand that this study will not involve any greater risks than those that occur in ordinary life.

I have been given a copy of this consent form for my records. Should I have any questions, I can contact the researcher, Amy Chaves at 220-5161, the researcher's supervisor, Dr. Greg Fouts at 220-5573, or Patricia Evans, Associate Director, Research Services Office at 220-3882.

Participant's Printed Name_____

Signature_____

Date_____

Appendix I

Pattern of Questions in the Connectedness Survey

Interpersonal-dyadic-emotional

1. I feel emotionally connected and close with a special person in my life, e.g., spouse, partner, close friend. [Experience]
2. I share my deepest feelings with a special person in my life, e.g., worries, hopes, fears. [Behavior]
3. I am satisfied with the amount of emotional connection and closeness I have with a special person. [Satisfaction]

Interpersonal-dyadic-physical (non-sexual)

4. I am physically (non-sexually) connected and comfortable with a special person in my life, e.g., hugs, touch. [Experience]
5. I show my physical (non-sexual) connection and comfort with a special person, e.g., give hugs, touch. [Behavior]
6. I am satisfied with the amount of physical (non-sexual) connection and comfortableness I have with a special person. [Satisfaction]

Interpersonal-dyadic-physical (sexual)

7. I am sexually connected and physically celebrate with a special person in my life, e.g., sexual intercourse. [Experience]
8. I show my sexual connection and sexual celebration with a special person, e.g., sexual intercourse. [Behavior]
9. I am satisfied with the amount of sexual connection I have with a special person. [Satisfaction]

Interpersonal-dyadic-cognitive

10. I am mentally connected with and understand a special person in my life, e.g., have "deep" discussions, on the same "wavelength." [Experience]

Pattern of Questions in the Connectedness Survey (Continued)

11. I share my deepest thoughts with a special person in my life, e.g., ideas, beliefs, philosophy. [Behavior]
12. I am satisfied with the amount of mental connection and mutual understanding I have with a special person. [Satisfaction]

Interpersonal-group-emotional

13. I feel emotionally connected and close with a social group of people, e.g., clubs, dance group organization. [Experience]
14. I share my deepest feelings with a social group of people, e.g., worries, hopes, fears. [Behavior]
15. I am satisfied with the amount of emotional connection and closeness I have with a social group. [Satisfaction]

Interpersonal-group-physical

16. I am physically connected and comfortable with a social group of people, e.g., we meet, shake hands, give hugs, pats on back. [Experience]
17. I engage in activities that help me be physically connected and comfortable with a social group, e.g., organizing, driving others, clean-up. [Behavior]
18. I am satisfied with the amount of physical connection and comfortableness I have with a social group. [Satisfaction]

Interpersonal-group-cognitive

19. I am mentally connected with and understand a social group of people, e.g., we have "deep" discussions, on the same "wavelength." [Experience]
20. I share my deepest thoughts with a social group of people, e.g., my ideas, beliefs, philosophy. [Behavior]
21. I am satisfied with the amount of mental connection and mutual understanding I have with a social group. [Satisfaction]

Pattern of Questions in the Connectedness Survey (Continued)

Environmental-nature-emotional

22. I feel emotionally connected and close with Nature, e.g., wild life, plants, animals, all of Nature. [Experience]
23. I engage in activities that help me experience my deepest feelings with Nature, e.g., bird watching, walking in a park, gardening. [Behavior]
24. I am satisfied with the amount of emotional connection and closeness I have with Nature. [Satisfaction]

Environmental-nature-emotional

25. I am physically connected and comfortable with Nature, e.g., my body feels at ease, my body resonates with Nature. [Experience]
26. I engage in activities that help me be physically connected and comfortable with Nature, e.g., bird watching, walking in a park, gardening. [Behavior]
27. I am satisfied with the amount of physical connection and comfortableness I have with Nature. [Satisfaction]

Environmental-nature-cognitive

28. I am mentally connected with and understand Nature, e.g., its complexity, interconnectedness, magnificence. [Experience]
29. I engage in activities that help me experience deeper thoughts and profound beliefs about Nature, e.g., Nature walks, learn more, discussions with others. [Behavior]
30. I am satisfied with the amount of mental connection and understanding I have of Nature. [Satisfaction]

Environmental-object-emotional

31. I feel emotionally connected and close with the important things I have, e.g., collections, art, memorabilia. [Experience]

Pattern of Questions in the Connectedness Survey (Continued)

32. I engage in activities that help me experience my deepest feelings with the important things I have, e.g., hold them, touch them, put them in a special place. [Behavior]
33. I am satisfied with the amount of emotional connection and closeness I have with the important things I have. [Satisfaction]

Environmental-object-physical

34. I am physically connected and comfortable with the important things I have, e.g., my body feels at ease, my body resonates with these things. [Experience]
35. I engage in activities that help me experience a physical connection with the important things I have, e.g., hold them, touch them. [Behavior]
36. I am satisfied with the amount of physical connection and comfortableness I have with the important things I have. [Satisfaction]

Environmental-object-cognitive

37. I am mentally connected with and understand the important things I have, e.g., their significance, history, memories. [Experience]
38. I engage in activities that help me experience deeper understanding of the important things I have, e.g., learn more about them, discussions with others. [Behavior]
39. I am satisfied with the amount of mental connection and understanding I have with the important things I have. [Satisfaction]

Meta-spiritual-emotional

40. I feel emotionally connected and close with a Higher Power or God. [Experience]
41. I engage in activities that help me experience my deepest feelings with a Higher Power or God, e.g., prayer, meditation, attend a place of worship. [Behavior]
42. I am satisfied with the amount of emotional connection and closeness I have with a Higher Power or God. [Satisfaction]

Pattern of Questions in the Connectedness Survey (Continued)

Meta-spiritual-physical

43. I am physically connected and comfortable with a Higher Power or God, e.g., my body feels at ease, my body resonates with His Presence. [Experience]
44. I engage in activities that help me experience a physical connection with a Higher Power or God, e.g., hold a religious object, sing hymns, go to a religious location. [Behavior]
45. I am satisfied with the amount of physical connection and comfortableness I have with a Higher Power or God. [Satisfaction]

Meta-spiritual-cognitive

46. I try to mentally connect with and understand a Higher Power or God, e.g., His power, complexity, interconnectedness, magnificence. [Experience]
47. I engage in activities that help me experience deeper thoughts and profound beliefs about a Higher Power or God, e.g., learn more, discussions with others. [Behavior]
48. I am satisfied with the amount of mental connection and understanding I have of a Higher Power or God. [Satisfaction]

Meta-transcendental-emotional

49. I feel emotionally interconnected and "one" with everyone and everything. [Experience]
50. I engage in activities that help me experience my deepest feelings of interconnectedness, e.g., show loving kindness and respect, give acceptance and forgiveness. [Behavior]
51. I am satisfied with the emotional connection and the sense of "oneness" I have with everyone and everything. [Satisfaction]

Pattern of Questions in the Connectedness Survey (Continued)

Meta-transcendental-physical

52. I am physically interconnected and comfortable with everyone and everything, e.g., my body feels at ease, my body resonates with this interconnectedness. [Experience]
53. I engage in activities that help me experience physical interconnectedness, e.g., I try to be "in the moment" and connect, I immerse myself in the unity of the universe. [Behavior]
54. I am satisfied with the amount of physical interconnection and comfortableness I have with everyone and everything. [Satisfaction]

Meta-transcendental-cognitive

55. I try to mentally connect with and understand the interconnectedness of everyone and everything, e.g., the complexity of the interconnectedness, its beauty. [Experience]
56. I engage in activities that help me experience a deeper understanding of the interconnectedness of everyone and everything, e.g., look for its meaning, ask what I can learn from every experience, learn more. [Behavior]
57. I am satisfied with the amount of mental connection and understanding I have about the interconnectedness of everyone and everything. [Satisfaction]

Appendix J

Table 4.

Means and Standard Deviations of MANOVA for Age and Gender in Three Spheres of Connectedness (n = 176)

Variable	Age Group	Gender				Total	
		Males		Females			
		n	Mean(SD)	n	Mean(SD)	N	Mean(SD)
Interpersonal							
	55-64 yrs. old	13	3.85(.81)	16	3.83(.73)	29	3.84(.76)
	65-74 yrs. old	21	3.53(.96)	38	3.96(.75)	59	3.80(.85)
	75-84 yrs. old	17	3.77(.76)	50	3.81(.67)	67	3.80(.69)
	85-94 yrs. old	6	3.15(.64)	15	3.42(.64)	21	3.84(.63)
	Total	57	3.63(.85)	119	3.81(.71)	176	**3.75**(.76)
Environmental							
	55-64 yrs. old	13	4.05(.58)	16	3.81(.63)	29	3.92(.61)
	65-74 yrs. old	21	3.72(.73)	38	4.08(.60)	59	3.95(.67)
	75-84 yrs. old	17	3.98(.48)	50	3.83(.63)	67	3.87(.60)
	85-94 yrs. old	6	3.25(.66)	15	3.78(.64)	21	3.63(.67)
	Total	57	3.82(.65)	119	3.90(.63)	176	**3.87**(.63)
Metaphysical							
	55-64 yrs. old	13	3.81(.98)	16	3.88(.63)	29	3.85(.79)
	65-74 yrs. old	21	3.82(.78)	38	3.76(.93)	59	3.78(.87)
	75-84 yrs. old	17	3.34(.75)	50	3.87(.55)	67	3.73(.64)
	85-94 yrs. old	6	3.34(.73)	15	3.78(.56)	21	3.66(.63)
	Total	57	3.62(.83)	119	3.83(.70)	176	**3.76**(.74)

Appendix K

Matrices of Correlations of Spheres,
Contexts, and Ways of Experiencing Connectedness

	Group	Nature	Object	Spiritual	Transcendental	Interpersonal	Environmental	Metaphysical	Physical	Emotional	Cognitive
Dyadic	.49**	.40**	.45**	.33**	.42**	.91**	.49**	.41**	.80**	.71**	.68**
Group	—	.39**	.50**	.40**	.51**	.82**	.52**	.52**	.70**	.74**	.73**
Nature		—	.44**	.30**	.46**	.46**	.84**	.43**	.63**	.62**	.67**
Object			—	.30**	.44**	.54**	.86**	.42**	.68**	.67**	.71**
Spiritual				—	.45**	.40**	.36**	.90**	.62**	.69**	.62**
Transcendental					—	.52**	.53**	.80**	.69**	.71**	.72**
Interpersonal						—	.58**	.52**	.88**	.83**	.80**
Environmental							—	.50**	.77**	.76**	.82**
Metaphysical								—	.75**	.81**	.77**
Physical									—	91**	.88**
Emotional										—	.88**
Cognitive											—

**p = < .01

(Note: Correlations between contexts are lower than most correlations. Correlations between the contexts and the spheres are high. Correlations between the contexts and ways of experiencing are also high.)

Appendix L

UNIVERSITY OF CALGARY

CERTIFICATION OF INSTITUTIONAL ETHICS REVIEW

This is to certify that the Conjoint Faculties Research Ethics Board at the University of Calgary has examined the following research proposal and found the proposed research involving human subjects to be in accordance with University of Calgary Guidelines and the Tri-Council Policy Statement on *"Ethical Conduct in Research Using Human Subjects"*. This form and accompanying letter constitute the Certification of Institutional Ethics Review.

File no:	**4137**
Applicant(s):	**Amy L. Chaves**
Department:	**Applied Psychology, Division of**
Project Title:	**Connectedness and Older Individuals**
Sponsor (if applicable):	

Restrictions:

This Certification is subject to the following conditions:

1. Approval is granted only for the project and purposes described in the application.
2. Any modifications to the authorized protocol must be submitted to the Chair, Conjoint Faculties Research Ethics Board for approval.
3. A progress report must be submitted 12 months from the date of this Certification, and should provide the expected completion date for the project.
4. Written notification must be sent to the Board when the project is complete or terminated.

Janice Dickin, Ph.D, LLB,
Chair
Conjoint Faculties Research Ethics Board

27 Oct 2004
Date:

Distribution: (1) Applicant, (2) Supervisor (if applicable), (3) Chair, Department/Faculty Research Ethics Committee, (4) Sponsor, (5) Conjoint Faculties Research Ethics Board (6) Research Services.