

Lifespan Development: A Social-Cultural Perspective

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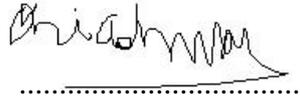
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I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

A handwritten signature in black ink, appearing to read 'Ori Ashman', is written above a horizontal dotted line.

(Ori Ashman)

ABSTRACT

This thesis explores some of the social factors that may affect individuals as they age. A lifespan developmental perspective is employed in investigating the effects of societal aging stereotypes on will-to-live and risk-taking skills. Results suggest negative aging stereotypes may have deleterious effects on the elderly, but not young individuals in terms of will-to-live, but have no effect on risk-taking abilities. Furthermore, a cross-cultural analysis of Americans and Japanese reveals robust differences in self-concept between countries, which in turn partially mediate the effects of culture and age on control strategies. It appears culture and age may play important roles in determining individuals' self-concept, motivation, and regulation of behavior.

The first part of Study 1 examined whether stereotypes of aging contribute to decisions the elderly make about when to die. Elderly and young participants ($n = 64$) were subliminally primed with either negative or positive stereotypes of old age using a computer, and then responded to hypothetical medical situations involving potentially fatal illnesses. Consistent with my prediction, the aged participants primed with negative stereotypes tended to refuse life-prolonging interventions, whereas those primed with positive age stereotypes tended to accept the interventions. This priming effect did not emerge among the young participants for whom the stereotypes were less relevant. The results suggest that socially-transmitted negative stereotypes of aging can weaken elderly will-to-live, or at the very least, willingness to pursue medical intervention.

The second part of Study 1 examined whether the older adults demonstrate similar risk-taking skills to the younger adults, and whether this ability is preserved, even after exposure to age stereotypes. Sixteen young and 16 older participants were

tested on a risk-taking decision task following exposure to subliminal aging stereotypes. In all conditions, both the old and young participants systematically and equivalently increased their willingness to take risks as risk level decreased.

Furthermore, response times were an inverted U shape curve with slower response times recorded at the medium risk level and faster times as risk levels shifted up or down. The findings suggest the ability to make decisions based on risk level is maintained into old age.

Study 2 investigated results reported by a number of studies finding that primary control remains stable in old age, is lower in Asian countries, and that secondary control increases in old age and is higher in Asian countries. I examined whether these patterns may be due to the mediating influence of an interdependent self-concept. In a sample of 557 young and older adults in Japan and the United States, primary and secondary control, age, and interdependence were studied. I found that interdependence partially mediated the influence of culture on secondary control and interdependence partially mediated the influence of age on both primary and secondary control. Findings suggest that interdependence is an important factor that should be considered in trying to understand the determinants of control cross-culturally and developmentally.

DISCLOSURE

This doctoral thesis emanated from a collection of published papers and conference presentations. As such, preliminary statistical analyses and results have been revised or omitted according to feedback received at conferences and from journal editors. Therefore, only the final results are described here for the sake of brevity and cogency.

Ashman, O., Shiomura, K., & Levy, B. R. (2004, December). *Attributional*

divergence between Americans and Japanese across the lifespan. Poster session presented at the Australasian Centre on Ageing, Emerging Researchers in Ageing Conference, University of Queensland, Brisbane.

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and control in old age: A cross-cultural study. Poster session presented at The Dynamic Processes in Ageing Symposium, Australian National University, Canberra.

Ashman, O. (2002, June). *Society and the self: The effect of socially-transmitted stereotypes on views of aging*. Invited Talk, Shinshu University, Japan.

Ashman, O., Shiomura, K., & Levy, B. R. (2006). Cross-cultural and cross-generational differences in use of control: The missing link of interdependence. *International Journal of Aging & Human Development*, 62, 143-157.

Ashman, O., Dror, I, Levy, B. R., & Houlette, M.A. (2003). Preserved risk taking skills in old age. *North American Journal of Psychology*, 5, 397-407.

Levy, B., Ashman, O., & Dror, I. (1999-2000). To be or not to be: The effects of aging stereotypes on the will to live. *Omega: Journal of Death & Dying*, 40, 409-420.

The first part of Study 1 investigating aging stereotypes and will-to-live is based on published material (Levy, et al., 1999-2000) and my previously submitted Master's thesis (Ashman, 1997). The study described in this doctoral thesis, although utilizing the same dataset as the Master's thesis, differs from the one reported in the Master's thesis as follows: (1) it focuses on will-to-live and stereotypes rather than death and dying, willingness to trust others for decision-making, etc; (2) it includes group comparisons and other statistics not reported in the Master's thesis; (3) different statistical tools were utilized; (4) it found that the old and young can score equally on will-to-live measures, but this was not analyzed or reported in the Master's thesis; (5) literature review focused on aging stereotypes, while the Master's thesis discussed death and dying from a Freudian perspective, legal issues, coping with death, and so on; (6) different references; and (7) different graphs and figures.

Ashman, O. (1997). *The effects of aging stereotypes on decisions regarding advance directives*. Unpublished Master's thesis, Harvard University, Cambridge, MA.

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DEDICATION

To John, Dana, and Bilah - the epitome of successful aging.

ACKNOWLEDGMENTS

I am writing this section while implementing the final touches to my thesis, and it is proving difficult and challenging. I am at once relieved, elated, and satisfied with bringing nearly a decade of hard work and diligence to a close, as well as anxious at the thought of neglecting to mention someone. This project has been completed over a period of ten years, across three continents, and four universities. There are many individuals who have been instrumental throughout this journey and I can never thank them adequately. It is impossible to recall all the numerous pivotal decisions and moments in which they were involved.

For the better part of the past decade, since my early days at Harvard, Dr. Becca Levy has been my mentor and friend and it was she who got me started in the “business”. She has been a relentless driving force providing me with opportunities, advice, and most importantly, has compelled me to remain focused. Dr. Levy is a true academic exhibiting not only brilliance and verve for the field, but is also generous and unpretentious, always happy to collaborate and help. My degrees and theses are no doubt the result of her teachings and guidance.

The studies in this thesis are a result of collaborative efforts between individuals who are truly passionate about the field and are always prepared to go the extra mile to test a hypothesis. Study two would not have taken place without Kimihiro Shiomura’s efforts. He has opened the door for me in Japan and I have learned many lessons through our cooperation. Dr. Jackie Lerner at Boston College has assisted me in a multitude of ways and I am forever grateful. Thank you too to my supervisors at Murdoch University, Dr. Anne Pedersen and Dr. Iain Walker, who have patiently put up with me through thick and thin.

Many friends are responsible for motivating, encouraging, and supporting me throughout this process, each in their own special way. I wish to thank them all. I would like to specially mention Hazel Spiro for meticulous editing and knocking some sense into me at times of frustration and seeming impasses.

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PREFACE

**GLOBAL PERSPECTIVE OF LIFESPAN DEVELOPMENT: CULTURE &
AGING**

Individuals in developed countries are living longer these days than ever before. In fact, baby-boomers in the USA (those born between 1946-1964) are expected to live longer, healthier, more active lives than any previous generation (Rehabilitation Institute of Chicago, 2003). The so-called “aging of America” is bound to produce profound social, economic, and political effects on society. Although nearly two-thirds of America’s wealth is held by those over the age of 55, the widening age-span has created a wide gap within the senior population. Although many seniors have savings and pensions to rely on, an increasing number of individuals needs now to work longer, save more, and plan more carefully their retirement as public funds (Social Security) are quickly dwindling and an ever-increasing burden is being placed on public health services (Medicare).

As the world’s population ages and people live longer as a result of modern medical and technological enhancements, it has become increasingly important to understand older individuals’ psychological processes and how they are affected by the cultures in which they operate.

The perceived role of the elderly in society and attitudes toward them are constantly shifting. On one hand, many believe such individuals are past their prime, can no longer be productive or contributing members of society, and deplete public funds. Consequently, many people develop negative attitudes or behaviors toward older individuals. On the other hand, the elderly live longer, healthier lives, and

many are still capable of working and teaching their young colleagues a thing or two, thanks to knowledge grounded in years of experience.

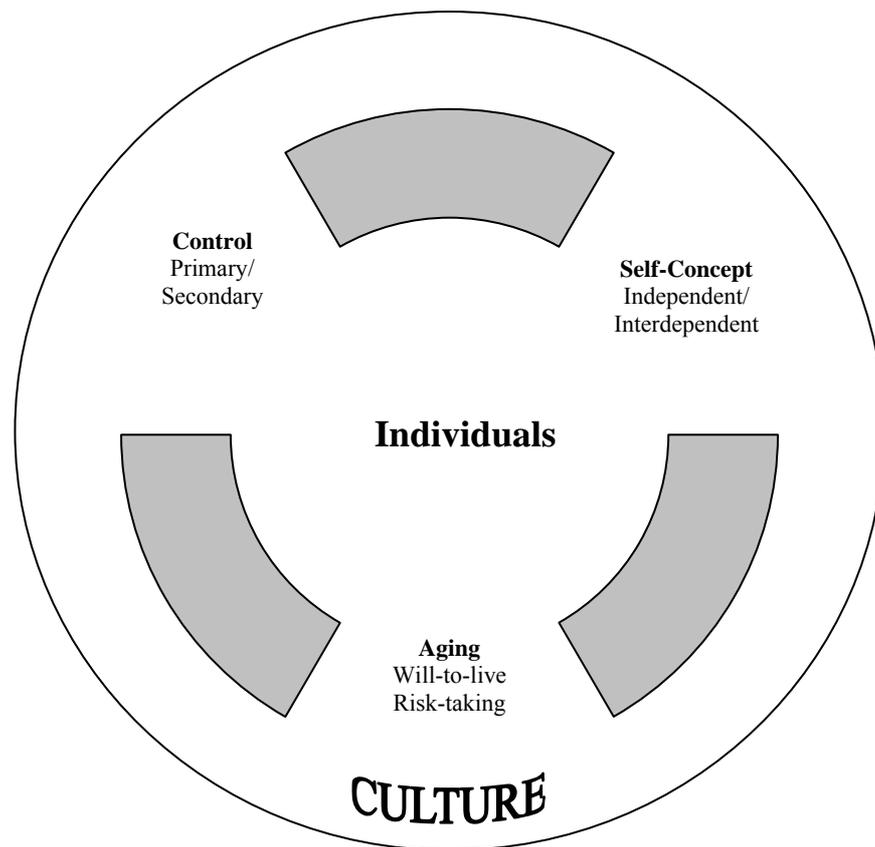
These differences in opinion about older adults' abilities may be due, at least in part, to the more complex research question of cognitive abilities' deterioration in old age. While some researchers believe that aging degrades information processing in all cognitive domains (Birren, Woods, & Williams, 1980; Cerella, 1991; Cerella, Poon, & Williams, 1980; Myerson, Hale, Wagstaff, Poon, & Smith, 1990; Salthouse, 1985; Salthouse & Somberg, 1982), others have found that specific aspects of cognition seem to be preserved in old age (Baltes & Staudinger, 1993; Wingfield, Alexander, & Cavigelli, 1994; Dror, Katona, & Mungur, 1998). However, few studies have examined whether socially-transmitted age stereotypes can modify this process.

In this thesis, I explore how culture may affect individuals' cognitive and social-psychological processes such as will-to-live, risk-taking decisions, and control striving. More specifically, I was interested in exploring:

- (1) How different cultures view, treat, and affect individuals. One mechanism by which culture may affect its members is stereotypes. Aging is an area particularly susceptible to culturally-transmitted stereotypes. Therefore, examining the effects of positive and negative stereotypes on older vs. younger individuals would enable us to better understand the role such stereotypes play in people's lives.
- (2) How individuals differ not only between but within cultures. This was achieved by conducting research in two distinct cultures, the US and Japan. Related to aging, this process is viewed differently in Asian cultures and may therefore elicit divergent reactions in terms of control regulation (how

individuals adjust themselves in accordance with situations and contexts). Since a sense of control has been shown to increase one's sense of efficacy, cognitive performance, and health, this is of paramount importance to aging research. That is, perhaps this construct can partially explain why individuals in Japan live longer and the aged are more "revered" than in the USA (Palmore, 1975).

To tie together the research projects described herewith, I direct the reader to the diagram below. Individuals living in a culture are inevitably engaged in an ongoing process of various cultural interactions and influences, which in turn shape them, influence their behaviors, feelings, etc. For instance, if one's self-concept is influenced by the culture he or she is living in, then as a result, the adapting individual would regulate his or her behavior in a manner best fitting the parameters society prescribes. In turn, control strategies would be established and regulated in accordance with the self-concept (Gould, 1999; Heckhausen & Schulz, 1995). In later stages of the lifespan, aging processes, both biological and psychological, would be, at the very least, partially mediated by culture. This is a circular notion with no beginning or end and certainly no directionality. Therefore, I did not use arrows pointing in one direction or another to emphasize it is directionless.



The question of how culture may be involved in individual development across the lifespan has been occupying researchers for decades. The significant body of research in the area has led to major shifts in perspectives, in particular, how we view individual development in the social context. For example, in the field of child development, ideas of “child training” have been replaced with “learning environments and culture acquisition” (Roer-Strier & Rosenthal, 2001). These terms denote an acknowledgment of the important role culture and context play in individual development.

What is culture? According to Shweder (1993), it “consists of meanings, conceptions, and interpretive schemes that are activated, constructed...through participation in normative social institutions and practices (p. 417). In fact, culture may be summed up as the total accumulated knowledge and experiences of past generations. Matsumoto (2002) suggests that culture is an organized system of rules

shared by a group and transmitted across generations. These so-called rules or knowledge have undoubtedly substantial influence on the developing individual from birth till death, from child-rearing practices to community customs. The developmental process is dynamic, multi-directional, and ever-changing. That is, society shapes the individual, but the individual shapes society as well.

The ‘lifespan developmental perspective’ describes the ways in which culture influences development, as processes of development inevitably take place in a cultural context. This thesis will discuss how culture influences the development of self-concept; how culture leads to the development of ideas about primary and secondary control; how culture influences the individual by means of stereotyping; and finally, how all these developmental processes affect health, attitudes, and behaviors. The focus of this thesis is on older adults in later stages of development.

The following studies examine the influence of age stereotypes on elderly people’s decision making. Findings suggest that risk-related decision-making ability is preserved in old age, but socially-transmitted aging stereotypes can lower older individuals’ will-to-live. In addition, I investigated the development of control over the lifespan and across cultures. Culture and age are said to be the major factors affecting the balance between primary and secondary control. Primary control refers to attempts at changing the external environment to fit one’s needs, while secondary control attempts to adjust one’s cognitive processes to fit the environment. While previous studies have found that primary control remains constant in old age, some suggest it may actually increase. The findings described in this thesis revealed increased levels of primary and secondary control in old age, supporting the latter view. A significant contribution of this study to the field is the finding that control strategies are mediated by self-concept rather than country of origin or age alone.

More specifically, an interdependent self-concept, believed to be more prevalent in non-Western countries and in older individuals, plays a central role in determining control striving. This suggests that future studies of control should aim at measuring not only cross.-cultural differences, but intra-cultural diversity as well.

CHAPTER 1

GLOBAL PERSPECTIVE OF LIFESPAN DEVELOPMENT

1.1 Lifespan Developmental Perspective

Lifespan developmental psychology is concerned with the organism's ontogeny throughout the years. Ontogenesis is defined as the study of individual development from conception to old age (Baltes, Staudinger, & Lindenberger, 1999). This developmental journey, or process, must not be viewed as discrete, having defined start and end points. Rather, it is a dynamic, enduring, and continuously evolving interplay of processes. According to Baltes et al. (1999), human development, from a lifespan perspective, encompasses three major components: (a) interindividual commonalities or regularities; (b) interindividual differences; and (c) intraindividual plasticity. These facets of development can be studied within the framework of age, but it is not a requisite. Thus, human development is not compartmentalized into discrete stages. This approach is quite different from what Baltes et al. (1999) call the holistic approach. The holistic approach describes the overall pattern of development through connecting age periods, with each representing certain patterns or emergent abilities or behaviors. One such approach is Erikson's eight stages of development. In contrast, Baltes et al. (1999) present the function-centered approach. This approach focuses on specific mechanisms (e.g., perception, action control, identity, etc.) and attempts to distinguish changes in these mechanisms across the lifespan. In this thesis, I investigate lifespan changes in such mechanisms as self-concept, control strategies, and decision-making.

Generally speaking, as individuals age over the course of the lifespan, their need for culture and the resources it affords them increases, yet the efficacy of

culture decreases (Baltes et al., 1999). That is, the individual needs more help and support from cultural sources, but the actual benefits he or she receives inevitably become less efficacious as increasing cognitive and physical deficits become insurmountable. This relationship between biology and culture is intricate and dynamic, drawing heavily on evolutionary perspectives. First, biological determinants of human development, aging in particular, inevitably affect humans' evolutionary paths, genetic makeup, etc. A prime example would be female reproductive ability, which is pre-programmed to cease functioning at certain stages of adulthood. This, a result of "evolutionary" evolution, is probably beneficial as older people may not be able to adequately care for children as do younger parents. This is but one example of a myriad of mechanisms that are activated and de-activated in the aging individual. Second, cultural determinants of development are as robust as the biological factors, although many fail to readily recognize them. Culture, plainly put, is accumulated knowledge. It is this knowledge, be it psychological, social, material, and/or symbolic that is transmitted across generations over hundreds and thousands of years that defines a culture and enables human development (Baltes et al., 1999). This cultural information gives rise to complex structures and resources including socialization practices and technology (Baltes et al., 1999).

Why would aging individuals experience an increased need for culture and the resources it affords them? Because as we experience progress in many domains of life, people are living longer, generating more complex information that must be stored and communicated to future generations. This, as mentioned earlier, is facilitated by culture and its resources (books, computers, etc.). Moreover, an aging population usually must rely on cultural resources for support. Support comes in

many forms but can be financial, psychological, and social. Thus, older individuals become increasingly reliant on cultural resources to advance that very culture as well as maintain their own functioning and efficacy.

The next question is why would the efficacy of culture decrease with age? Simply put, biological declines dampen the robustness of many cultural resources. For instance, old individuals are generally unable to process information as efficiently as the young and may never reach comparable performance levels regardless of training and other factors (Baltes, 1997).

Evolutionary changes to human genetic and biological development lose robustness as the individual matures. That is, in old age, individuals are far less likely to benefit from evolutionary enhancements in development (e.g., reproductive abilities). This, in turn, forces the aging individual to rely more heavily on cultural resources (Baltes et al., 1999). These resources may be social, economic, psychological, material, and so on. For example, an older adult may have an increased need for financial support or rely more heavily on family members, neighbors, or other community-based resources. Thus, older individuals may minimize losses in function vis-à-vis increased reliance on culture.

But what is culture? As touched upon in the preface, culture, although defined in a myriad of ways, encompasses resources, knowledge, and ever-increasing information that has been both produced and accumulated over time. More specifically, it may consist of symbols, meanings, values, institutions, and behaviors that typify a distinctive and identifiable human population group (Baltes et al., 1999). The word 'culture' **may** take on various meanings and associations in different languages and intellectual traditions. 'Culture' can be viewed as the living sum of meanings, norms, customs, and social artifacts which confer identity to

individuals as members of some visible community; provide standards for relating to the environment, identifying fellow members and strangers, deciding what is and is not important to them; and instills beliefs about appropriate actions in specific situations or for person-specific positions in social structures (Bodley, 1994; Goulet, 1994; Triandis, 1994). These elemental components of culture are in turn communicated and transmitted from generation to generation (Triandis, 1994).

Although we can think of culture as having many manifestations, it generally enables identity formation, provides a meaning system, and assigns a place to its members in the total scheme of things. This connotation of culture as a 'complex whole' reflects a perception that human life is experienced as a totality. 'Culture' thus provides an organizing concept for describing a collective's way of life (Goulet, 1994).

Culture, then, is a way of life as well as the content of libraries, museums, moral and religious codes of conduct etc., and has become a common term to describe social life. In sum, culture provides: lenses of perception and cognition (how people view the world); motives for human behavior; criteria of evaluation (good/bad, ugly/beautiful, terrorist/freedom fighter); a basis of identity (religion, ethnicity); a mode of communication (language, arts, ideas); a basis of stratification (class, rank, gender); and a system of production and consumption (Mazrui, 1997). In short, people's culture will influence their individual development and will contribute to individual differences among them.

As discussed above, culture provides resources to the developing individual by way of socialization strategies, physical structures, economic, medical, and physical technology (Baltes, Lindenberger, & Staudinger, 1998). Ideas about how culture affects both normal and atypical development have changed dramatically over the

course of the last century (Shweder, 1991). Although cultures differ in numerous ways and on several levels, a central feature in the study and discussion of culture within psychology has been the concept of “individualism vs. collectivism,” the predominant ideologies that organize ideas of self and influence behavior. I will discuss this in detail in later chapters.

By now, the intricate and dynamic interplay between biology (aging) and culture may have become apparent to the reader. Questions inevitably arise: how do these central tenets of human development affect one another and the individual? Do these operate independently or conjointly? Are human developmental trajectories discrete and unalterable due to biological determinants or perhaps they are somewhat fluid?

To answer these questions, we must first look at the basic goals of development. According to Baltes et al. (1999), ontogenetic development centers around: (a) growth; (b) maintenance; and (c) loss regulation. These three developmental goals warrant variable resource allocation according to individuals' age. For instance, young individuals invest considerable resources in obtaining new goals, acquiring new skills and expertise, and so on. Conversely, aging individuals may not be as concerned with growth as much as preservation (maintenance) of that which they have already achieved, and minimizing losses (loss regulation), which they may face given biological decline. This is a dynamic process constantly shifting resources to enable individual adaptation in the face of biological realities including diseases, impairments (physical as well as cognitive), and death. When children develop, they balance their inevitable reliance on parents (dependence) with striving for independence and autonomy, which increases in adolescence and early adulthood; whereas the elderly must at times relegate their previously attained

autonomy in lieu of deterioration in health and increase their dependence on family, friends, community-based carers, and other resources (MM Baltes, 1996). Physical or cognitive losses may also be compensated for by gains associated with accumulated experience, expertise, or “wisdom” in particular domains (Baltes et al., 1998; 1999).

In this respect, culture may be viewed as ‘compensation’ (Baltes et al., 1999). In fact, Baltes (1997) suggests that by definition, the human organism is imperfect and suffers from numerous biological inadequacies, which are complemented and ‘compensated for’ by culture. Actually, one may argue that at least in part, cultures emerge in order to deal with human shortcomings. But can culture actually impede human development? Could it actually ‘de-compensate’ in certain individuals? The studies conducted and discussed in this thesis attempt to answer these questions. More specifically, I investigated whether culturally-bound or transmitted stereotypes can influence individuals’ decision-making processes.

As mentioned earlier, lifespan development is concerned with inter-individual differences and commonalities, as well as plasticity. Differences and commonalities *among* people may be racial, ethnic, religious, gender-based, physical, age-related, and so on. However, there are often underappreciated differences *within* a person (Lerner, 1984) over the course of his or her life (plasticity). Here, lifespan psychologists stress that: (a) development occurs throughout life (thus, children differ from adolescents and adolescents differ from adults; in addition, the way one is in childhood or adolescence does not necessarily determine his or her development in later stages of life); and (b) development always involves a combination of gains and losses (Baltes, 1987; 1997; Lerner, 1984).

In conclusion, according to the lifespan view, successful development follows patterns of maximizing gains and minimizing losses (Baltes, 1987, 1997; Baltes et al., 1999). Furthermore, culture, personal factors, and one's stage within the lifespan determine what constitutes gains, losses, and the dynamics of this relationship. That is, gains and losses are inherently different at various stages of the lifespan. For example, for a young adult, a gain may be realized by giving birth to a child, while for the elderly, this is not a possibility. Instead, the elderly may concentrate their efforts on mitigating losses incurred as a result of physical declines by relying on medical aides, others in their communities, and so on.

The first part of this thesis examines how society and culture influence elderly individuals' decision-making processes by means of stereotyping. As mentioned earlier, the resources culture provides the individual are of paramount importance for his/her development, maintenance of well-being, etc. However, these resources may not be provided in a totally neutral and efficacious manner. In fact, they may be tainted by prejudice and prove detrimental rather than adaptive to the aging individual.

The second part will discuss how culture and age affect one's self-concept, which in turn can influence the way individuals interact with their environments. That is, although culture is a universal phenomenon and will often consist of similar, if not identical resources, both intra and inter-individual variation may contribute to differential developmental trajectories. This, in turn, may result in individuals who operate differently in reconciling biology and psychology in the cultural context. Finally, the third part will summarize findings and discuss the implications of the studies conducted.

CHAPTER 2

AGING STEREOTYPES, WILL-TO-LIVE, AND RISK TAKING

2.1 Ageism

Over the past decades, the average lifespan of Americans has increased by 27 years (Levy, Slade, Kunkel, & Kasl, 2002). This dramatic increase is most often attributed to the latest developments and innovations in medical treatments. However, research in the field has shown that psychological and behavioral factors may also affect longevity (Levy et al., 2002).

The elongated lifespan and the aging baby-boom generation are bound to create enormous strains on social welfare systems in Western countries. As a result, the ever-growing need for healthcare, technological breakthroughs, and declining funds all combine to be construed as future burdens on young taxpayers, who shall have to ultimately pay for the healthcare of the elderly (Callahan, 1996). However, financial implications are only part of the picture. The perceived role of the elderly in society and attitudes toward them are constantly shifting. On one hand, many believe these individuals are past their prime, can no longer be productive or contributing members of society, and create a heavy burden as they deplete public funds. Consequently these views give rise to *ageism*, that is, negative attitudes or behaviors toward individuals based on their age (Greenberg, Schimel, & Mertens, 2002). For example, older people are commonly perceived as physically weak, cognitively deficient, and unable to cope with change. This may lead to workplace discrimination, and manifest in ageist comments, biased judgments and expectations, and unfair practices (McCann & Giles, 2002). On the other hand, the elderly live longer, healthier lives, and many are still capable of working and contributing to

society. Recently CNN reported that several large companies began rehiring retired former executives to lend a hand and facilitate company recovery (Keller, 2001). Moreover, many companies have retiree rehiring policies and this trend seems to be on the rise (Keller, 2001).

Generally, younger individuals, who are perpetrators of negative stereotypes of aging, exercise ageism toward the elderly (Kite & Johnson, 1988; Tuckman & Lorge, 1953). To the young, the elderly manifest their greatest fears: declines in health, physical attractiveness, mental capacity, and most importantly, crystallize impending death. These fears are especially salient to young individuals in Western society in which self-esteem is predicated predominantly on appearance, aesthetics, and physique. To reduce the anxiety provoked by these fears, individuals employ various defenses and attempt to boost their self-esteem by denigrating, and distancing themselves from the elderly both physically and mentally (Greenberg et al., 2002). We should also bear in mind that ageism is somewhat cyclical and inevitable, as young individuals go through life stages and will eventually reach old age, and thus fall victim to the same negative effects of aging and ageism.

2.2 Aging Stereotypes

Aging stereotypes are consensual beliefs a particular society holds regarding individuals or groups based on their age (Nardi, 1973). Ageism refers to age-based stereotyping, prejudice, and discrimination. These three facets respectively represent the three dimensions of attitudes; namely, cognition, affect, and behavior. Aging stereotypes mainly address the cognitive aspect of attitudes toward old people, while prejudice and discrimination correspond with affect and behavior respectively (Cuddy & Fiske, 2002; Montepare & Zebrowitz, 2002).

Numerous studies have shown that human information processing requires cognitive categorization. We categorize people into groups based on their perceived similarities and differences (race, gender, age, etc.) and use the knowledgebase associated with the categories in further processing as well as for evaluating the target-related information (Allport, 1954; Fiske, 1998; Macrae & Bodenhausen, 2000). Although this helps reduce the cognitive resources used in processing information, it also creates effects that can bring about stereotypes. First, we perceive people as more similar to each other when they are categorized as members of the same group (within-group assimilation) and more different when they are categorized as members of different groups (between-group contrast). This may contribute to perceptions among young individuals that all old people are alike and possess different, often more unfavorable, characteristics compared with themselves (Cuddy & Fiske, 2002). Second, an effect of categorization is that people tend to process new information about a target in stereotype-consistent ways, reinforcing, and perpetuating the stereotypes (Montepare & Zebrowitz, 2002). Another consequence of categorization is that perceivers are likely to evaluate targets based on stereotypic information and not on differentiating attributes (Brewer, 1988).

Developmental studies have demonstrated that categorization of people begins at an early age. Lewis and Brooks-Gunn (1979) suggested that age is one of the first attributes that children develop awareness of, and that they differentiate people based on age-related physical features. Allport (1954) stated that prejudice held by a child is basically the taking on of stereotypes originating in his or her family and/or culture. Aging and other stereotypes, such as those based on gender and race, are internalized and expressed starting at around the age of six in the United States (Isaacs & Bearison, 1986). Moreover, over the lifespan, aging

stereotypes are maintained, and may even become more fixed and embedded in individuals as a result of continuous exposure. When individuals reach late adulthood, these internalized stereotypes may turn against them and morph into self-stereotypes, defined as stereotypes that are relevant to one's self-identity (Levy, 2003). The aging stereotypes, once applicable only to the outgroup, namely the old, become self-relevant as individuals age and move into the ingroup, or the target of those very stereotypes. Studies have shown that older and younger adults hold similar stereotypes of aging (Heckhausen, Dixon, & Baltes, 1989; Hummert, Garstka, Shaner, & Strahm, 1994). Heckhausen et al. (1989) asked young, middle-aged, and old participants to evaluate a number of trait adjectives with respect to aspects of developmental changes. Results demonstrated that: (a) all age groups shared a great deal of beliefs regarding aging, although older adults hold richer conceptions possibly as a result of increased knowledge through their own aging experience; and (b) while participants viewed the nature of aging in terms of both gains (increases in positive attributes) and losses (increases in negative attributes), overall beliefs were associated with higher risks of decline and lower chances of growth. A potential concern with the Heckhausen et al. (1989) paper is that the representativeness of stereotype traits seem to have been positively skewed, or biased toward the positive end of the attributes; and positive traits have been shown to be more descriptive of younger adults (for example, Perdue & Gurtman, 1990). Heckhausen et al. (1989) also acknowledge that participants were mostly at the higher end of the educational and social status spectrum. This perhaps affected participants' responses when asked to rate "people in general," as their frame of reference related to people they know best, rather than the general public. It is important to note that Heckhausen et

al. (1989) achieved a relative stability of ratings, where after six months the perceptions of both young and old participants remained nearly identical.

Hummert et al. (1994) provided further support for shared negative and positive age stereotypes among different age groups using trait generation and categorization tasks. To sum up, aging stereotypes begin developing in early childhood and become more elaborate over the lifespan. However, basic beliefs and expectations, including both negative and positive, are shared even by older adults themselves.

In contrast to other stereotypes (e.g., gender or race), aging stereotypes are more socially-tolerable (Butler, 2002). There are hardly any social sanctions against expressions of negative aging stereotypes, and this relatively wide acceptance of negative beliefs about the elderly is reflected in the lack of research interest in the field of ageism (Levy & Banaji, 2002).

People generally hold negative views about aging and the elderly (e.g., Kite & Johnson, 1988; Tuckman & Lorge, 1953). A meta-analysis of studies measuring attitudes toward aging in the United States (Kite & Johnson, 1988) suggests that older people are viewed more negatively than younger people across many dimensions, including competence and physical attractiveness, to name a few. Moreover, expressions of negative stereotypes regarding older people were greater when participants were asked about the mental competence or physical attractiveness of the elderly compared with their personality traits. However, studies have suggested that positive stereotypes of old age also exist (e.g., Levy, 1996). It has been demonstrated that individuals hold a variety of stereotypic beliefs about, and expectations of, the elderly (Brewer, Dull, & Lui, 1981; Hummert, 1990; Schmidt & Boland, 1986). For example, Schmidt and Boland (1986) asked university students

to sort 99 traits of old people into categories they deemed appropriate. The number of categories participants used ranged from 2 to 17. Based on cluster analysis, a total of 12 stereotypes were identified, 8 of which were negative (e.g., despondent, vulnerable, shrew/curmudgeon, nosy neighbor) and 4 positive (e.g., perfect grandparent, sage). Overall, the predominant finding is a strong negative bias toward aging and the elderly.

However, it needs to be acknowledged that social stereotypes may also play a role in aging adults' adaptation. This can be considered as part of a secondary control strategy in order to protect motivational resources for further primary control¹ (Heckhausen & Schulz, 1995). Compared with her age peers, a relatively healthy older woman might hold a more positive self-perception when applying negative stereotypes to her age counterparts, such that she believes herself to be a "particularly able exception." In this way, negative aging stereotypes might actually assume an adaptive function in promoting elderly self-esteem in spite of age-related declines (Heckhausen and Brim, 1997). This is the case for the mechanism the authors call social downgrading as a more particular case of downward social comparison. "Downward social comparison is a process in which one compares oneself to a person or group identified as, and known to be, inferior to the self in some way. In contrast, social downgrading is a process in which one compares oneself to a negatively biased view of a group not generally identified as or known to be inferior to the self" (Heckhausen & Brim, 1997, p. 611); for instance, "the general public" or "most people your age." Therefore, from Heckhausen and Brim's view point in "downward social comparison" the group is identifiable, whilst in "social downgrading" there is a negatively biased view of a group not generally identified

¹ Concepts of primary and secondary control will be discussed in Study 2.

(1997).

Heckhausen and Krueger (1993) examined the congruence between self and other-related developmental paths. They found that as age increases, the reduction in growth potential coupled with rising risks of decline was expected for self and others. Thus, bias was not employed for the self and suggests the elderly are aware and accepting of the fact that aging inevitably presents lowered growth and increased risks. Heckhausen and Krueger (1993) also investigated the effect of selective self enhancement at advanced age. Results suggested that for older adults in regards to advanced age, anticipated to be better off than their peers, suffer much later and experience lower declines in desirable attributes, and also experience far less increases in undesirable attributes and do so at a later stage in life. These results were found for middle-age and old adults but not for the young. It is postulated that the middle-age and old adults, being more threatened by impending aging losses, experience an increased need for self-enhancement. The authors citing O’Gorman (1980) describe a “downgrading effect” in peers of old people. Various aspects of elderly well-being were increasingly viewed negatively by those participants who were experiencing similar problems as described in terms of health, finances, and so on. In short, when developmental decline is imminent, social comparison is employed as a self-enhancement strategy (Heckhausen & Krueger, 1993).

Aging stereotypes can also be culturally-bound. For example, Kimmel (1988) reminds us that in collectivist cultures such as Japan, age is a measure of social status, and as age increases, so does one’s status; while in the US, age is mostly viewed negatively and the aged are ignored, unless they become a “problem.” Such differences in cultural values may lead to the development of diverse aging stereotypes. For instance, in Latin American and Asian cultures, aging stereotypes

and behaviors directed toward the elderly have been reported to be more positive than in the USA (Holmes & Holmes, 1995; Levy & Langer, 1994; Palmore & Maeda, 1985).

The most well-known and regarded empirical work on aging in Japan by a Westerner is probably that of Erdman Palmore and associates (Palmore, 1975; Palmore & Maeda, 1985). Palmore investigated Japanese culture despite the difficult language barrier and produced an impressive body of work. In short, Palmore (1975) concluded that in Japan, the elderly are highly respected and enjoy an elevated social status. However, some of his findings have been criticized by Japanese gerontologists such as Koyano. Koyano (1989) believes that Westerners often misperceive Japanese attitudes toward the elderly and erroneously conclude that in Japanese culture, at least compared to American, the elderly are treated respectfully and are thus revered. Koyano (1989) suggests that when Japanese overtly treat elders with courtesy, it is merely a result of socially-expected behaviors and does not reflect one's actual attitudes and feelings toward the elderly, which remain covert and may be in fact quite negative.

Studies have shown that stereotypes can operate on both conscious and unconscious levels (e.g., Devine, 1989; Levy, 2003). Automatic activation of stereotypes is achieved by unconscious processes that tap into well-developed associations, and are prompted by exposure to a stimulus related to the stereotyped group (Shiffrin & Dumais, 1981). For example, in a study conducted by Perdue and Gurtman (1990), results suggested that mere exposure to a category word can automatically activate stereotypes associated with the target group. In this study on automatic ageism, college students were presented with 18 positive trait adjectives (e.g., competent, practical) and 18 negative trait adjectives (e.g., stubborn,

disagreeable) on a computer screen, with randomly selected priming word “old” or “young” preceding each trait adjective. Participants were asked to evaluate whether each trait was generally positive or negative. The results demonstrated that decisions about negative traits were made more quickly after being primed with the word “old” rather than following the prime word “young.” The authors stated that “cognitively categorizing a person as ‘old’ may create a subset of predominantly negative constructs which are more accessible and more likely to be employed in evaluating that person, and thus perpetuate ageism from the beginning of the social perception process” (p. 213).

Conversely, Chasteen, Schwarz, and Park (2002) found that both older and younger adults displayed positive bias toward old people and concluded both groups did not differ in accessibility to aging stereotypes and biases. Chasteen et al. (2002) criticized the negativity of the old stereotypes used by Perdue and Gurtman (1990) and suggest Perdue and Gurtman had the confounded variable between valence and stereotypicality so as to raise doubts in regards to the results obtained. Perdue and Gurtman (1990) in their first experiment looked at the encoding stage while a second experiment dealt with the priming effects using young/old adjectives flashing for 55 ms. The choice of traits was not based on stereotype structure in both studies. This raises the question of what is the structure of old/young stereotypes. Are they merely antonyms of one another or hold particular independent meanings. To overcome these limitations, Chasteen et al. (2002) manipulated both variables. By doing so, however, they introduced a new confounding variable, Stimulus Offset Asynchrony (SOA) of 300 and 2000 ms. This may have elicited controlled processes rather than unconscious or automatic. It therefore raises the question of whether this study should be compared with Perdue and Gurtman (1990). Stein,

Blanchard-Fields, & Hertzog (2002) followed Levy (1996) and used faster SOA of 5-103 ms for young and 14-210 ms for old participants, and still had to eliminated one-third of the participants due to their ability to perceive the primes. Considering Chasteen et al. (2002) used far slower SOA, it is probable that participants were nearly fully aware of the primes. Bargh and Pietromonaco (1982) used 100 ms; Devine (1989) 80 ms; Perdue and Gurtman (1990) and Levy (1996) used 55ms. Moreover, for priming tasks Bargh and Pietromonaco (1982) used four quadrants, Perdue and Gurtman (1990) the center of the screen, and Levy (1996) used two quadrants. Therefore, it is difficult to draw parallels between Chasteen et al. (2002) and the other studies as the premise of these studies is the implicit nature of the priming procedure. Perhaps participants in Chasteen et al. (2002) responded in a more socially-acceptable manner as they were aware of the experiment conducted. Thus, implicit priming leading to automatic activation of stereotypes without awareness was not really demonstrated.

Moreover, because unconscious processes of stereotypes tend to operate independently of conscious processes, stereotypes can therefore be activated even if they run counter to the individual's conscious beliefs about age, gender, or race (Banaji, Hardin, & Rothman, 1993; Devine, 1989). For example, in her research on the dissociation between automatic and controlled processes of race stereotypes, Devine (1989) rated participants as high/low prejudice using the Modern Racism Scale and found that White participants who were subliminally primed with a series of words which were mostly stereotype-related (e.g., Blacks, athletic, Harlem, lazy, basketball) tended to rate the behavior of a target of unspecified race as more hostile than those who were primed with mostly neutral words. Importantly, this tendency was consistent regardless of the prejudice against Blacks explicitly reported by the

participants. This finding suggests that even individuals who are not consciously prejudiced against Blacks can be affected by automatic activation induced by stereotypes that result in prejudiced responses.

Devine (1989) demonstrated dissociation between automatic and controlled processes involved in prejudice. However, some researchers suggest traits are differentially associated with the target category depending on individuals' levels (high/low) of prejudice (Lepore and Brown, 1997). It should be noted that Devine (1989) used prime words consisting of both category labels (e.g. Blacks) and stereotype content (e.g. lazy). Lepore and Brown (1997) showed that, when both category labels and stereotype content were used, both low and high-prejudice participants reacted similarly to primes, but differentially when only category labels were used. Category activation elicits different responses depending on prejudice level (high/low). Lepore and Brown (1997) agree that because the stereotype prime and category prime were present in Devine's (1989) experiment, it is impossible to determine the exact level of automaticity achieved. Lepore and Brown (1997) mentioned the need to distinguish automatic stereotype activation as a result of direct stereotype priming from that achieved by category priming.

Dissociation between conscious and unconscious processes of aging stereotypes has also been reported. Nosek, Banaji, & Greenwald (2002) demonstrated that negative attitudes toward the elderly are stronger on the implicit rather than the explicit level. Notably, older respondents explicitly reported more positive attitudes toward old people than the younger respondents, but in actuality, did not differ from their younger counterparts on the implicit level (Nosek et al., 2002).

These studies suggest that even those who explicitly renounce prejudice can be influenced by deeply rooted cultural stereotypes and display negative attitudes toward the target group. It also raises the importance of using implicit measures in stereotyping studies. Researchers have found that one effective way is to present stereotypes subliminally (Bargh, 1992; Levy, 1996). This technique not only prevents participants from giving socially desirable responses, but also enables researchers to activate stereotypes that may influence participants' thinking in everyday life without their awareness.

In addition to their impact on how older people are perceived and judged, aging stereotypes influence people's behavior toward the elderly. For example, aging stereotypes affect the way in which individuals communicate and interact with the elderly, particularly the use of patronizing talk, characterized as a simple (e.g., short sentences, childlike vocabulary), and clear (e.g., loud, slow) form of speech, and diminutive and demeaning tone (Ryan, Giles, Bartolucci, & Henwood, 1986). Hummert, Shaner, Garstka, & Henry (1998) analyzed participants' beliefs about the vocal styles they would utilize in communicating with two elderly targets – one fitting a negative stereotype and another fitting a positive one. They also analyzed participants' actual oral messages to the two targets. Results indicated that participants' beliefs and the actual use of patronizing speech increased when addressing the negatively stereotyped target compared with addressing the positively stereotyped target. The extent of patronizing talk was also higher when the target was presented in a hospital, rather than a community context, which reinforces the negative stereotypes of aging.

While Hummert et al. (1998) did not utilize implicit measures, a number of studies on stereotyping have focused on how implicit stereotypes prime participants'

judgments of others, the targets of the stereotypes (Blair & Banaji, 1996; Banaji et al., 1993; Devine, 1989).

More recently, it has been found that implicit self-stereotyping, or the subliminal activation of stereotypes that are relevant to one's self-identity, can have a wide range of effects. For example, Steele and Aronson (1995) found that African-American students, who are culturally-stereotyped as being academically inferior to White students, performed comparatively poorly on a test after having specified their race on the questionnaire prior to taking the test (race-prime condition), compared with Blacks in a non-race prime condition and White students. Similarly, elderly participants exposed to negative age stereotypes tend to worsen their memory performance, self-efficacy, and judgments of other elderly, and may even experience increased blood pressure (Levy, 1996; Levy, Hausdorff, Hencke, & Wei, 2000). Levy (1996) was able to activate aging stereotypes in elderly participants without their awareness using computerized prime words. These stereotypes, in turn, impacted elderly participants' performance on memory tasks. In fact, participants who were exposed to implicit negative primes, which activated negative stereotypes, experienced worsened memory performance. Conversely, those primed with positive primes displayed enhanced performance on these memory tasks. Moreover, these trends were not observed in the young participants. The significance of Levy's (1996) study is the suggestion that: (a) positive stereotypes can improve cognitive performance; and (b) stereotypes need to be relevant to one's self-identity to influence one's cognition and behavior.

The above findings were further supported by Shih, Pittinsky, & Ambady (1999) and Shih, Ambady, Richeson, Fujita, & Gray (2002). Shih et al. (1999) have demonstrated that, when an aspect of one's identity is made salient at an implicit

level, negative or positive stereotypes associated with that particular aspect can influence the individual's performance positively or negatively in accordance with the stereotype. The researchers were interested in establishing the effect of specific stereotypes that were salient to the participants; namely, that for mathematics, Asians possess superior skills compared with other ethnic groups, and women are less proficient than men. Prior to administering a quantitative skills test to Asian American women, participants were assigned to one of three groups: (a) activating self-stereotypes of Asian; (b) activating self-stereotypes of women; and (c) control. The results suggested that the Asian condition group scored the highest, followed by the control and women condition groups respectively. Shih et al. (2002) examined the role of self-relevance in positive stereotypes' influence on quantitative performance. The researchers found that implicit activation (or subtle, as the authors called it) of positive stereotypes can only improve performance in those for whom the stereotypes are relevant.

In sum, previous research on the effects of self-stereotyping on targets' cognitive and physical (e.g., blood pressure) performance suggest that stereotypes relevant to one's self-identity can not only worsen, but also improve targets' performance depending on the type of stereotypes.

Contradictory results have also been found where behavioral outcomes were elicited in young adults following priming with elderly stereotypes ("non relevant" to the self). Some examples are walking speed (Bargh, Chen, & Burrows, 1996); free recall (Dijksterhuis, Aarts, Bargh, & van Knippenberg, 2000); response latency (Dijksterhuis, Spears, & Lepinasse, 2001); and dot location-reproduction of patterns and photo recall (Levy, 1996). Bargh et al. (1996) utilized a scrambled sentences task containing words relevant to the elderly stereotype in the elderly priming

condition. All references to slowness, which is a quality stereotypically associated with elderly, were excluded. Bargh et al. (1996) demonstrated that the activation of the whole constellation of the stereotype (with slowness excluded) made a group of young participants consistently walk slower as they left the experiment room. Bargh et al. (1996) consider that behavior as automatic if: (a) the priming stimulus directly activated trait concepts; (b) the participant is then placed into a situation where the activated stereotype (the trait concept that is about to be used as dependent variable) is one of the appropriate responses to the situation; and (c) in the experimental design, the participants are presented with a limited range of behavioral options.

Automatic activation can occur only if the individual already has that behavioral representation available to him/her in the first place (Bargh et al., 1996). Therefore, for Bargh et al. (1996), self-relevance is not considered. In actuality, what is imperative is the availability of the stereotype and the three conditions previously mentioned above (a, b, and c).

Dijksterhuis et al. (2000; 2001) do not examine self-relevance either. Firstly, Dijksterhuis, et al. (2000) describe two experiments. In the first, it is reasoned that contact with the elderly can lead to a strong stereotypical association and therefore past contact, as an expression of stereotypical associative strength and stereotype activation, was used by the authors as an independent variable. Dijksterhuis et al. (2000) used a word recognition task of 30 words, which were preceded by subliminal primes related to the elderly stereotype (leaving out all references to forgetfulness). After the word recognition task, participants were presented with a surprise/impromptu free-recall task of the 30 words. Participants in the priming conditions with ample previous contact with the elderly recalled fewer words than participants with little or no previous contact. However, some methodological issues

raise questions regarding this finding. For example, primes were presented at the exposure speed of 17ms, which is twice as fast as Levy's method (1996). Perhaps this is too fast to actually register and affect participants. In addition, the primes presented were not negative versus positive, but only considered "elderly primes." For instance, one such prime included was "bingo." Certainly it is difficult to categorize it as a negative aging stereotype. This lack of prime contrast makes it more difficult to compare these results with Levy (1996) who utilizes both positive and negative primes.

In the second experiment, Dijksterhuis et al. (2000) demonstrated that the priming effect is mediated by associative strength. Participants, who reported to have had significantly more contact with the elderly, developed an association between the category "elderly" and the attribute "forgetfulness." The strength of this association consequently predicted the degree of memory impairment following the activation of the category "elderly."

Dijksterhuis et al. (2001), maintain that the activation of a category leads to the activation of a stereotype and its consequent behavioral adjustment (but not a new behavior). The degree of category activation and its resultant behavioral effects are linear, and the authors suggest that differences in the activation of a stereotype depend on the strength of the association of a category and a stereotype.

Dijksterhuis et al. (2001) claim that this depends on what the function of the activated trait is: (a) if interpretative framework (abstract concept) it leads to behavioral assimilation. This is to enact the stereotype; and (b) if a comparison standard (exemplar of a stereotype) it leads to behavioral contrast. That is, do the opposite of the stereotype.

Because an impression is usually more stereotypical, it leads to behavioral assimilation. It would then be reasonable to expect that as one grows old his/her stereotypicality of the elderly becomes better defined. As one integrates into the “elderly” group, some concepts of such stereotypes may also be applicable to him/herself (for example, he/she may experience situations that are reflected in the stereotype, e.g., “I can not remember where I left my wallet, therefore, I must be getting old, old people tend to misplace their wallets.” Thus, as stereotypes inform us of what is to be expected of us, we would be partially re-enacting the stereotype. As Dijksterhuis et al. (2001) put it: “...the stereotypicality of an impression determines whether behavioral assimilation would occur (p. 295).” Therefore, for Dijksterhuis et al. (2001) age (or in this case self-relevance, which is not really considered) does not limit us to enact a stereotype, rather the strength of the stereotype, which could be influenced by contact with members of the group (the elderly in this case) does.

What Levy (1996) demonstrated was that the activation of the negative stereotypes elicited forgetfulness in old people, what Dijksterhuis et al. (2001) call assimilation. These results are consistent with the works by Bargh et al. (1996) and Dijksterhuis et al. (2000; 2001) in that the “senile” stereotype elicited what Dijksterhuis et al. (2001) would call contrast. Why would participants display contrast in this case? Because under this condition, Dijksterhuis et al. (2001) would expect assimilation to the stereotypical behavior, but as Stein et al. (2002) argue, if the behavior puts the person’s competency at stake and involves self-regulation (as in memory performance) it is possible that the stereotype must be self-relevant to affect behavior. Dijksterhuis et al. (2000) were able to produce results because the study focused on the associative strength between the elderly stereotype and the

attribute “forgetfulness,” and participants had ample contact with the elderly. So in the case of Levy (1996), perhaps the young participants were low in contact with the elderly and have yet to form a strong connection between the stereotype of elderly and this attribute of “forgetfulness.” Dijksterhuis et al. (2000) found that for young participants who had little contact with the elderly, priming had no effect.

With respect to positive stereotypes, Bargh et al. (1996) suggest that the content of the stereotype being primed may not have contained behavioral responses and so the young participants relied on their own stereotypes already developed. Therefore, the fact that the stereotype “wise” did not elicit any behavioral change may be due to the fact that the young group lacks a behavioral representation for this stereotype (also bear in mind that negative stereotypes are more prevalent). We must also consider that the young group cannot behaviorally “assimilate” to the “wise” (positive) stereotype and improve their performance as they are probably already performing at or near optimal levels. Possibly, by employing some new mnemonic technique, they could still improve their performance, but in this case, with everyday conditions (and within a few minutes) there is not much room for improvement. True improvement is only possible for the old group as they can be considered to be out of practice or shape and so with some practice and motivational enhancement improvement could be expected.

What the former indicates is that the structure of a stereotype may be quite dynamic and formed by conceptual elements that can either be confirmed/reinforced or denied by experience or priming thereby altering its structure according to these processes. The stereotype is subject to modification, as it can be affected by a 10 minute implicit task as in the study by Levy (1996). Stereotypes are constantly being updated by the personal history and experience of the individual with the

stereotype targets, and by cultural resources such as the media (as in Donlon, Ashman, & Levy, 2005).

Finally, Andreoletti and Lachman (2004) demonstrated that education may be more important than age in determining susceptibility and resilience to aging stereotypes. In fact, they found that less educated participants performed poorly on memory tasks not only in the face of negative aging stereotypes, but also when presented with counterstereotypes (what we would refer to as positive stereotypes). Conversely, highly educated participants benefited from counterstereotypes and outperformed their counterparts. The authors conclude that education may play a protective role against the detrimental effects of negative aging stereotypes. It is worth mentioning that for young participants, stereotypes differentially affected only young individuals living in the community, and not college students.

Stein et al. (2002) study failed to replicate Levy's results (1996). However this may be due, at least partially, to the following study limitations reported by Stein et al. (2002):

First, the variability of the SOA was far too high and may have invalidated the implicitness (unawareness) of the procedure. Levy (1996) clearly disqualified participants who were able to identify the primes presented prior to any testing, as when reasoning comes into play it supersedes the effects of priming (Devine, 1989). Second, Stein et al. (2002), by allowing a range of 5 ms to 103 ms for the young and 14ms to 210ms for the old, and subsequently eliminating the ones who were "aware" of the primes, may have rendered the statistical power of the experiment to less than adequate. The "unaware" groups were extremely small, probably below threshold for detecting any significant effects (with 3 groups $n= 12, 9,$ and 7 respectively). Another point to consider is an introduction of yet another possible confounding

variable; that is, “priming intervention check” in which participants were asked to press keys labeled “good” and “bad” to rate the pleasantness of target adjectives. This might be considered as another intervention as certainly, just the words “good/bad” can have a priming effect. Something that was possibly more important to check was visual acuity and hand-eye coordination amongst the “old adults” and it was not. In addition, the procedure for setting the SOA was far too complex. This information is already available and reliable. Since this was supposed to be a replication of Levy (1996) results, the authors should have used 33 ms for the young and 55 ms for the old.

Overall, Stein et al. (2002) found reliable results for the negative priming in the “unaware” (the only ones that should have been included in this study to begin with) older adults for the photo recall task. Unlike Levy (1996), Stein et al. (2002) found no positive priming effects, which may be more subtle and far more difficult to detect.

One question that comes to mind as a result of the Stein et al. (2002) paper is the distinction between stereotype formation and stereotype activation. This seems to be an underdeveloped area that should be further explained. In Levy’s (1996) study, it may be that both processes occurred in a single step as Dijksterhuis et al. (2001) have shown that an stereotype can be “developed” in a relatively short time and with a limited number of exemplars. The results presented by Stein et al. (2002) are inconclusive even if an effect existed, it would go undetected due to low statistical power. Nevertheless, the results, at least partially, support Levy’s (1996) conclusions as Stein et al. (2002) found effects for negative priming on the photo recall task, and this is further evidence of the pernicious effects of negative stereotypes. An observation by Stein et al. (2002) that can be useful is that the

stereotype needs not be self-relevant if the behavior is devoid of motivational influences. However, the stereotype has to be self-relevant if the behavior puts the person's competency at stake and involves self-regulation.

In the present study, I will examine whether negative and positive implicit aging stereotypes have effects on elderly individuals' (1) risk-taking, decision-making abilities; and (2) decisions regarding one of the most crucial issues facing any individual: life and death, a relatively under-explored area in the field.

Relevant to this study is the finding that priming effects can be as large in 3-year-olds as in college students (Levy, 2003); likewise, elderly participants find it difficult to recall and recognize items which were presented to them, yet their priming effects are virtually indistinguishable from those of younger participants (Tulving & Schacter, 1990). This allows for priming older and younger participants with equal success, and differences between groups may be attributed to attitudes, rather than invalid experimental methods.

2.3 Will-to-live: Advance Directives

The growing elderly population in the United States has been encouraged to take control of their lives, even when they become incapacitated. As part of this movement, policy makers have encouraged people of all ages, but particularly the elderly, to fill out *advance directives* (Callahan, 1996), a specific form of living will. This document (see Appendix C) is drawn while individuals are competent and describe their wishes should they become mentally or physically unable to choose between options or communicate their wishes (Luptak & Boulton, 1994). This communicative tool gives the individual control and may be beneficial in several ways. First, the healthcare professional must listen attentively to the patient and

disseminate pertinent information in a clear and precise manner; second, family members, who might bear the ultimate consequences and burden of caring for the patient, have an opportunity to participate in the decision making process; and third, procedural and financial decisions are facilitated (Backlar, 1995). However, there exists a risk that these discussions about death and serious illness will evoke negative stereotypes of aging, which in turn may affect one's will-to-live, defined as "a judgment that the perceived benefits of one's life outweigh the perceived hardships" (Levy et al., 2002, p. 266).

The main objective of advance directives is to preserve individual autonomy even in situations where it cannot be exercised directly; this type of control is termed indirect autonomy (Bailly & DePoy, 1995). Indirect autonomy is of paramount importance when dealing with the elderly. With aging, shifts in the conceptualization of autonomy take place; the stress shifts from the ability to act directly on decisions to ensuring decisions are implemented. This shift is an inevitable result of deterioration in health, function, and the development of dependency on others (Bailey & DePoy, 1995). Although this medico-legal document is designed to allow individuals to preserve their rights and values, several ethicists have theorized that negative stereotypes of aging, social concerns regarding healthcare expenditures, and familial demands all play a role in the decision-making process, and often, the elderly will not make a choice based on their personal preferences, but rather conform to the aforementioned dictates and employ self-imposed guilt (Callahan, 1996; Levinsky, 1996; Levy et al., 2002).

Using a survey, researchers found support for the prediction that societal beliefs, including the value placed on older people's lives, may influence why older adults refuse treatment on advance directives. Survey respondents, 65 years of age

or older, revealed that the reasons for refusing treatment included the expense of treatment and “younger people should be afforded more rigorous or extended interventions than elderly people, who had already lived their lives” (Bailey & DePoy, 1995, p. 225). It is clear that as individuals age, societal factors plays a role in how they plan the end of their lives.

In short, while advance directives are intended to provide elderly individuals with control over their decisions about life and death, there are numerous social and cultural factors including stereotypes of aging that may play part in the decision-making process, and this process itself may evoke negative age stereotypes.

How might culture affect the ideas and values one holds about aging and declining health? Studies comparing Australians and Chinese have found that Chinese were more reluctant to complete living wills, did not support euthanasia, and did not desire truth-telling to themselves and others in case of terminal illness (Goh & Shaw 1994; Waddel & McNamara, 1997). It seems the Chinese adhere to an interdependent self-concept in which loyalty to family (protecting them from the truth), respect for the elderly, and avoidance of discussing personal or controversial matters take precedence over personal choice and autonomy (which is of utmost importance in Western, individualistic cultures). These differences in self-concept also manifest in terms of primary and secondary control utilization and preference, which will be discussed later.

Further support for a relationship between culture, attitudes toward death, and advance directives is found in cross-cultural research. Considering that age stereotypes and behaviors directed toward the elderly have been reported to be more positive in Latin and Asian cultures than in the United States (Holmes & Holmes, 1995; Levy & Langer, 1994; Palmore & Maeda, 1985), it is interesting to note that a

number of studies have found that elders from these cultural backgrounds are less likely to fill out advance directives. For example, Chinese-Australians, Japanese and Mexican-Americans have been found to be more reluctant to complete living wills when compared to Anglo-Australians, Euro-Americans, and English-speaking Japanese-Americans (Blackhall, Murphy, Frank, Michel, & Azen, 1995; Matsumura, Bito, Liu, Kahn, Fukuhara, Kagawa-Singer, & Wenger, 2002; Perkins, Geppert, Gonzales, Cortez, & Hazuda, 2002; Waddel & McNamara, 1997). Several studies also suggest that ethnically diverse individuals, living in the USA, shift their preferences and resemble those displayed by Euro-Americans, as acculturation increases. Matsumura et al. (2002) found that when compared to non-acculturated Japanese-Americans, acculturated Japanese-Americans viewed advance directive planning more positively. These findings are of utmost importance to healthcare professionals who interact with patients on a daily basis and inevitably find themselves in situations where they must offer advice and guidance.

Researchers and health professionals have found it difficult to untangle the forces that influence life and death decisions in old age (Callahan, 1996) and the role of culture in such decision-making processes (Carmel, 2001; Waddell & McNamara, 1997). Potential forces include one's religious beliefs, consideration for others (e.g., the desire not to burden others), and stereotypes of old age (Callahan, 1996; Levy & Langer, 1994).

Religion may play a role in life and death decisions as different beliefs about life, death, and the afterlife vary across societies. For example, Judaism focuses on life, not the afterlife, and may therefore explain findings that religious Jews fear death more than non-religious Jews (Carmel, 2001). Confucianism and Buddhism influence believers in terms of interdependence and harmony with others, which

encourage accommodation, the belief in cosmic powers, and acceptance of things as they are.

Specific ethnic and religious beliefs can affect one's will-to-live. Researchers examining death certificates over a 25 year period found that Chinese-American women are much more likely to die after the Harvest Moon Festival, a holiday in which they play a large role, rather than before it (Phillips & Smith, 1990).

Similarly, Jewish individuals are considerably more likely to postpone death until after Passover, the most widely observed Jewish holiday, rather than die before it (Phillips & King, 1988).

Elderly individuals not only encounter ageism in everyday life, but are also exposed to negative age stereotypes in healthcare settings. For example, studies have found that physicians tend to spend less time with older patients (Radecki, Caine, Solomon, & Mendenhall, 1988); show elderly patients less respect, support and patience, provide less information about their conditions, and view certain symptoms of older patients as age-related declines rather than treatable illnesses (Greene, Adelman, Charon, & Hoffman, 1986). It has also been suggested that healthcare professionals are even more susceptible than the general public to stereotypes of aging as a result of frequent encounters with older adults with health problems (Greene et al., 1986). These biases in healthcare settings may act as a cue that may activate negative self-stereotypes and in turn lower elderly individuals' will-to-live.

It remains to be examined whether culturally-transmitted stereotypes about aging can also influence individuals' will-to-live. My study focuses on whether stereotypes influence individuals' will-to-live by randomly assigning individuals to either negative or positive age stereotype conditions.

2.4 Risk-taking Decision-making

Another issue dominating current events rests, at least in part, on evaluating elderly capacity to assess risks and make sound decisions about financial investments. For example, much controversy surrounds the American Government's latest proposal to privatize Social Security and allow retirees to invest funds privately. Some opponents suggest that many elderly individuals are anything but savvy investors, who may lose their pensions as a result of imprudent investment decisions. Others argue that elderly investors should be able to assess risk as effectively as younger investors (Eggert, 2003; Walker, 2002). In addition, controversy exists among healthcare professionals about how much information to provide older patients about treatment options. Some argue that it is best for doctors to make a treatment decision for older patients. However, it could also be argued that it is best to give older patients information about the various risks involved in potential treatment options, and allowing them to make the ultimate decision.

2.4.1 Decision-making in Old Age

The differences in opinions about older adults' risk-evaluating skills may be due to the larger research question about the deterioration of cognitive abilities in old age. Some researchers have suggested that aging degrades information processing to a similar degree in all cognitive domains (Birren et al., 1980; Cerella, 1991; Cerella et al., 1980; Myerson et al., 1990; Salthouse, 1985, 1996; Salthouse & Somberg, 1982). Others have found that some specific aspects of cognition seem to be preserved in old age. For example, Wingfield et al. (1994) found evidence that aging does not degrade certain mechanisms used in linguistic processing. Similarly,

Pennebaker and Stone (2003) reported cognitive complexity, as measured by linguistic markers, does not decline with age.

2.4.2 Pragmatics vs. Mechanics

Paul Baltes and colleagues have proposed a way to predict the types of cognition that will be relatively preserved and not decline in old age (e.g., Baltes & Staudinger, 1993). They suggest that cognition may be interpreted in terms of mechanics versus pragmatics. Mechanics comprise of basic processes of sensory input, visual and motor memory, discrimination, categorization, and coordination. As these rely primarily on biological systems, declines in such domains inevitably take place with aging. In contrast, pragmatics are deeply rooted in culture and experience and include complex reasoning and accumulated knowledge. These skills are more likely to be preserved in old age. Since risk-taking skills draw on pragmatic skills there is reason to predict that they would be preserved (Baltes & Baltes, 1990; Baltes & Staudinger, 1993; Dror et al., 1998).

A growing number of studies suggest that risk-taking skills may be an area of cognition that is preserved in old age. For example, Dror et al. (1998) examined the ability of the elderly to make risk-taking decisions by using a laboratory experiment that isolated the internal cognitive mechanisms involved in risk-taking. In the experiment, elderly and young participants were asked to decide whether or not to take additional cards in a computer-simulated Blackjack card game task. No interaction was found between age and risk levels. That is, both the elderly and younger participants made similar decisions and took comparable risks. Furthermore, response time interactions did not differ significantly between the two age groups. Dror et al. (1998) concluded that the internal cognitive mechanisms involved in risk-

taking decisions remain intact in old age. Further support is offered by Walker, Fain, Fisk, & McGuire (1997) who, by using a driving route selection task, found that elderly and young participants made similar decisions and used the same information for reaching those decisions. Similarly, Johnson (1990) used a car buying decision-making task and found that elderly and young participants made identical decisions and overall, did so at equal speed.

Although these studies all point to risk-taking abilities being preserved in old age, none of these studies have examined whether influences that are external to the individual, such as age stereotypes (culturally based beliefs about old people) modify these processes. Some studies suggest that older adults are more likely to be influenced by age stereotypes than younger adults, as these stereotypes are more salient to them (e.g., Levy, 1996). It is possible that the effect of preserved risk-taking ability may predominantly exist in the laboratory, but is degraded in a situation that is likely to activate age stereotypes. That is not to say there are no age stereotype effects in laboratory settings (e.g. merely being surrounded by young people may activate such stereotypes). However, outside the laboratory it is likely that there are more opportunities for such stereotypes to be activated. For example, when a driver tries to decide which road to take, his/her internal cognitive mechanisms generate alternatives and calculate the risks associated with them relative to their potential benefits (i.e., getting stuck in a traffic jam). Thus, in a laboratory these may appear similar to participants of all ages. But in everyday driving, perhaps age stereotypes are sometimes activated due to continuous exposure and reinforcement of stereotypes by such external sources as the media (Donlon et al., 2005). Thus, an older driver may refrain from choosing the faster road or lane due to the internalized stereotype that older people are slow drivers. Therefore, it

would be necessary to experimentally expose individuals to the stereotypes in the laboratory and activate them so as to investigate their effects on the performance of various tasks.

2.5 Study 1

In Study 1 of this thesis, I examined whether positive and negative age primes could influence some of the most crucial issues facing anyone: decisions about life and death and risk-taking. The Will-to-Live questionnaire (see Appendix A) presented scenarios asking participants to think about whether they would select a life-prolonging treatment for a potentially fatal disease. The simulated blackjack computer task presented participants with various risk-taking options at different levels of risk (depending on the sum of cards).

Compared to positive stereotypes about aging, negative stereotypes about aging are more prevalent in everyday life (Kimmel, 1988) and their allusions to both mental and physical debilitation are likely to elicit a more profound response in the target. The effectiveness of positive stereotypes of aging in contexts other than everyday life, such as in performing various tasks in the laboratory has been observed. For example, in China, where positive views of aging are more prevalent than in the United States, the elderly performed as well as the young on memory tasks (Levy & Langer, 1994). Furthermore, experimental research has shown that subliminally presented positive stereotypes of aging can improve the memory performance of American elderly (Levy, 1996).

Yoon, Hasher, Feinberg, Rahhal, & Winocur (2000) proposed to test the results reported by Levy and Langer (1994) as the latter used a composite variable made of four measured variables (they did not report on the original four measured

variables, only on the supervariable) and also due to findings that Chinese individuals are more sensitive to contextual relationships and tend to process information holistically. Yoon et al. (2000) reasoned that, as there is a cultural bias for holistic processing that remains well-preserved across the lifespan among the Chinese, it is reasonable to expect smaller decrements in performance, compared with the Americans on memory tasks associated with this type of processing. Yoon et al. (2000) also used a composite variable for memory and results were consistent with Levy and Langer (1994); namely, significant effects for age and culture, and main effects were qualified by a significant interaction effect. Yoon et al. (2000) then replicated the analysis for each memory test and found that: a) old Chinese Canadian did perform better than old Anglo speakers on only two (immediate and delayed recall) out of four tests (there were no differences in memory for complex figures and abstract design); and b) the young Chinese Canadians outperformed the old Chinese Canadians (in Levy's results both old and young Chinese performed equally well). Yoon et al. (2000), however, utilized different memory tests, but the measures on aging stereotypes were taken from Levy and Langer (1994). Consistent with Levy and Langer (1994), Chinese individuals hold more positive views of aging than their Canadian counterparts. However, two measures did not achieve significance on stereotype effects: activity and internality (in Levy & Langer, 1994 all results achieved significance). This may indicate that there is already a change in the views of aging in this Chinese Canadian group. As mentioned earlier there were two memory tests on which the old Chinese Canadians and old Anglophone Canadians did not differ in performance: 1) memory for complex figures; and 2) abstract design. Yoon et al. (2000) acknowledge that there is evidence that the figural memory test may become non-discriminating at the upper levels of the scale

for persons 65+ years of age. Also mentioned, that on two tests, the old Chinese Canadians outperformed their old Anglophone Canadian counterparts: immediate and delayed recall. On these tests, the old Chinese approached the performance levels of the young Chinese. The authors reason that where the old Chinese Canadian outperformed the old Anglophone Canadian, the first test significantly resembles ideographic elements used in written Chinese, so a differential advantage may exist for the Chinese Canadians on this test. Yoon et al. (2000) did not elaborate on the second test where the Chinese Canadian would not have an advantage over their Canadian counterparts.

Yoon et al. (2000) concluded that the differences in memory performance found were due to differential abilities based on a lifetime of exposure to a complex mnemonic system, rather than cultural beliefs. Although Yoon et al. (2000) only partially support Levy and Langer (1994), there may also be two possible explanations for the partial results. One plausible explanation is that Chinese participants lived in Canada for a few years ($M = 2.6-2.7$ years) and may have been sufficiently exposed to negative aging stereotypes leading to a shift in their views on aging. Also, Yoon et al. (2000) report that the older Chinese Canadians achieved higher scores on vocabulary measures compared with the Anglo Canadians. The vocabulary scores coupled with the fact that these Chinese participants moved to Canada from Hong Kong, may be indicative of high levels of acculturation (Hong Kong is highly Westernized and this perhaps minimized the expected positive views on aging). Since Yoon et al. (2000) did not have a clear explanation for the significantly higher results of the Chinese on the second test (delayed recall) where the Chinese Canadians should not have an advantage; these results seem to support rather than contradict Levy and Langer (1994). Having said that, Yoon et al. (2000)

found that the only significant direct paths in the model were between culture and positive views on aging and age and memory. The finding that age is negatively correlated with memory performance is not surprising. We have to consider biological realities such that in overall terms, as people age, some cognitive abilities usually decline (e.g., processing speed), while others remain intact (e.g., vocabulary/verbal abilities). The scientific question is whether variables such as culture and views on aging can, at least partially, mediate the detrimental effects of biological decline. Certainly, findings suggest that this is possible on some, but not all cognitive mechanisms.

In the study described herewith, I wanted to explain, at least to some extent, the effects of culture on aging. That is, how culture influences or possibly attenuates individual decision-making processes as he or she ages. I explored this link by using two different tasks. The hypotheses for Study 1 are outlined below.

2.5.1 Hypotheses

1. A priming effect would emerge in the older group. Those primed with positive aging stereotypes would have higher will-to-live than those primed with negative stereotypes. In addition, stereotypes may attenuate risk-taking decisions.
2. Young participants would be unaffected by primes as these are not salient to them.
3. The powerful effect of stereotypes would not be diminished by older participants' age, views of aging, perceived health, costs associated with treatment, etc.

4. The ability to make quality decisions regarding risk-taking would not be degraded by age.

CHAPTER 3

MEASURING THE EFFECTS OF AGING STEREOTYPES ON WILL- TO-LIVE AND RISK-TAKING DECISION-MAKING

3.1 Methods: Study 1²

Overview

To explore the influence of stereotypes on end-of-life decisions and risk-taking, participants were primed with aging stereotypes and subsequently tested as to their willingness to receive or reject life-prolonging medical treatments and make risk-taking decisions. First, old and young participants completed a short demographic questionnaire. Participants were then randomly assigned to either a positive or negative priming condition. In each condition a computer subliminally presented words related to aging. Following the priming task, each participant responded to the Will-to-Live questionnaire and performed the risk-taking task using a computer-simulated Blackjack task.

3.1.1 Participants

My initial aim was to recruit approximately 20 elderly and 20 young participants for the studies (as in Devine, 1989; Dror et al., 1998). Since the experiments were quite involving and lengthy, lasting between 45-60 minutes, I anticipated that quite a few participants would be reluctant to complete the initial priming exercise and then both will-to-live and risk-taking tasks. Therefore, I attempted to recruit more participants, expecting that only 50% of participants would

² Study 1 as published by Levy, Ashman, and Dror (1999-2000). For the publication included in this manuscript, Ori Ashman performed the research activities including development of the idea, participant recruitment, IRB application and approval, data collection, literature review, statistical analyses, results write-up, and so on. Dr. Levy served as a supervisor and as a senior faculty member was listed as first author. Work was independent.

be willing to complete both tasks. Sixteen participants per group (old/young; male/female) were recruited. Of the total 64 participants, 32 participants agreed to perform both tasks. The remaining 32 participants completed only a single task, the Will-to-Live questionnaire.

The sample in the will-to-live experiment included 64 participants: 32 elderly adults ranging from 61-85 years of age ($M = 74$ years, $SD = 7.5$) and 32 younger adults ranging in age from 18-35 years ($M = 25$ years, $SD = 4.2$). Within each group, 16 participants were male and 16 were female. Participants were recruited by fliers or word-of-mouth. The elderly participants were living independently in the community and were recruited from community centers and housing complexes in the Boston area. The younger participants were recruited from colleges in the Boston area. The two criteria for inclusion in the study were native English speakers (English as their first language, or mother-tongue) and inability to consciously recognize any of the words that flashed on the computer screen during the priming task. To determine if recognition occurred, the experimenter asked all participants at the end of the priming session to name any words they thought they might have seen flash on the screen. None of the participants correctly identified any of the prime words. It was important for participants to be native English speakers since the primes included words that were judged as descriptive of the stereotypes of aging common in the United States (Levy, 1996). Since exposure time was limited, it is assumed that participants who cannot read English quickly and fluently will fail to register the word, or will not subliminally decipher its significance, which may be bound to American culture.

The elderly and young did not differ in reported level of religiosity ($M = 3.85$), $t(60) = .84$, n.s. Both groups reported that they were slightly above average

with “1” representing not religious and “7” representing extremely religious.

Although both the elderly and young reported that their health is above average, the young ($M = 6.4$) reported significantly better health than the elderly ($M = 5.9$), $t(60) = 1.87$, $p < .05$, on a scale with “1” representing poor and “7” representing excellent. While this finding is not surprising and probably inevitable, as younger individuals do tend to be and feel healthier than the elderly, this factor was used as a covariate in the analyses. The elderly and young participants slightly differed in years of education, $t(60) = 2.13$, $p < .05$. The elderly had on average one year less education ($M = 15$) than the young ($M = 16$). This factor as well was used as a covariate in the analyses.

A total of 32 participants took part in the risk-taking task. The sample included 16 young adults with a mean age of 25 ($SD = 4.4$, range 18-35), and 16 elderly adults with a mean age of 75 ($SD = 6.8$, range 61-85). Within each age group, eight participants were male and eight were female.

3.1.2 Materials

Priming

The priming experiment was administered with Maclab Software (Costin, 1988) and negative and positive priming scripts (Levy, 1996). The priming task consisted of five blocks of 20 words each. Each block began with one of two category words: “old” or “senior.” The use of category words followed Devine’s (1989) finding that general descriptive words of a group can reinforce the activation of the group’s stereotypes. After the first category word, the 19 words that followed consisted of the other category word (old/senior), the 12 priming words from either the positive or negative condition, repetition of two prime words, and four neutral

words. These priming words were presented in a random order. Positive priming words were comprised of: “guidance,” “insightful,” “astute,” “wise,” “alert,” “sage,” “accomplished,” “learned,” “improving,” “advise,” “enlightened,” and “creative.” Negative priming words were comprised of: “Alzheimer’s,” “decline,” “confused,” “dependent,” “senile,” “misplaces,” “dementia,” “dying,” “forgets,” “incompetent,” “diseased,” and “decrepit.” The repeated words were either “senile” and “Alzheimer’s” in the negative condition, or “wise” and “sage” in the positive condition. The neutral words were “together,” “another,” “between,” and “sentence.” The scripts were checked for accuracy, randomization, and frequency and have been tested previously (for details see Bargh & Pietromonaco, 1982; Devine, 1989; Levy, 1996;).

Will-to-Live

Following the completion of the computer priming task, all participants were asked to fill out the Will-to-Live questionnaire comprising of six scenarios. Due to the fact that most decisions about life and death involve equations that weigh costs and benefits of various actions, each scenario had a cost and benefit ratio. In two of the scenarios participants were told if they choose the treatment, they have a 25% chance of total recovery and 75% chance of dying within the month. Two scenarios presented a 50% chance of total recovery and 50% chance of dying within the month. Finally, two scenarios presented a 75% chance of total recovery and 25% chance of dying within the month. In addition, in all scenarios participants were told if they did not treat their hypothetical disease, they would die within the month. In cases when treatment was a medication, participants were told that it did not have any clinical side effects. To offset the potential life-saving ability of the treatment,

scenarios also specified one of two types of costs for the treatment. Half of the scenarios added the stipulation that the treatment will require “almost all of your savings and a considerable portion of your family’s savings.” The other three added the stipulation that the treatment is “a very labor intensive process that would require that your family takes care of you 12 hours a day.” Responses were recorded by circling a number on a Likert-type scale with “1” representing a refusal of the life-prolonging treatment and “7” representing an acceptance of the treatment. A mean will-to-live score was calculated by averaging scores across the six scenarios. This was acceptable for the purposes of the present study as I was not concerned with the particulars of each scenario, but rather with overall willingness to accept medical intervention.

Decision-making

For the decision-making task, a computer simulated card game similar to the game of Blackjack was used. In each trial, participant received two cards and the computer received one card. Participants were required to decide as quickly as possible whether they wanted an additional card. The aim was to obtain the largest sum of cards without going over the total sum of 21 (for complete details see Dror et al., 1998).

The trials were constructed with varying levels of risk. At the very low end of the risk level scale were trials that had a sum of 11 or less in which case there was *no* risk in taking an additional card (regardless of the value of the additional card, participants could not go over 21). There were also trials with *low* risk (trials with sums of 12 & 13), trials with *medium* risk (trials with sums of 14 & 15), trials with *high* risk (trials with sums of 16 & 17), trials with *very high* risk (trials with sums of

18 & 19), and trials with *infinite* risk (trials with a sum of 20, in which it was wrong to take an additional card as participants would inevitably go over 21 and lose their entire hand).

Trials were counter-balanced to ensure an equal number of trials with all the possible combinations and sum of cards. For administering the task, 153 trials were organized in a sequence of 9 blocks, each consisting of 17 trials. Each block contained a single presentation of all the possible sums of cards, and the order of the trials within the blocks was randomized.

Participants did not receive a reward or feedback on whether they won or lost each hand. Such feedback would have confounded the results as participants' reactions and decisions may have been influenced by knowing the outcome of each hand played. Furthermore, if reward was given in the shape of money or points, other behaviors and factors would come into play such as gambling addiction. Therefore, the aim was to enable participants to make decisions with each hand without having to consider too many factors.

Views of Aging

In order to assess individuals' personal views on aging, each participant was asked to describe the first five words or phrases that came into his or her mind when thinking of an old person. Responses were judged according to where they fell in the following categories: (1) positivity (e.g., experienced), as opposed to negativity (e.g., decrepit); (2) activity (e.g., likes to walk), as opposed to passivity (e.g., stays in bed); and (3) internality (e.g., kind), as opposed to externality (e.g., wrinkled). Previous research found that a positive view of the aging process occurred with positivity, activity, and internality (Levy & Langer, 1994). Two raters who were

blind to the priming group independently rated the participants' descriptions of an old person. The first dimension was positive with 1 signifying positive, .5 signifying neutral or not applicable, and 0 signifying negative. Also, items were rated on an active dimension with 1 signifying active, .5 signifying neutral or not applicable, and 0 signifying passivity. Finally, items were rated on an internality dimension with 1 signifying internal, .5 signifying neutral or not applicable, and 0 signifying external. Raters' mean reliability was .95 and their effective reliability was .97 as measured by the Spearman-Brown formula (Rosenthal & Rosnow, 1991).

3.1.3 Procedure

Each participant was individually tested. Participants were first asked to complete demographic and views of aging portions of the questionnaire. Participants subsequently sat at a desk in front of the computer with arms comfortably extended to reach the keyboard. The priming task began with a practice trial that consisted of random strings of letters. The purpose of this trial was to acquaint participants with the task and help them adapt to it. Participants were asked to continuously fixate their gaze at a "bull's-eye" at the center of the screen and decide whether a flash appeared above or below it. If a flashed word appeared above the bull's-eye, participants pressed the "up-arrow" key (the key "/" was labeled with an up-pointing arrow). If the flash appeared below the bull's-eye, participants pressed the "down-arrow" (the key "z" was labeled with a down-pointing arrow). Participants were told the computer was recording the accuracy of their responses as well as the speed, hence they should respond as quickly as possible. This was intended to shift participants' focus from identification of the flashing words to their position, thus encouraging perception without awareness. All participants were

presented with one block of 20 nonsense words, or strings of random letters, as a practice trial, followed by five consecutive blocks, each containing 20 words. After the practice trial, the computer paused and the participants were encouraged to ask questions; however, during the actual experiment, talking was prohibited. In the practice trial, the first five words flashed at 250 milliseconds (ms), the next five at 200ms, then 150ms, and the last five words at 100ms. Following the practice trial, participants pressed the spacebar to initiate the experiment. Each word flashed on the computer screen for 55 ms for the elderly participants and 33 ms for the younger ones; a patterned mask followed each word to eliminate after-images. Previous research has established that these exposure times for the five blocks enable participants to perceive the words, but not recognize or recall them at the end of the task (Levy, 1996). As a check in the present study, all participants were asked to identify what they saw flashing on the screen. None of the participants reported seeing the prime words. The slight difference in exposure time for the young and old was set as a result of extensive trials with participants of both age groups. Younger individuals perhaps due to their faster visual-processing abilities or higher proficiency in using computers were able to recognize or recall one or more of the primes when exposure time was set at 55 ms as for the old. Therefore, by reducing this time to 33 ms, young participants were no longer able to recall the words and this threshold was thus established.

Will-to-Live

Following the priming task, participants filled out the Will-to-Live questionnaire (Appendix A).

Risk-Taking

Participants who had agreed to partake in the second experiment were then tested on the risk-taking task, using the same computer and SuperLab 1.68 software (Cedrus Corporation). Participants read the instructions on the computer screen and were then given practice trials. Each trial began with an exclamation mark at the center of the screen. The cards then appeared on the computer screen and participants were required to decide, as quickly as possible, whether they wanted to receive an additional card. Participants responded by using two fingers of their dominant hand to press either the “yes” or “no” key. A new exclamation mark then appeared, signaling the beginning of another trial. Participants did not receive any feedback or additional information. They did not see which additional card they received, which additional cards the computer received, or who won the hand.

3.2 Results: Study 1

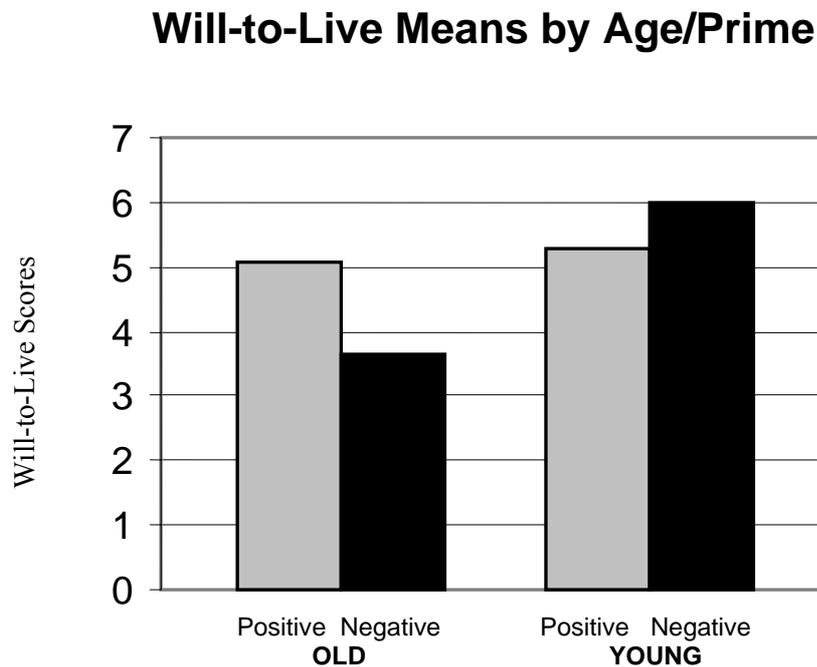
3.2.1 Will-to-live

The results demonstrated that the priming intervention influenced the elderly but not the young participants’ Will-to-Live scores. First, a two-way analysis of covariance (ANCOVA) was performed with age group (old/young) and stereotype prime group (positive/negative) as the independent variables and the mean score on the Will-to-Live questionnaire as the dependent variable. In this analysis and all analyses that compared the two age groups, years of education and self-rated health acted as the covariates. As predicted, a significant interaction between age and prime group was found, $F(1, 58) = 4.30, p = .043$ (see Figure 1).

To better understand the nature of the interaction, a series of planned t-tests was performed. As expected, when considering only the older participants, those

primed with positive age stereotypes were more likely to seek medical treatment than those primed with negative age stereotypes $t(30) = 1.96, p < .03$. The elderly in the positive priming condition had a mean will-to-live score of 5.09 compared with 3.69 in the negative condition. An average score of above 4 indicates a tendency to accept treatments and an average score of below 4 indicates a tendency to reject treatments.

The second t-test also supported the initial prediction. Priming did not affect the young participants' will-to-live scores. The difference between the will-to-live scores of those exposed to positive versus negative primes did not reach significance, $t(30) = .99, n.s.$ The young averaged 5.55 on the will-to-live measure. The finding that the priming trend occurred in the elderly, but not the young, cannot be explained by religiosity, education, or self-reported health. Neither religiosity ($r = .15, n.s.$), education ($r = .18, n.s.$), nor self-rated health ($r = -.11, n.s.$) significantly correlated with will-to-live scores. Consistent with the literature on will-to-live preferences, the young generated higher will-to-live scores than the elderly, $F(1, 63) = 5.40, p < .03$. However, when comparing only the positively-primed elderly participants to the young, the elderly exposed to positive age stereotypes did not differ significantly from the group of young participants, $F(1, 47) = .89, n.s.$

Figure 1: *Will-to-Live Means by Age and Prime Group*

Consistent with the third prediction, priming results were the same regardless of the older participants' initial views of aging (including the positivity, internality, and activity scores), religiosity, perceived health, and age. Each of these factors was made into dichotomous variables by dividing the scores into those below the mean and those at or above the mean. Then six two-way ANOVAs were performed for the elderly participants with priming group and each of the six variables as the independent variables. Each of the three views of aging scales was analyzed separately. None of these six ANOVAs produced significant interactions between prime group and the respective variable. Furthermore, in each of these ANOVAs, the main effect of prime group remained significant. Within the scenarios, the three ratio conditions (25%, 50%, or 75% chance of total recovery) and whether the treatment was associated with financial or familial costs also did not interact with the priming effect for the older participants.

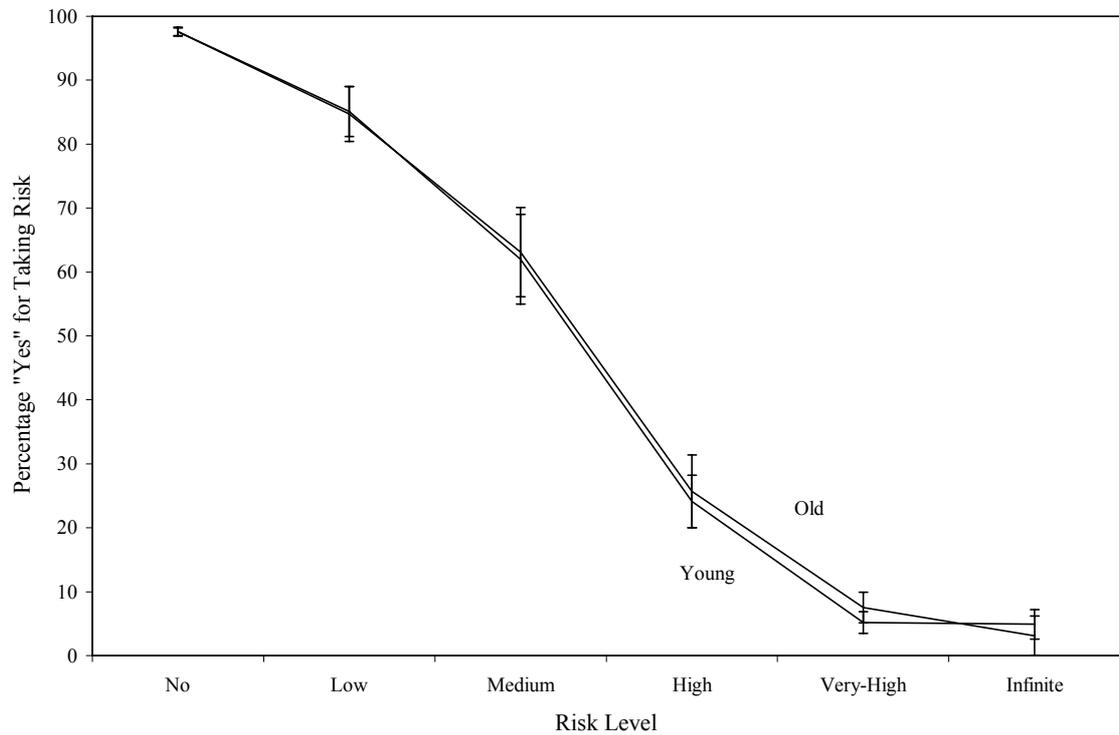
3.2.2 Risk-taking

Separate analyses were performed for the content of the risk-taking decisions and for response times. Both content and response times were analyzed using analysis of variance (ANOVA) with risk level (no risk/low/medium/high/very high/infinite risk) as the within-subject variable and age group (young/old) and priming condition (positive/negative) as the between-subject variables.

Participants were increasingly reluctant to take risk as risk level increased, $F(5, 140) = 237.39, p < .01$. On average, 98% of participants took a risk when there was no risk involved, 85% took a risk when the risk level was low, 63% when the risk level was medium, 25% when it was high, 6% when it was very high, and 4% when it was a logical mistake to take a risk (Figure 2).

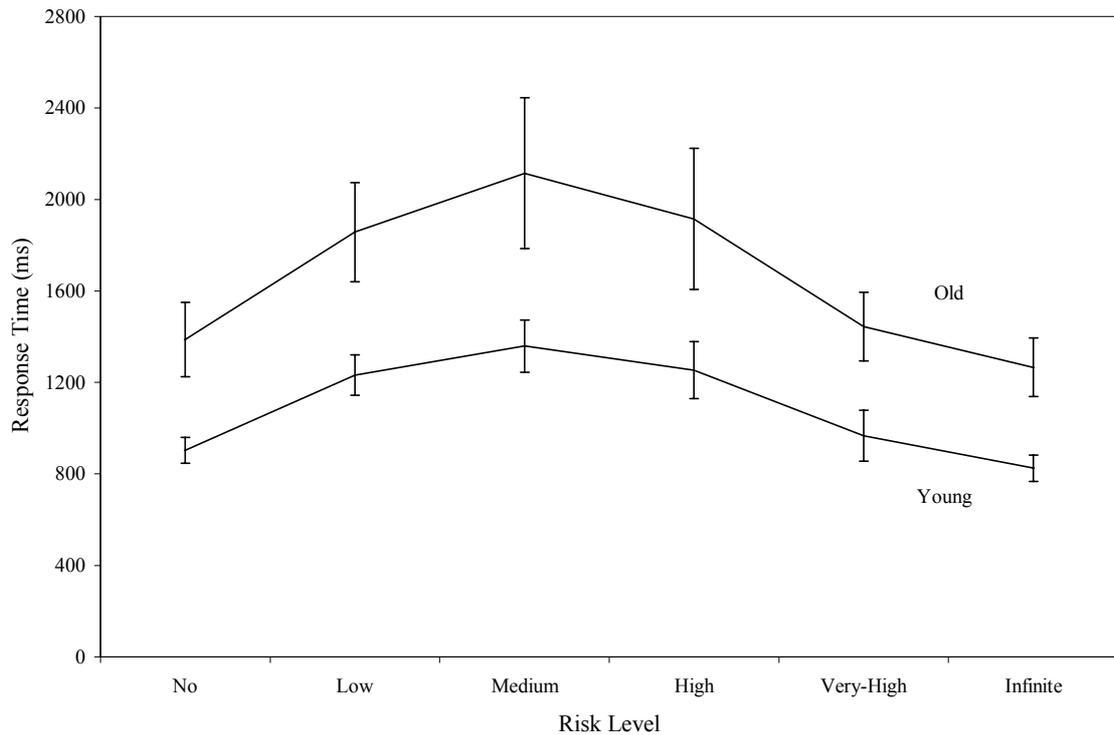
However, the changes in risk-taking decisions were not affected by priming condition, $F < 1$ (47% vs. 46% for average risk-taking in the positive vs. negative priming condition, respectively); and the decisions were comparable across age groups, $F < 1$ (46% vs. 47% for average risk-taking for the young vs. older participants, respectively). Furthermore, there were no trends toward interactions between any of the variables (all $p > .17$).

Figure 2: *Decision to Take Risk as a Function of Risk Level and Age Group*



Participants took the least amount of time to make decisions in the easy trials (when the risk level was either low or high), and took more time when decisions were more difficult (when the risk level was medium), $F(5, 140) = 17.79, p < .01$. On average, it took participants 1,145ms to make a decision when there was no risk involved, 1,544ms when the risk level was low, 1,737ms when the risk level was medium, 1,584ms when it was high, 1,206ms when it was very high, and 1,045ms when it was a logical mistake to take a risk.

Figure 3: *Response Time Needed to Make Decision as a Function of Risk Level and Age Group*



As illustrated in Figure 3, it generally took the older participants, relative to the younger participants, more time to make risk taking decisions, $F(1, 28) = 6.49$, $p < .015$ (with 1,090ms vs. 1,664ms for mean response times for young vs. older participants, respectively). However, there was no interaction between age group and any other variable, indicating that age did not affect the speed of processes involved in risk-taking decisions. If it did, an interaction between age group and risk level would have been expected to emerge. The fact that there was only a main effect of age reflects age differences that are not related to risk-taking decisions, such as the speed of encoding the stimulus and executing a motor response (Dror et al., 1998; Dror & Kosslyn, 1994). Furthermore, there was no effect of priming condition or trends toward any interactions (all $ps > .17$). This lack of priming effect could not be attributed to statistical power or to the possibility of short-lasting priming effect. Compared with other studies utilizing priming of aging stereotypes,

this sample size was within the acceptable range³ and Levy et al. (2000) have demonstrated priming effects lasting up to 43 minutes.

3.3 Discussion: Study 1

3.3.1 Will-to-live

As predicted, the implicit priming conditions influenced older participants' decisions about whether to seek life-prolonging medical treatment. Those exposed to positive stereotypes tended to choose life, or seek treatment in hypothetical medical situations regardless of cost. In contrast, those exposed to negative stereotypes tended to refuse these same treatments, even though the scenarios stated that without these treatments they were likely to die within a month. The predicted outcome that priming would not affect the young demonstrates that a self-stereotyping effect occurred. Priming only worked for the participants for whom the age stereotypes were salient. The finding that the older participants with more positive views of aging were as likely to be influenced by the primes as those with more negative views of aging demonstrates the robustness of the priming effect. Similarly, those older participants who felt that they were not religious and had poor health were as likely to be affected by the primes as those who reported strong religious beliefs and excellent health. Despite the years of exposure to negative stereotypes of aging, the elderly participants in the positive prime condition were significantly more likely than those in the negative prime condition to advocate the use of life-prolonging medical treatments. The relative score of the positively-primed older participants on the Will-to-Live questionnaire was remarkably high. There was no significant difference between the score of the positively-primed

³ Perdue & Gurtman, 1990, n=30; Stein et al., 2002, n=12 and n=9; Levy et al., 2000; n=51

elderly and the scores of both the positively and negatively-primed young groups. It appears that the positive primes provided the elderly with more than the anticipated buffer against the prevailing negative stereotypes of society. It may have boosted the positive self-stereotypes of this group.

An explanation for the strong will-to-live scores among those elderly exposed to positive primes may be found in the relative paucity of positive stereotypes about aging encountered in the social world. Although the negative primes may tap into stronger internalized stereotypes about aging, the positive primes may have benefited from being more novel. That is, the reinforcement of the negative primes by the pre-existing negative stereotypes was perhaps offset by the saturation of these stereotypes so that there was less margin to intensify than in the case of the positive primes. This research shows that self-stereotypes may operate differently in the elderly and the young. Unfortunately, recruited participants were either under the age of 35 and over the age of 61 years. In the future it would be informative to recruit middle-aged individuals for whom the age stereotypes may be more salient than for the young but less relevant than for the elderly. It could also be that middle-aged individuals fear the prospect of growing old more than their older peers who have developed some resignation or acceptance. Experimental research could determine the strength of stereotypes of aging among middle-aged participants and the influence stereotypes of aging have on their will-to-live scores.

It is also possible that healthy people predicting their preferences for life sustaining treatments in future or hypothetical states of disease is a process highly tainted by bias and that generally speaking, individuals tend to under-predict their desire for such treatments (Ditto & Hawkins, 2005). As in real life situations, recent studies show that life sustaining treatment preferences fluctuate considerably.

Factors such as context, variation in the way questions are framed, depression levels, physical functioning, general experience with illnesses and emotional context have been found to affect this fluctuation (Ditto & Hawkins, 2005). Patients being hospitalized also present a “hospitalization dip,” with less desire to receive life sustaining treatment immediately after hospitalization than they did either prior to, or several months post hospitalization (Ditto & Hawkins, 2005). What my study demonstrated was the “instantaneous” effect of stereotypes on the desire for life sustaining treatment, whereby the stereotypes (negative or positive), once activated without awareness, resulted in strong influence on the decisions participants made. Therefore, the results of this experiment demonstrate the powerful effect of the procedure and this would be valid for the instantaneous decision, whenever the decision is performed.

It is clear that will-to-live, which is an intensely personal decision, is also influenced by society. Negative stereotypes of aging, which prevail in our culture, could potentially adversely affect not only the quality of life for the aged, but perhaps the duration of it. If the elderly are influenced by negative age stereotypes in considering death, they may be more inclined to forgo medical interventions that could potentially prolong their lives. That is, when faced with obstacles, aged individuals who are strongly influenced by these age stereotypes may relegate their will-to-live. At the same time, this study demonstrates the power of a positive intervention to support strong will-to-live in older individuals. This suggests that healthcare providers, policy-makers, and the aged themselves have the capacity to alter the insidious effects of negative stereotypes.

3.3.2 Risk-taking

Elderly people made similar decisions to young adults, confirming earlier findings (Dror et al., 1998). Furthermore, the priming of age stereotypes had no effect on either age group in terms of decisions made and did not slow down or speed up the cognitive mechanism involved in risk-taking decision-making in either age group. This finding suggests that older people can make sound risk-taking decisions free from the influence of age stereotypes. Findings correspond to those of Dror et al. (1998) in terms of quality of decisions made. The only difference observed between the previous and current study was that response times did differ significantly between the elderly and young ($p < .07$ in Dror et al., 1998; and $p < .015$ in this study). However, once again, no interactions emerged between age and other variables suggesting this difference is not related to decision-making processes.

Consistent with the prediction based on Baltes and Staudinger (1993), although the cognitive processes that are associated with mechanics may be impaired (such as the processing speed or response time), the decision-making outcome, which is more indicative of pragmatics, does not appear to be degraded by age. Although older people generally required more time to make decisions, response time differences between the young and older participants remained constant across difficulty of trials with varying risk levels. Hence, the main effect of age and lack of interaction suggest that the cognitive modules that are directly involved in risk-taking decisions are not affected by age, and process information with the same efficacy in both age groups.

The results of this study suggest that elderly individuals can make sound risk-taking decisions. Risk-taking may be one of the cognitive skills that can compensate for other skills that are not as well preserved with age. Thus, in real-life situations

that require choices, such as financial investments, well-calculated decisions are as likely to be made by the elderly as the young.

The overall results suggest that the elderly, as a target group of negative aging stereotypes, are quite vulnerable and tend to be affected by these socially-transmitted stereotypes. However, these effects did not extend to young individuals in the will-to-live study or to either age group in risk-taking decisions. These findings can be explained in several ways. First, the young are not susceptible to aging stereotypes as these, at least in their minds, do not apply to them. Second, will-to-live is a direct measure of attitudes and choices in matters of life and death in the healthcare context, which is most salient to the elderly. In contrast, risk-taking decisions, at least as measured by a computer-simulated game of Blackjack, are not susceptible to widespread stereotypes of aging in our culture. In fact, one may argue that the elderly, by virtue of age, may have gained certain ‘mastery’ in this domain. However, this would not be completely accurate, as the card game was performed on a computer, an area in which most elderly are not proficient in comparison to the young. This finding is therefore somewhat encouraging as the elderly in this sample were able to make comparable decisions to the young at an only slightly slower speed.

The conclusions to be drawn from this study are not necessarily negative and the elderly do not seem to have such a grim outlook in the domain of decision-making, provided society does not perpetuate negative views on aging. Actually, certain older individuals in this sample displayed equal levels of will-to-live to their younger counterparts, with the proviso of positive stereotype priming. That subliminally activated stereotypes can have such far reaching effects on individuals is fascinating, to say the least. It is, however, no less alarming.

Negative stereotypes of aging are prevalent in our society and have been shown to be transmitted on a daily basis via such tools as television, newspapers, radio, and so on (Donlon, et al., 2005). Although most people will not readily admit to holding negative attitudes toward the old explicitly, quite a different picture emerges on the implicit level. Overall, implicit attitudes regarding the aged tend to be negative (Nosek et al., 2002). These stereotypes are constantly reinforced over one's lifetime and can eventually become self-stereotypes (Levy, 2003). Acquiring, assimilating, and enacting the stereotypes are different processes not to be confused with the implicit activation of them. Although experimental attempts at activating these stereotypes may be unsuccessful or only demonstrate partial or short-term effects, this does not necessarily mean that these stereotypes are not reinforced over the lifespan.

As an impression is more stereotypical, it leads to more behavioral assimilation. It would then be reasonable to expect that as we grow old our stereotypicality of the elderly becomes better defined. As we become integrated into the "elderly" group then some concepts of such stereotypes may also be applicable to us (i.e., we may have experienced a few of the situations reflected in the stereotype, "I can not remember where I placed my keys, I must be getting old;" this is also self-suggestive). Therefore, as stereotypes inform us of what is to be expected of us, we would be partially re-enacting the stereotype. As Dijksterhuis et al. (2001) put it, "stereotypical impression leads to behavioral assimilation of the perceiver while representation as an exemplar leads to contrastive behavior" (pg. 297). Therefore, age alone does not limit us to enact a stereotype, but two factors do. First, the strength of the stereotype (how much assimilation has occurred), which could be facilitated by contact with members of the elderly group (Dijksterhuis, et al., 2000);

and second, the stereotypicality of the present in an impression formation (Dijksterhuis et al., 2001). In addition, there are also other moderators to be considered including: fit, mood, and the presence/absence of contextual variables, etc. (Dijksterhuis et al., 2001).

Finally, one important factor to consider is the nature of the task at hand. Contrasting my study with both Stein et al. (2002) and Levy (1996) who tested the effects of stereotypes on memory performance, I investigated will-to-live and risk-taking. I explored whether stereotypes would have the same positive/negative effects on both will-to-live and risk-taking tasks invariably. It is possible that the priming effect on memory performance as investigated by Stein et al. (2002) and Levy (1996) is not as robust as the effect on decisions regarding medical interventions. Surely, there are numerous mechanisms involved in making such a complex decision requiring reasoning, decision-making skills, consideration of financial, familial, and social implications, and so on. Moreover, there was no effect on risk-taking decisions in the second part of Study 1. Again, this suggests that, at least in the laboratory setting, stereotypes may have a differential effect depending on the task being investigated.

I have already discussed findings suggesting negative aging stereotypes can reduce one's physical and cognitive function, while positive stereotypes may improve those very same functions and even increase longevity (Levy, & Langer, 1994; Levy et al., 2000; 2002). In fact, in the will-to-live experiment, the robustness of aging stereotypes seems to have prevailed over such pragmatics as financial and familial burdens one may impose on his/her family depending on the chosen medical intervention. Based on previous findings and those reported here, we may now assume that socially-transmitted aging stereotypes can affect individuals' cognition,

behavior, and will-to-live. Although aging stereotypes do not seem to produce similar results in risk-taking tasks, such as the Blackjack experiment reported in this study, it is possible they may still play a role we have yet to identify or measure properly.

The implications of these results are far reaching. If we follow the growing evidence that aging stereotypes have powerful effects on individuals, then as members of society, we must maximize the enhancing effects of positive stereotypes, vis-à-vis extenuating the detrimental effects of negative stereotypes. Moreover, action should address not only individuals, but society as a whole. One may approach this issue in a proactive vs. reactive manner. First, proactive measures would seek to mitigate the initiation, perpetuation, and communication of negative aging stereotypes while boosting positive stereotypes by monitoring the media, educating children and adults, establishing community programs, etc. At the same time, reactive measures should attempt to address the elderly for whom negative stereotypes are already active and salient by developing self-awareness (see Levy, 2003). Perhaps by merely pointing out to elderly individuals the possibility that there exists an implicit mechanism at play would bring about awareness, which may, at least partially, allow them to make decisions based on personal preferences rather than social-impositions (see Donlon, et al., 2005).

3.4 Limitations & Future Research

In this study aging stereotypes selectively influenced individuals' decisions. The effect of stereotypes is highly dependent on the salience of the task at hand to the individual. Will-to-live is obviously more salient to older rather than younger individuals for many reasons, but simply put, the elderly are chronologically and

biologically closer to the end of life. Therefore, aging stereotypes, which target this specific sector of the population, influence the elderly in either a negative or positive manner. Conversely, risk-taking decisions, at least as measured by a simulated card game, seem to be executed in a manner that is independent of stereotype influence.

These results are both encouraging and discouraging. On one hand, the observation that older adults are capable of making decisions as soundly and efficiently as their younger counterparts is encouraging. On the other hand, the ever-important decision about medical treatment and life and death situations may be tainted by such socially-bound stereotypes. However, this finding could be looked at from several perspectives: (1) negative stereotypes, which are predominant in our culture, seem to bring individuals to negate their personal wishes in lieu of social pressure; and (2) positive stereotypes are capable of boosting older adults' motivation to pursue medical treatment and prolong their lives. The importance of these results cannot be overstated. That is, it is one thing to note that negative stereotypes are powerful and harmful to those individuals who serve as their targets. However, it is quite another to reveal the positive effect such stereotypes have on these very individuals. Therefore, one might conclude that it is not sufficient to merely attempt to minimize the prevalence of negative aging stereotypes in our society, but rather emphasize a concomitant increase in positive stereotypes. Positive stereotypes, albeit being stereotypes, are probably better than no stereotyping at all as these individuals are already trying to balance biological, social, and economical declines and deficits. To better understand the unique effects of positive and negative stereotypes, it would be helpful to include a control group in future studies. This group should not be exposed to aging stereotypes and would be

expected to score lower than those primed with positive stereotypes, but higher than those primed with negative stereotypes.

There is a potential limitation to the risk-taking task performed by the participants as it is possible that the effects of the primes had dissipated by the time they faced the simulated card task. However, both the will-to-live and risk-taking tasks were completed sequentially, with no breaks, and therefore, I believe the robustness of the primes was not lost. In addition, the duration of aging priming effects has been shown to last for at least 15-43 ($M = 26$) minutes, which is ample time in the case of the two tasks performed (Levy et al., 2000). In the future, it would be interesting to repeat this experiment and ask participants to perform only the risk-taking task. In addition, negative primes included such words as “Alzheimer’s” and “dying.” It could be argued that these primes rather than general negative aging primes (e.g., “dependent,” “misplaces”) are death-related and may be the primary reason for decreasing will-to-live. However, aging stereotypes, prevalent in society, by definition include words that are intrinsically related to death, dying, and diseases and as such, must be included in experimental work. Moreover, even aging-related words such as “misplaces” or “forgets” can also be associated with dementia, Alzheimer’s and other deadly conditions and therefore be considered death-related as well. Finally, as outlined in section 3.2.1 above, priming effects were observed regardless of participants’ initial views on aging, some of which may also be considered death-related.

The lack of a “true” control group may be viewed as a limitation of the study, but in planning this study, the young participants were considered to act as control, as no effect was expected (indeed, this was consistently observed; see also Stein, et al., 2002 who also observed no priming effects on young participants). Although an

optimal study design would have included a control group exposed to neutral primes, the current design and results do not detract from the findings. The study shows the negative versus positive effects of aging stereotypes, and as such, a “no effect” condition is unnecessary. Moreover, in this case, I consider the young group as a “control group” as they are not influenced by either condition.

Finally counterbalancing of the two tasks could have provided a better design overall. In future studies, all tasks should be counterbalanced.

3.5 Conclusions

Study 1 looked at the effects of aging stereotypes on elderly and young individuals. More specifically, the first part of this study examined the effects of stereotypes on will-to-live. In simpler terms, how negative and positive aging stereotypes influence individuals’ willingness to pursue treatment in order to prolong life. The second part of the study looked at the stereotypes’ effect on individuals’ risk-taking decisions, achieved by a simulated card game. The main difference between the two tasks was the dependent variable used. Will-to-live is related to health and biology, while risk-taking is more universal and less age-bound. As expected, effects of stereotypes on the elderly in the will-to-live experiment were significant. However, no effect was observed in the risk-taking task. Declining health is very salient to the elderly, while risk-taking as measured by a simulated card game may not have pronounced age relevance. Another important point is the salience of aging stereotypes. In either case, stereotypes did not have a significant impact on young participants. Simply put, the negative views on aging held in Western cultures are not pertinent to young individuals—that is, they do not apply to them, and therefore fail to make a difference. In contrast, elderly are susceptible to

such negative views on aging as they are members of the target group of such negative beliefs.

The findings of Study 1 supported my hypotheses. Namely, stereotypes of aging affected only older participants selectively. Positively primed elderly outperformed those primed with negative stereotypes. In short, positive stereotypes led to an increased will-to-live among the old, but not the young. Not only that, but most importantly, elderly primed with positive stereotypes displayed equal levels of will-to-live to their younger counterparts. Additionally, stereotypes had no effect on either age group as far as the risk-taking task was concerned. Moreover, performance across age groups was steady and the elderly were only slightly slower than the young, suggesting comparable performance on this task. These results are both encouraging and troubling. First, socially-transmitted stereotypes have the power to reduce or bolster older individuals' will-to-live. Second, compared to the young, the old can achieve equal levels of will-to-live. Third, the old can show comparable risk-taking abilities to the young even in the face of stereotypes, and do so at nearly equal speed and efficiency.

This study helps explain how society may play a major role in elderly decision-making processes, in particular, deleterious effects on seeking medical help. These results raised more questions and led me to formulate the next study, described below.

CHAPTER 4

INTERDEPENDENCE AS THE MEDIATING LINK BETWEEN CULTURE AND CONTROL

4.1 Introduction

So far, this thesis investigated intra-cultural variations across the lifespan in terms of how decisions individuals make are influenced by aging stereotypes. A potentially harmful consequence of negative stereotypes on the elderly was observed. The aim of Study 2 was to examine the influence of culture and age on how individuals utilize control to possibly ward off or protect themselves from such effects as well as to adapt to the demands and constraints of adult development.

According to Whitbourne and Sneed (2002), theories on aging and self-concept postulate the older individual preserves self-esteem and copes with the negative realities of life using four mechanisms: (1) mature defense mechanisms; (2) selectivity in choosing social partners; (3) goal adjustment according to age-related realities; and (4) interpretation of events in line with a positive self-view.

The theoretical framework encompassing these mechanisms can be considered collectively under the Lifespan Theory of Control theory put forth by Heckhausen and Schulz (1993; 1995; 1998). The theory identifies four types of control in a two-dimensional model. The dimensions are primary and secondary control (the focus of my thesis) on one hand, and selection and compensation on the other (Heckhausen, 1997; Wrosch, Schulz, & Heckhausen, 2002). Heckhausen and Schulz (1998) identify selectivity and failure compensation as required for functioning. These along with primary and secondary control collectively comprise the Optimization in Primary and Secondary control (OPS) model (Heckhausen &

Schulz, 1998). Moreover, this theoretical framework is concerned with the regulation of these control strategies by a higher order process, optimization (Heckhausen & Schulz, 1998). Optimization is the process by which control strategies are utilized in a balanced fashion and in accordance with developmental opportunities and constraints. The goal of optimization is to expand, maintain, and protect long-term potential for primary control (Heckhausen & Schulz, 1995). While I discuss this theory in detail later in this chapter, to define these briefly, primary control refers to attempts at changing the external environment to fit one's needs. Secondary control, on the other hand, attempts to adjust one's cognitive processes to fit the environment, and serves to minimize losses in primary control (Heckhausen & Schulz, 1995). Selection pertains to selecting an action (in secondary control, the action is mainly internal), and compensation, which comes into play when an individual's choice cannot be realized (for example, due to lack of resources).

The parallels between the abovementioned mechanisms and primary/secondary control strategies can be explained as follows. Haan (1977) suggested that mature coping and defense mechanisms involve cognitive mediation and controlled emotional expression. Carstensen (1992) proposed that people select social partners to maximize social and emotional gains and minimize social and emotional risks. This can be viewed as shifting motivational resources to more rewarding and less risky areas. Goal adjustment or accommodation is the process of adjusting one's level of aspiration or changing a goal to a more attainable one in the face of actual losses or negative stereotypes (Whitbourne & Sneed, 2002). The first mechanism (mature defense) can be compared with selective secondary control; the second (selectivity in choosing partners) with selective primary control; the third (goal adjustment) may be interpreted as both compensatory primary control (an

individual may enlist the help of others or utilize technical devices) and selective secondary control (an individual may increase the value of a specific goal in his/her mind); the fourth mechanism refers to the interpretation of experiences so as to maintain a positive view of the self. This can be associated with some examples of compensatory secondary control mentioned by Heckhausen and Schulz (1995), such as self-enhancing causal attribution and downward social comparison. In sum, it is possible that elderly individuals cope with the increased possibility of biological decline and exposure to negative age stereotypes through the use of primary/secondary control strategies. This thesis is primarily concerned with the primary/secondary control dimension and in what follows, I focus on this distinction rather than the dimension of selection and compensation.

While individuals use both primary and secondary control throughout their lifespan, factors such as biological and social restraints and how these individuals view themselves may affect control strategies. According to Heckhausen and Schulz (1995) and Wrosch, Heckhausen, and Lachman (2000), biological and socio-structural factors determine the opportunities and constraints for control at different periods across the lifespan. It has also been suggested that as individuals age, they gain a more interdependent view of the self, possibly affecting how they interact with the environment and exert control over it (Mishra, 1994; Triandis, 1995). Therefore, I thought it important to examine how control striving varies at different stages in life.

In addition, how primary and secondary control striving develops over the lifespan may also be influenced by cultural factors and thus vary cross-culturally. It has been suggested that individuals hold different self-concepts in Western and

Asian cultures, which in turn can influence their cognition, emotion, and motivation, including control utilization (Markus & Kitayama, 1991).

Lifespan psychology has become increasingly dominant over the past 20 years, in particular, its emphasis on control utilization as an adaptive tool and the proposition that motivation for primary control is a central determinant of development across the lifespan. Primary and secondary control, the main components of this theory, have been studied not only in Western cultures but also cross-culturally; however, few cross-cultural studies have taken the lifespan developmental approach. As one's predilection for utilizing one form of control over the other may be interlinked with biological and social constraints as well as changes in self-view, and therefore continuously shift over the lifespan, I believe it important to incorporate a lifespan developmental view into cross-cultural studies of control by investigating two distinct cultures within the framework of control utilization. In addition, cross-cultural comparisons of control strategies to date have seldom considered individual self-concept within a given culture. Individuals may hold a similar self-concept within a given culture, which may lead to similar control preferences. I believe that these two variables, namely, culture and self-concept, should be studied together to further our understanding of their dynamics and possible combined or mediating effects on the individual. Moreover, control strategies may differ among individuals within a given culture depending on their self-concept. For example, if a person holds an interdependent self-concept, he/she may exercise one form of control more readily than another. Depending on the culture in which he/she lives, the resulting behavior, guided by an interdependent self-concept may be viewed as adaptive or maladaptive.

Numerous studies have been carried out to contrast the USA with Asian countries such as Japan, China, and many more (to name a few: Heine & Renshaw, 2002; Kim, Kasser, & Lee, 2003; Morling, 2000; Morling, Kitayama, & Miyamoto, 2002; Palmore, 1975; 1985; Weisz, Rothbaum, & Blackburn, 1984a). However, very few, if any, of these studies took into account individual differences within respective cultures. It is said that individuals in Western countries tend to be independent, while non-Westerners, including Asians are said to be more interdependent (Markus & Kitayama, 1991). However, how individuals vary within the same culture, and how these differences give rise to intra-cultural variations in control striving has not been studied; I attempt to explain these variations in terms of self-concept. This approach will allow me to not only account for differences between individuals within the same culture, but also identify the more appropriate predictor of control preferences rather than simply considering the obvious variable, country of origin.

Study 2 measured individuals' self-concept (level of interdependence) and control preferences (primary/secondary). However, unlike existing research, my model aimed at addressing not only differences between Americans and Japanese (the reason for choosing Japan is discussed in the following chapter), but also between individuals within their respective countries. In addition, the entire framework of this study considers lifespan development so as to take aging into account. Therefore, self-concept and control utilization were not viewed as entities independent of one's chronological age; this in turn, helped shed light on the profound effects culture has on its members in terms of cognition, behavior, and age differentials.

4.2 Control Strategies – Primary vs. Secondary

Control strategies are a major component of a theory of successful aging focusing on the development and maintenance of primary control (Heckhausen & Schulz, 1998; Wrosch, et al., 2000). These strategies may hold explanatory power for the motivational processes that fuel individuals' striving to pursue goals. At least in part, a measure of developmental success in adults may be the extent to which primary control has been exercised, actualized, and maintained.

Notice that the above revolves around striving and utilization of control, but there is another side to control, that is, perceived or sense of control. Several studies have shown that a personal sense of control can positively influence one's health, increase academic achievement, lower distress levels, and improve cognitive performance (Tangsrud & Smith, 2000; Thompson et al., 1998).

Concepts of primary and secondary control are one of the most widely accepted ways of thinking about control across cultures and across the lifespan (Levy & Langer, 1998). Individuals influence their environments by exertion of control. External environments are addressed overtly via primary control, while secondary control shapes internal conditions (Heckhausen & Schulz, 1993; 1995). Although both forms of control can involve action and cognition, primary control is characterized by actions directed outwardly attempting to change the world to fit one's needs and desires. Conversely, secondary control involves cognitive processes within the individual aiming to make the individual "fit in with the world" (Heckhausen & Schulz, 1993; Schulz & Heckhausen, 1997). In other words, individuals employing primary control attempt to "influence" whereas those resorting to secondary control attempt to "adjust" (Weisz et al., 1984a).

To illustrate the two types of control, I will use Morling's (2000) study on comparing control strategies in taking aerobics classes. An example of secondary control would be an individual in an aerobics class trying to keep up with the rest of the class and instructor's pace by adjusting oneself. In contrast, an individual employing primary control would try to influence and change the choreography of the class to better fit his or her level of ability (Morling, 2000).

Although secondary control is usually described in terms of cognition, it can involve actions as well. For example, to adjust to one's surroundings, an individual can use social comparison processes or take actions to align oneself with those in power.

While all individuals utilize a combination of both types of control, researchers have attempted to identify the factors that affect one's control striving. These include variables related to personality traits, such as optimism (Lacković-Grgin, Grgin, Penezić, & Sorić, 2001), and contextual factors, such as type of stressors (McCarty, 1999) and importance of goal (Lacković-Grgin et al., 2001). However, the most widely studied determinants of individual control strategies are one's cultural background and age. Cultural and life-span perspectives have been identified as important approaches in the research of individual control (Schulz & Heckhausen, 1999). Some key differences identified include an emphasis on or predominance of primary control in Western cultures and young age in contrast to a prevalence of secondary control in non-Western cultures and old age (Gould, 1999; Heckhausen & Schulz, 1995; Heeps, 2000; Morling, 2000; Morling, et al., 2002; Weisz et al., 1984a). It is possible that these differences in control strategies could contribute to cross-cultural and intergenerational misunderstandings and tensions. In

the following study, I examined whether these patterns may be due to higher levels of interdependence in Japan and old age.

4.3 Primary-Secondary Control Variation across Cultures and Lifespan

Several divergent perspectives have been formulated on how primary-secondary control ratios differ across cultures and the lifespan. While some argue that certain cultures prefer secondary to primary control (Gould, 1999; Weisz et al., 1984a; 1984b), others suggest that the primacy of primary control is universal (Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). Pertaining to lifespan development, some suggest aging diminishes one's ability to utilize primary control strategies (Gould, 1999), while others believe it may not weaken over time (Heckhausen & Schulz, 1995; Heeps, 2000).

As mentioned above, researchers present contradictory views on culturally-bound control strategies. Some suggest preference for secondary over primary control in Asian cultures (Gould, 1999; Weisz et al., 1984a; 1984b), whereas others argue that the primacy of primary control does not vary across cultures (Heckhausen & Schulz, 1995). The present study attempts to clarify these seemingly divergent views by examining the focus of comparison, i.e., intra-cultural or inter-cultural assessment. More specifically, I suggest that while some cultures may show a relatively greater striving for secondary control when compared to other cultures, primary control may still be preferred across cultures in absolute terms.

A number of researchers have suggested and some have tested the greater striving for secondary control among Non-Westerners, especially Asian individuals, compared with Westerners (e.g., Gould, 1999; Seginer, Trommsdorff, & Essau, 1993; Weisz et al., 1984a). However, exactly what aspects of a particular culture

mediate its effect on control patterns is not clear. For example, Seginer et al. (1993) explained the cross-cultural differences in control in relation to individualistic and collectivistic value orientations, but did not actually examine the relationship between them. My study looks at the role of an interdependent self-concept as a mediator of the cultural influence on control utilization. By considering self-concept, which is an internal process, rather than mere cultural orientation, the study also attempts to explain individual differences in control preferences within the same culture.

4.3.1 Culture – Individualism and Collectivism

Gould and Kolb (1964) defined individualism as the “belief that the individual is an end in himself, and as such ought to realize the ‘self’ and cultivate his own judgment, notwithstanding the weight of pervasive social pressures in the direction of conformity” (in Triandis, 1994, p. 285). Based on this definition, Triandis (1994) described the characteristics of individualism as the emphasis on: (a) priority to personal views, needs, and goals over that of the group; (b) behavior based on personal gains and losses; (c) beliefs that distinguish individuals from the group; and (d) behavior independent of the group.

Conversely, collectivism places greater emphasis on collective needs and goals. That is, one’s group is of utmost importance. Collectivists: (a) behave in accordance with the norms and duties defined by the group; (b) hold common beliefs with other group members; and (c) typically display dependent and cooperative behaviors within the group (Triandis, 1990; 1994). In short, individualism can be defined as dominance of individual goals and personal benefits, while collectivism involves the subordination of individual goals to those of the group, and attempts of benefiting the group (Triandis,

1990).

The differences between individualist and collectivist societies are too numerous to list here. However, most fundamentally, as Hofstede (2001) put it: “Individualism stands for a society in which the ties between individuals are loose: Everyone is expected to look after him/herself and his/her immediate family only. Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty” (p. 225).

Hofstede (2001) reports an individualism index compiled for 50 countries and three regions. Not surprisingly the USA is at the top of the list, followed by Australia and the UK (ranked 2nd and 3rd respectively). As for the bottom of this list, Guatemala is lowest, ranked 53rd with Ecuador, and Panama ranked 52nd and 51st respectively. As this thesis investigated Japan as a collectivist culture, it is worth mentioning its rank on Hofstede’s list was 22/23 as it was tied with Argentina. Other Asian countries such as Hong Kong, Thailand, and Singapore were all ranked in the range of 20-25, which falls within Japan’s rank. Overall, individualism was mostly prevalent in North American and Northern and Western European cultures, while collectivism was observed in most of the Latin American, Asian, and African countries. Furthermore, Triandis (1990) reports that approximately 70% of the world’s population may be considered “collectivist.”

Hsu (1983), in literary analyses, argued that most Western literature emphasized individual actions based on pleasure, while Eastern novels commonly depict and praise performing one’s duty, and suggested the roots of these cultural differences are very deep. Katzko, Steverink, Dittman-Kohli, and Herrera (1998) found Spanish participants (collectivist) to be more focused on family-related

activities, while Dutch (individualist) were more concerned with free-time activities. Furthermore, the collectivist sample rated family as more important and made more frequent references to helping or being of value compared with independent participants. Similarly, within the United States, for example, Asian Americans are thought to hold collectivist values and therefore place emphasis on familial obligation, the group's goals and interests, and family loyalty, which leads to higher family cohesion (Fuligni, Tseng, & Lam, 1999). These individuals traditionally de-emphasize individuality and attempt to maintain family harmony (Fuligni, 1998). Overall, there are numerous cross-cultural studies comparing Western to non-Western countries, with the majority concluding that individualism is predominant in the West and collectivism in the rest of the world (Church, 1987; Hsu, 1981). Americans are encouraged from early age to 'be all that they can be,' to strive for independence and autonomy, and make their own way (Church, 1987; Morling, 2000). Furthermore, expressing one's self as a distinct individual is highly valued in the USA, while in contrast, collectivist cultures view this type of behavior negatively and may lead to negative repercussions (Church, 1987; Koyano, 1989). Although most native-born Americans share this common core set of values, not all Americans are highly individualist in their behaviors and beliefs. It is therefore important to note that there exists within-culture variation, and in both types of cultures individuals may be, as Triandis (1994) put it, "counter-cultural" (p. 289).

4.3.2 Culture and Self-concept

A culture's preference for individualism or collectivism is relayed to the developing child by how parents, peers, teachers, and others encourage or discourage individual behavior in such everyday tasks as taking responsibility, solving problems,

responding to questions, and following directions.

Triandis (1995) notes that individualist child-rearing patterns tend to focus on independence, self-reliance, and self actualization, whereas parenting in collectivist cultures tends to encourage obedience, conformity, and emphasize the importance of the group. Furthermore, using Greenwald and Pratkanis' (1984) distinction of the self into three aspects (private, public, and collective self), Triandis (1995) suggests that individualism and collectivism can be linked to variations of the self across cultures. According to Triandis (1995, p. 328), a private self refers to cognitions related to traits, states, or behaviors (e.g., "I am honest"); public self refers to cognitions which involve the generalized others view of the self (e.g., "People think I am introverted"); and collective self refers to cognitions concerning group members' (family, friends, colleagues, classmates, etc.) view of the self (e.g., "My family thinks I am introverted"). Moreover, parenting styles in individualist cultures enhance the private self, and therefore boost its probability of being accessed. Conversely, in collectivist cultures, the collective self becomes further enhanced, and thus is more likely to be accessed (Triandis, 1995).

4.3.3 Independent vs. Interdependent Self

A similar, but slightly different approach to cultural differences in self-concept can be found in Markus and Kitayama (1991). They argued that individuals hold different concepts of themselves, of others, and of the relationship between the self and others depending on their culture, and introduced the notion of independent and interdependent self-construal. Focusing on the degree of separation and connectedness between the self and others, they described interdependent construal of the self as defining oneself in relation to specific others, in particular social

contexts. In contrast, an independent view of the self is construed independent of one's relation to others or the context. Members of Western countries are said to hold an independent concept of the self, emphasizing independence, self-actualization, and the pursuit of personal goals. Conversely, non-Westerners maintain an interdependent self, valuing connectedness to others, interdependence, social conformity, and subordination of self-goals for the sake of maintaining group integrity (Markus & Kitayama, 1991). The key characteristic of Markus and Kitayama's (1991) definition of the interdependent self lies within the role of others. They note that "in an interdependent formulation of the self ...others become an integral part of ...the context to which the self is connected, fitted and assimilated", and thus others "participate actively and continuously in the definition of the interdependent self" (p. 227).

It is believed that the divergence in one's concept of the self plays an important role in determining one's cognitive processes, emotion, and motivation (Markus & Kitayama, 1991). For example, one of the cognitive processes that can be influenced by the difference between the independent and interdependent self is related to how individuals process knowledge about the self and others. Studies have shown that participants in studies conducted in countries such as Japan and India tend to describe self or others with respect to a specific context, and provide contextual explanation for a person's behavior, whereas participants from countries such as the United States are more likely to describe a person in terms of traits and attributes, and refer to one's dispositions when explaining behaviors (Cousins 1989; Miller 1984; Shweder & Bourne 1984).

In terms of self-definition, Western and non-Western differences emerge in research comparing American and Japanese samples. For example, American

individuals usually view themselves in unrealistically positive terms (self-enhance) while Japanese display an inverse trend (self-criticize). Furthermore, Japanese display less unrealistic optimism, self-serving attributional biases, and ‘better than average effect’ (the tendency of individuals to view themselves as better than the average member of their group). Simply put, Japanese individuals are not as likely to employ self-enhancing techniques (Heine & Renshaw, 2002).

One explanation for the abovementioned divergence is that in terms of functionality, self-criticism works best for Japanese, while self-enhancement serves Americans. Japanese stress harmony and adjustment to others and therefore, an ever-changing self that is capable of catering to a myriad of situations is viewed favorably. In other words, there is always room for change and improvement.

Another reason for this difference may be that people holding different self concepts have different motives for maintaining a positive view about the self. For those with independent self-concept, maintaining a positive view about the self requires being unique and asserting oneself, whereas for those with interdependent self-concept, positive feelings about the self may be achieved by such tasks as fitting in and supporting harmony (Markus & Kitayama 1991).

Yet another explanation suggests that Japanese are simply better synchronized with their surroundings. Compared to Americans, Japanese are far more sensitive to how others view them and seek to “maintain face.” Therefore, by paying more attention to others and their potential evaluation of the self, one does not need to self-enhance and greater accuracy is attained (Heine & Renshaw, 2002).

These cultural differences can be further extended by looking at views of the stability of self-concept. For example, Japanese do not value a stable self-view because as context-dependent individuals, they adjust according to the situation at

hand. That is, flexibility and accommodation are viewed as adaptive. In contrast, Americans are more disposition-dependent and view personal qualities as fixed and unique, and are in need of confirmation from others (Choi & Nisbett, 1998; Heine & Renshaw, 2002).

As for accuracy or agreement between self and peer assessment, Americans attempt to protect themselves from negative affect and damage to their self-esteem. Therefore, individuals are in agreement with peers as long as the traits in question are neutral. If traits are positive or negative, agreement rates drop significantly. Japanese, in contrast, do not employ self-protective measures and agreement is unaffected by the quality of the traits (positive/negative/neutral) (Heine & Renshaw, 2002). In sum, culture defines and influences how one thinks and develops ideas about the self and may also influence self-related motivations.

Hofstede (2001), based on Triandis (1995), helps in minimizing the confusion between terms that are usually used interchangeably. These mainly include individualism, collectivism, independence, interdependence, idiocentric, and allocentric. The theoretical framework must be constructed on two levels: (a) individual: on this level, self-oriented individuals are labeled idiocentric, while social context-oriented individuals are allocentric; and (b) societies: in this case, terminology should incorporate individualist and collectivist (p. 216). As mentioned above, a third set of terms has been used in the literature, most often following Markus and Kitayma's (1991) seminal paper. This refers to independence and interdependence. On a whole, these terms are used to describe individuals' self-concept. Throughout this thesis, I will avoid using terms interchangeably and would therefore like to stress that individuals will be referred to as independent or interdependent when alluding to their self-concept, while society's orientation will

be termed individualist or collectivist, based on Markus and Kitayama's work. It is of paramount importance to realize that an individual may be independent, but living in a collectivist society, and vice versa.

4.3.4 Primary-Secondary Control Variation across Cultures

Weisz et al. (1984a; 1984b) assert that in non-Western cultures (collectivist), where stress is placed on social and environmental orientation, secondary control is used more frequently. In contrast, in Western cultures (individualist) such as the USA, primary control is dominant and individuals exert control directly on the environment and others to fulfill personally oriented wishes. This difference is a result of socially accepted practices, education, tradition, and history (Weisz, 1983; Weisz et al., 1984a). In support of this theory, numerous cross-cultural studies have shown that primary control is indeed more prevalent in the West and secondary control is predominant in Asian countries (Morling, 2000; Morling et al., 2002; Weisz et al., 1984a). In addition, Church (1987) reported that, compared to Americans, Filipinos place greater emphasis on suppression and control of unpleasant emotions (controlling internal processes rather than control external events).

Several researchers have argued that a Western perspective has been employed in many of these studies, ignoring Asian ways of thinking, and inevitably biasing findings (Azuma, 1984; Gould, 1999; Kojima, 1984). For example, Azuma (1984) critiqued the seminal study of Weisz et al. (1984a; 1984b) saying, "the primary-secondary dichotomy... presented by Weisz et al. is in itself quite American" (p. 971), and suggested that in countries such as Japan, which do not concentrate on primary control, secondary control is a higher order concept and

therefore is more complex and “heterogeneous.” (p. 970). Similarly, Kojima (1984) suggests that not only the primary/secondary control ratio, but also the modes and motives for exerting primary control may differ across cultures. For example, motives for employing primary control strategies may differ between cultures where Japanese strive to align with a group while Americans wish to individuate. Simply comparing absolute control ratios between Americans and Japanese fails to consider intricate yet significant cultural differences (Kojima, 1984). Having said that, overall, these researchers agree these cultural differences in primary/secondary control striving do exist. For instance, Gould (1999) notes that in Japan secondary control is the norm, while primary control is downplayed, and asserts that culture mediates how control is perceived and thus, in some cultures, secondary control inevitably takes precedence over primary control.

In contrast, Heckhausen and Schulz (1995) assert that striving for primary control is a human universal across history and cultural settings. Heckhausen and Schulz (1998) stress the evolutionary basis of this system and explain that primary control is dominant because humans have always favored active engagement with their environment. It follows that behavior regulation stems from those early interactions and is constant across cultures. Therefore, striving for control is consistent. Although Heckhausen and Schulz (1995) recognize that cultural variance does exist in the degree to which primary control is reinforced, they argue that an underlying preference for primary control remains invariant and stable across cultures.

The abovementioned researchers present contradictory views on culturally-bound control strategies. These seemingly divergent opinions may be partly explained in terms of the focus of comparison. For example, Weisz et al. (1984a)

have reviewed empirical research as well as ethnographies, suggesting secondary control is pursued more in Japan than in the United States, and that Americans favor primary control more than the Japanese. However, whether Japanese strive for secondary more than primary control within their culture was not discussed. Thus, Weisz et al. (1984a) focused on inter-cultural comparisons of the extent to which primary/secondary control is emphasized respectively, rather than the type of control primacy in a given culture. Consequently, previous findings, suggesting certain cultures, relative to others, prefer secondary control, do not provide evidence against the primacy of primary control assertion (Heckhausen & Schulz, 1995).

Primary control in cultures that are believed to be relatively high on secondary control, such as Japan, has not been paid much attention to in cross-cultural studies. Similarly, researchers have not focused on secondary control in countries such as the United States. Seginer et al. (1993) reported that Malaysian students showed higher secondary control beliefs compared to both German and North American students, but at the same time scored equally to the North Americans on primary control beliefs. Morling (2000) compared control-related behaviors of Americans and Japanese in a fitness class setting, and found that while Japanese gave more responses that endorse secondary control than Americans, in some areas, Americans utilized secondary control as well as the Japanese. These findings suggest that an individual can endorse secondary control and still demonstrate strong primary control striving or vice versa. Another issue raised by Heckhausen and Schulz (1995; 1998) is that primary control can be utilized not only to realize individual goals, but group goals as well. This suggests that the primacy of primary control may hold true even in collectivist cultures.

Some researchers have theoretically suggested that secondary control may take primacy in some cultures. For instance, Azuma (1984), as described above, stated that in Japan people do not focus on primary control, and that secondary control is a “higher order concept” (p. 970). Gould (1999) argued that in cultures where primary control is not viewed as the major goal in life, secondary control can have primacy. However, there has not been sufficient empirical evidence to support this view.

In sum, individuals in collectivist cultures may have stronger secondary control striving compared with those in individualistic cultures, as a number of studies and anecdotal evidence have suggested previously; however, they may still show greater striving for primary than secondary control when analyzed intra-culturally, in line with the universal primacy of primary control theory presented by Heckhausen and Schulz (1995).

4.3.5 The Missing Link: Interdependence and Control

Differences in control strategies between Westerners and Asians as reported in previous studies may be mediated by differences in conceptualizations of the self. A key difference between individuals in Western and Asian cultures has been reported to be an independent self-concept among Westerners and an interdependent self-concept among Asians (Markus & Kitayama, 1991; Weisz et al., 1984a).

Numerous cross-cultural studies observed the abovementioned dissimilarities between the two concepts of the self, with Westerners being independent and Asians more interdependent (Greenfield, Trumbull, & Rothstein-Fisch, 2003; Kim et al., 2003; Weisz et al., 1984a). One country that is often studied by researchers as an Asian, interdependent, yet modern country is Japan. Cousins (1989) elucidates

Japan's uniqueness as a fully modernized and industrialized non-Western nation, while still maintaining an interdependent orientation. Japanese are characterized by the following: (a) the family contributes to one's identity; (b) individuals' personal goals are subordinated for the sake of maintaining in-group integrity; (c) harmonious relationships; and (d) a focus on the context of interactions (Cousins, 1989). In short, these cultural orientations differ in that individuals tend to either try to "stand out" or "fit in" (Greenfield et al., 2003).

Markus and Kitayama (1991) state that in many Asian cultures "domains of social life, one's opinions, abilities, and characteristics are assigned only secondary roles – they must instead be constantly controlled and regulated to come to terms with the primary task of interdependence" (p. 227), suggesting the need for controlling one's internal processes in order to fit in with the society, that is, by definition, secondary control.

Similarly, Kojima (1984) explains a possible link between self and control through the conceptualization of the self and life-space, and suggests that Americans tend to view themselves as independent of the environment and other people, while Japanese assert that one is always in an interdependent relationship with the environment and can only be defined in reference to it. This strong link between the self and environment leads to attempts of regulation between them not by exertion of power, but by striving for harmony (Kojima, 1984).

Thus, Asians are said to hold an interdependent concept of the self and may employ more secondary control than Westerners not simply because they are living in a non-Western country, but due to relatively higher levels of interdependence. Study 2 of this thesis attempts to explore the relationship between interdependent self-concept and control preferences.

Another way studies may only be capturing part of the reality of how control operates is that previous studies have failed to consider individual differences, such as the role of interdependence within countries. Although in general Japan tends to be higher in interdependence than the US, studies have ignored how this variable differs within countries and how it may affect control striving.

As described above, individuals from Asian cultures, in general, value harmonious relationships, group cohesion and subordination of personal goals for the sake of group integrity. However, these cultural systems of belief have markedly changed in past decades. For example, young Japanese work very hard to emulate their American counterparts (Kudoh, 1999) and as a result may adopt a more independent way of thinking—often disobeying tradition. In fact, it is not only a behavioral change that is taking place, but also physical. Japanese today, more than ever before, are seeking procedures to enhance their facial features and “Westernize” their appearance by means of plastic surgery (Schaefer, 2003). Similarly, while most native-born Americans share the core values of autonomy, self-assertion, and pursuit of personal goals, not all Americans are highly independent in their behaviors and beliefs. Increased exposure to foreign cultures through the media, experience of living overseas, and migration may also lead to shifts in self concept in some individuals that do not concur with their respective culture. In sum, within-culture variation may exist in terms of self-concept, and this variation may in turn give rise to differences in control strategies.

In addition to higher interdependence reported in Asian cultures, as discussed earlier, a number of studies have also demonstrated higher interdependence among the elderly (Mishra, 1994; Triandis, 1995). This increase in interdependence might be due to the observed pattern of some individuals becoming more reliant on family

members and other members of their culture as they age (Baltes et al., 1998; Baltes et al., 1999; Lerner & Ashman, 2006). Moreover, as individuals age their goals and interests frequently change (Lerner, 2002). Erikson (1974) has argued that a natural part of the life-cycle in late adulthood is to become more generative (ability to care for others and satisfy future generations' needs) and family focused. Perhaps one of the reasons for the conflicting patterns of control striving across age groups suggested in previous research is that these have not adequately considered differences within age groups (Gould, 1999; Heeps, 2000; Heckhausen & Schulz, 1995; Wrosch et al., 2000).

Therefore, it is important to examine whether increased control striving in old age, as reported in some studies (Heeps, 2000; Wrosch et al., 2000), may be due, at least in part, to higher levels of interdependence among these individuals. This leads to the next section discussing the relationship between age and control.

4.4 Aging and Control

Culture provides resources to the developing individual by way of socialization strategies, physical structures, economic, medical-care, and various technologies. One's reliance on culture increases with age, as culture provides support in such realms as social, economic, and psychological, while compensating for biological declines (Baltes et al., 1998; 1999; Lerner & Ashman, 2006). According to Baltes et al. (1999), "The benefits of evolutionary selection decreases with age, the need for culture increases with age, and the efficacy of culture decreases with age" (p. 474).

The inclination toward primary or secondary control is not only culturally bound, but is also affected by age. According to the lifespan theory of control formulated by Heckhausen and Schulz (1995, 1998; Schulz & Heckhausen, 1996),

developmental trajectories for primary and secondary control over the lifespan take the following form: Primary control increases rapidly during childhood, levels off in middle life, and remains stable (Heckhausen & Schulz, 1998) or even increases (Wrosch, et al., 2000) in old age as one must invest even more efforts and resources to compensate for biologically-driven declines; secondary control flourishes in middle childhood and adolescence, develops further in early adulthood into midlife, and continues to increase in old age. This theory is based on the following assumptions: (a) children and adolescents are unable to attain the majority of their goals due to their age and lack of autonomy and must therefore internally adjust (secondary control) their aspiration levels, denying failure and reinterpreting action goals; (b) in old age, primary control becomes restricted due to biological declines, socio-structural constraints, and relatively limited lifetime remaining, leading the elderly to refocus their primary control striving on areas in which they are still developmentally able; and (c) the elderly concentrate their efforts on minimizing losses rather than establishing and achieving new goals (Heckhausen & Schulz, 1997). Primary control is then not taken over by secondary control as individuals age. In fact, Heckhausen and Schulz (1999) emphasize secondary control's role in attempting to minimize losses, maintain, and expand motivational resources for future primary control by addressing internal processes. Thus, secondary control does not override primary control, but is viewed as "confederate" (Heckhausen & Schulz, 1999, p. 608) to primary control, attempting to focus motivation on primary control goals and compensate for the deleterious effects of failure.

Current literature on age-related changes in control preferences present mixed findings. Some studies on primary/secondary control (Lacković-Grgin et al., 2001; Tangsrud & Smith, 2000; Thompson et al., 1998) as well as related concepts

of assimilation (adjusting environment to personal preferences) and accommodation (adjusting personal orientation to environment; see Brandstädter & Renner, 1990) have revealed age differences, such that primary control declines in old age and secondary control increases; while others have shown that in fact primary control striving remains high and stable (Heckhausen, 1997), and in some cases may increase throughout the lifespan, with concurrent increases in secondary control to bolster primary control (Heeps, 2000; Wrosch et al., 2000). Both Heeps (2000) and Wrosch et al. (2000) observed increased primary control in old age, despite having used different items to measure this. Wrosch et al. (2000) believe this finding may indicate the elderly tend to boost efforts and resources invested in goal attainment as biological declines increase. In fact, “older people seem to intensify their primary control attempts, presumably in well-selected life domains in which maintaining a certain amount of control is still possible” (p. 395). Perhaps one way to explain this is the possibility of increased interdependence in old age, enabling individuals to increase secondary control and preserve their primary control levels as a result.

Baltes and Staudinger (1993) found that the elderly may actually possess improved cognitive abilities, or so called “cognitive pragmatics” such as reading and writing skills, language comprehension, professional skills, and invaluable knowledge about how to deal with life’s endless complexities. Just as it is possible that primary control is used more often in Japan than researchers assume, it is possible that primary control striving does not decline with increasing age. While aging, the type of goals and one’s motivation for achieving them may change, but the underlying striving remains stable (or even increases as in Wrosch et al., 2000). Perhaps it is a somewhat qualitative, not quantitative, change that takes place, where

older individuals may want to achieve goals for future generations rather than for themselves.

In sum, as researchers found, the elderly expand their levels of primary control by utilizing secondary control strategies such as focusing resources on goals that are attainable, and increasing their primary control attempts in those areas, while disengaging from non-viable developmental goals that offer little or no potential for primary control (Heckhausen, 1997; Heckhausen & Schulz, 1998). Also, empirical studies have consistently shown that secondary control increases with age. However, these studies only examined the age effects on secondary control and did not investigate the possibility of a mediating factor in this causal chain. As mentioned above, increases in interdependence may explain the increased endorsement of secondary control in old age.

4.5 Overview

Current research presents contradicting views on how primary and secondary control utilization develops over the lifespan and its divergence across cultures. First, while some researchers suggest that preference for primary control is universal across cultures and history (e.g., Heckhausen & Schulz, 1995), others argue that in some cultures, especially Asian, secondary control is the norm and takes precedence over primary control (e.g., Azuma, 1984; Gould, 1999). Based on my review of these studies, I predict that while in some cultures, individuals use secondary control more readily than others, within the same culture, primary control is still preferred to secondary control. That is, culture has a significant effect on control strategies, thus differences between cultures will emerge in relative terms. However, within cultures,

the universal human preference for primary control will remain intact as it is based on evolutionary determinants.

Second, higher secondary control utilization in Asian countries reported in previous cross-cultural studies may be due to higher interdependence levels. An interdependent view of the self emphasizes the connectedness between the self and others, and self and the environment, and therefore leads to attempts of regulation between them not by exertion of power, but by striving for harmony (Kojima, 1984; Markus & Kitayama, 1991). Thus, interdependence can be expected to mediate the relationship between culture and individuals' control preferences. Accounting for differences in interdependence when measuring control, rather than simply country of origin, also enables me to account for intra-cultural variations in control preferences. More specifically, I predict that interdependent individuals prefer secondary control compared with those with a more independent view of the self, regardless of their country of origin.

Third, while the general assumption that primary control remains constant across the lifespan has been confirmed in several studies (Heckhausen & Schulz, 1995; 1998; Schulz & Heckhausen, 1996), more recent findings by these authors suggest that in an attempt to compensate for a loss in goal striving efficiency, the elderly show higher levels of primary control striving compared with younger individuals (Heeps, 2000; Wrosch et al., 2000). In this study, I aimed to replicate and further investigate primary control levels in old age.

Fourth, although previous studies on lifespan development of control consistently demonstrated increased secondary control as one ages, they did not investigate possible mediators of this age effect. This study examined the role of interdependence as a mediator of the relationship between age and control.

4.5.1 Hypotheses

1. While Japanese and Americans differ in their respective levels of endorsement for primary and secondary control, such that Japanese are higher on secondary and Americans on primary control; within each country, primary control would be preferred to secondary control.
2. Interdependence will mediate the relationship between culture and control and age and control.
3. Older participants will score higher than their younger counterparts on both control measures and interdependence.

CHAPTER 5

MEASURING CULTURAL AND AGE EFFECTS ON CONTROL

5.1 Methods: Study 2

Overview

This study aims to assess not only inter-cultural differences, as researchers have done to date, but also intra-cultural variation. That is, whether not all Americans utilize more primary control than Japanese and not all Japanese utilize more secondary control than Americans. I also intended to further investigate how control strategies change over the lifespan. Most importantly, I examined whether interdependence contributes to the mechanism by which culture and age influence control.

5.1.1 Participants

The sample included 328 Japanese participants from Nagano prefecture; their ages ranged from 18-81 ($M = 42.95$, $SD = 24.34$),⁴ and 229 Americans from Boston; their ages ranged from 18-100 ($M = 40.27$, $SD = 26.94$).⁵ Demographic information is provided in Table 1. Elderly participants were cognitively intact, living independently in the community, and recruited at community day centers. Young participants were undergraduate students enrolled in various psychology classes. Participation was entirely voluntary and informed consent was obtained from all participants prior to distribution of surveys. Between countries, participants did not differ in mean age, health, and financial status. Differences emerged between countries in education. One possible explanation for the difference in years of

⁴ Young 18-31 ($M = 20.21$, $SD = 1.83$); Old 60-81 ($M = 68.46$, $SD = 4.65$).

⁵ Young 18-33 ($M = 19.81$, $SD = 2.19$); Old 60-100 ($M = 74.05$, $SD = 8.73$).

education reported may be due, at least in part, to the reporting style of the young Japanese participants. In Japan, university students reported their education status as “12 years,” ignoring individual differences (e.g., freshman, senior). This is because the Japanese tend to count years of education based only upon completion of a degree. For example, they would tend to report “12 years” while in college and “16 years” upon graduation, with no intermediate number of years reported. Americans, in contrast, reported exact number of years (e.g., 13, 14). I therefore collapsed all young Americans with 12 or more years of education into 12. As a result, young participants’ years of education did not differ (Americans $M = 12.00$; Japanese $M = 12.16$). However, American elderly were more educated than their Japanese counterparts. Financial status, education, and health were controlled for in the models. There were significantly more females in the young American sample. However, this is quite common in social science research and based on previous control studies, no significant gender differences were expected to emerge (Lacković-Grgin et al., 2001; Thompson et al., 1998).

Table 1: *Characteristics of Sample by Age and Country*

	JAPAN			USA		
	Old	Young	Overall	Old	Young	Overall
N	156	172	328	87	142	229
Females	62.20%	51.20%	56.57%	52.90%	83.10%	72.24%
Age (years)	68.46	20.21	42.95	74.05	19.81	40.27
Education (years)	11.46	12.16	11.83*	13.95	13.04	13.38*
Health (mean)	3.87	4.56	4.23	3.45	4.81	4.30
Financial (mean)	4.59	4.79	4.70	4.66	4.68	4.67

* Means for education differed between Japan and USA at $< .005$

Note: 3 participants did not indicate their gender

5.1.2 Measures

Sociodemographic questions asked participants to report their age, gender, years of education, general health condition, etc. (See Appendix B).

Primary and Secondary Control scales were based on Wrosch et al. (2000), who found the two scales to be reliable ($\alpha = .78$ and $.63$ respectively), and included: (a) Primary Control instrument (in my current study, $\alpha = .84$) containing 5 items with Likert-type scale ranging from 1 (not at all) to 5 (a lot); for example, “When things don’t go according to my plans, my motto is ‘where there’s a will, there’s a way;’” and (b) Secondary Control instrument (in my current study, $\alpha = .75$) also containing 5 items and identical scale; for example, “When my expectations are not being met, I lower my expectations.” Participants were asked how well statements described them.

Interdependence was assessed using the Kiuchi Scale (Kiuchi, 1995; 1996), a fairly straightforward instrument consisting of 16 questions ($\alpha = .87$ in Kiuchi (1995), and $\alpha = .86$ in my current study). A higher score indicates a more interdependent self. In each item, two statements would be presented and participants were to decide which statement better describes them using a 4 point Likert-type scale ranging from 1 to 4. Thus, the highest score possible would be 64, while the lowest would be 16. For example, (A) “I agree with the opinions of the others; (B) I express my own opinion. Do you agree: (1) B is accurate; (2) more toward B; (3) more toward A; (4) A is accurate.” The Japanese and English versions of Kiuchi’s Self Concept Scale were used (1995; 1996).

5.1.3 Procedure

Demographic questions and control scales were originally written in English, translated into Japanese, and back-translated to English. Two independent translators fully agreed on the final versions of the scales (mean reliability = .96). Surveys were distributed to university students and community-dwelling elderly in Japan and the USA. Participation was voluntary and anonymous with no identifiable markings on surveys. Data entry was performed by the author and double checked by a student who was not aware of the study's hypotheses. Countries were re-coded into a new variable with Japan coded as 1 and USA as 2; age was also re-coded with the young coded as 1 and elderly as 2. Mediation analysis was used according to Kenny, Kashy, and Bolger (1998), who state SEM is suitable for estimating and testing theoretical constructs rather than measured variables. Since my model involves measured variables, mediation analysis is more appropriate. More specifically, Kenny et al. (1998) state this method is excellent in exploring how internal processes mediate the effect of situation on behavior. Kenny et al. (1998) justify the use of a series of regressions to examine mediation analysis. The authors prefer this method over SEM or at least give regression as the method choice. There are also a number of criticisms of SEM. It can include too many variables and relationships; it can be cumbersome to interpret. There are several statistically-related articles articulating these points. In addition, because the dataset is one point in time this would help justify regressions over SEM.

5.2 Results: Study 2⁶

Basic correlation analysis (see Table 2) revealed that primary and secondary control did not correlate. This result allowed me to proceed with further analyses using both forms of control as predictors without risking multicollinearity. In addition, participants' age did not correlate with country of origin, suggesting there were no significant age differences between countries. Age significantly correlated with interdependent self-concept and both forms of control, suggesting that increased age is associated with higher levels of interdependence and control. Finally, interdependent self-concept was negatively correlated with primary control and positively correlated with secondary control. This suggests that increased interdependence is associated with lower endorsement of primary control and higher preference for secondary control.

Table 2: *Correlation Matrix for Control, Age, and Country*

	Country	Age	Interdependent Self-concept	Primary Control	Secondary Control
Country	--	-.052	-.445**	.263**	-.355**
Age	-.052	--	.098*	.305**	.324**
Interdependent Self-concept	-.445**	.098*	--	-.172**	.401**
Primary Control	.263**	.305**	-.172**	--	-.08
Secondary Control	-.355**	.324**	.401**	-.08	--

* $p < .025$

** $p < .0005$

⁶ Initially, a 2(country)X2(age)X2(control) analysis was performed. However, per suggestions provided by the Journal reviewers and editor, it was concluded that mediation analysis is most appropriate. Therefore, only the concise, final results are provided herewith.

To explore the first hypothesis, ANOVA was performed. Overall control patterns indicated that although Americans scored higher than Japanese on primary control, $F(1, 517) = 26.27, p < .0005$; and Japanese scored higher than Americans on secondary control, $F(1, 517) = 34.07, p < .0005$, primary and secondary control ranges were similar in both countries, and means significantly differed within countries (Table 3). Primary control was higher than secondary control in both countries. This finding is in line with Heckhausen and Schulz (1995) who state “the primacy of primary control is invariant across cultures and historical time” (p. 286). However, this statement does not address the within and between culture variation, which I believe may be explained, at least in part, by interdependence.

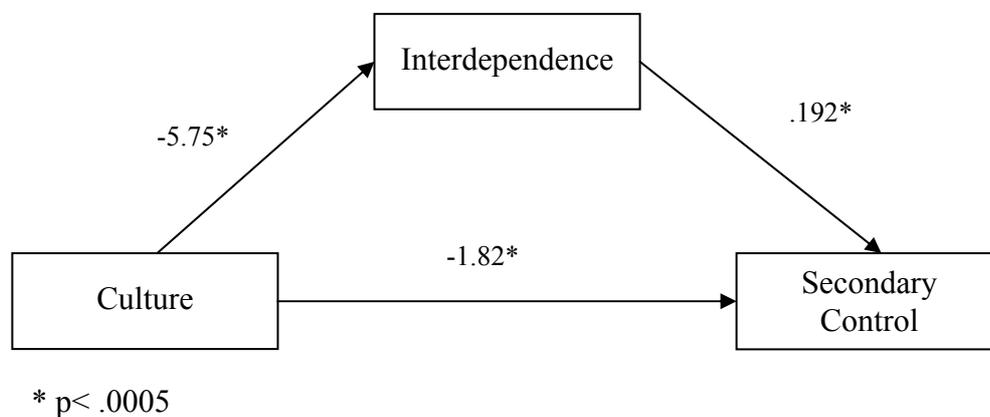
Table 3: *Primary/Secondary Control by Country*

	JAPAN		USA	
	PC	SC	PC	SC
Range/Mode	(5-25) 20	(6-25) 19	(8-25) 17	(5-23) 18
Mean	17.47	15.82	19.66	12.91
SD	4.29	3.67	3.41	3.92
t	5.642, p < .0005		17.41, p < .0005	

As predicted by the second hypothesis, interdependence partially mediated the relationship between culture and secondary control. That is, interdependence met the three criteria for a partial mediator as described by Kenny et al. (1998). Fulfilling the first criterion, the independent variable (culture) predicted the outcome of secondary control ($b = -2.92, t = -8.62, p < .0005$). Fulfilling the second criterion for a partial mediator, when I regressed the presumed mediator, interdependence, on the independent variable, culture, I found that culture significantly predicted interdependence ($b = -5.75, t = 11.35, p < .0005$). Fulfilling the third criterion for a partial mediator, the influence of the presumed mediator on the outcome remained

significant, even when including the path between the predictor variable and the outcome, which was also significant. The coefficient associated with the path between interdependence and secondary control was $b = .192$, $t = 6.88$, $p < .0005$. Since culture continued to significantly predict secondary control even when interdependence was entered as a predictor in the model, $b = -1.82$, $t = -5.00$, $p < .0005$, interdependence met the definition of a partial mediator. The Sobel test (Kenny et al., 1998; Preacher & Leonardelli, 2001) also confirmed that interdependence acted as a partial mediator in the model ($z = -5.86$, $p < .0005$). Finally, as a single predictor, interdependence accounted for 16% of the variance in secondary control, $F(1, 508) = 95.74$, $p < .0005$.

Figure 4: *Mediation Effect of Interdependence on the Relationship between Culture and Secondary Control*



In contrast to the finding that interdependence partially mediated the relationship between culture and secondary control, interdependence did not mediate the relationship between culture and primary control, as indicated by the Sobel test, z

= 1.41, $p < .16^7$ (Kenny et al., 1998; Preacher & Leonardelli, 2001). Nevertheless, as a single predictor, interdependence reached significance and accounted for 3% of the variance in primary control, $F(1, 518) = 15.83, p < .0005$.

To better understand the within-culture variation, I proceeded to stratify data by country and interdependence. This allowed me to compare individuals within their respective countries based on their interdependence score. I clustered participants into four groups. Participants scoring at or below their country's mean interdependence score were labeled "independent," while those scoring above the mean were labeled "interdependent." Median splits were not used as the four groups had fairly similar numbers and further manipulation was not required. Thus, four groups were formed:

- Group 1: Independent Japanese
- Group 2: Interdependent Japanese
- Group 3: Independent Americans
- Group 4: Interdependent Americans

I examined the control scales using multivariate analysis of variance (MANOVA) with control (primary/secondary) as the within-subject factor and group (independent/ interdependent; Japanese/Americans), age (old/young), and gender (male/female) as between-subject factors. Education, financial status, and health were entered as covariates. Gender did not reach significance and was therefore excluded from further analyses (as in Lacković-Grgin et al., 2001; Thompson et al., 1998).

As expected, independent Americans had higher primary control levels than any other group. However, Japanese participants scored equally to interdependent Americans. This finding implies that given an interdependent self, Americans do not

⁷ Coefficients: $b(YX) = 2.22, t = 6.29, p < .0005$; $b(MX) = -5.76, t = -11.35, p < .0005$; $b(YM.X) = -.043, t = -1.42, p < .16$; $b(YX.M) = 1.97, t = 5.01, p < .0005$

differ from their Japanese counterparts. Similar findings were observed for secondary control. As anticipated, interdependent Japanese scored higher on this measure than any other group. However, once again, interdependence played a major role for interdependent Americans who scored equally on secondary control to independent Japanese. This suggests that the assumption that Americans are higher than Japanese on primary control and Japanese are higher than Americans on secondary control only explains part of the pattern. It may be more accurate to think of individuals regulating their primary and secondary control striving depending on interdependence. As for within culture variation, both interdependent Americans and Japanese had higher levels of secondary control than independent individuals in their respective countries (Table 4).

Table 4: *Primary/Secondary Control Means by Group*

	Japanese Indep. (JI)	Japanese Interdep. (JD)	American Indep. (AI)	American Interdep. (AD)	F(3, 501) p< .0005	Post hoc Comparisons
P C	18.10	17.69	20.24	18.73	9.371	(JI=JD=AD)<AI ¹
S C	14.51	16.58	12.91	14.53	21.598	(JI=AD)>AI<JD ² AI<AD ³

¹Independent Americans scored higher than both Japanese groups, p< .0005 and interdependent Americans p< .025.

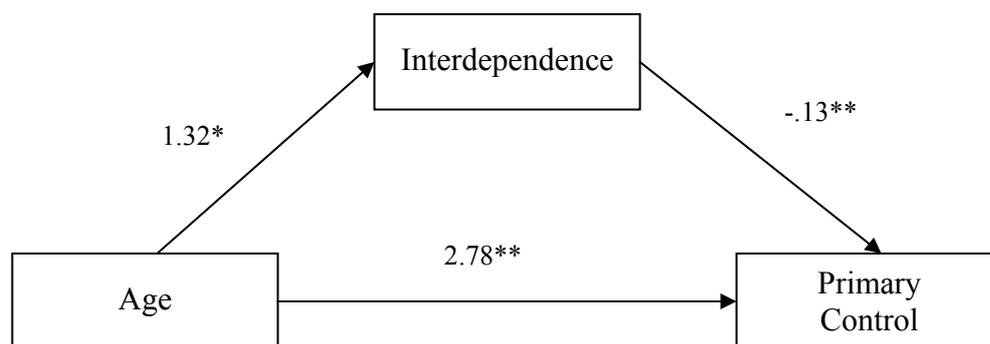
²Interdependent Japanese scored higher than both American groups and independent Japanese, p< .0005.

³Interdependent Americans scored higher than independent Americans, p< .01.

In support of the second hypothesis, the influence of age on both primary and secondary control was partially mediated by interdependence. That is, interdependence met the three criteria for a partial mediator as described by Kenny et al. (1998) when primary control was the outcome and when secondary control was the outcome. In the model with primary control as the outcome, I found that,

fulfilling the first criterion, the independent variable (age) predicted the outcome of primary control ($b = 2.61, t = 7.43, p < .0005$). Fulfilling the second criterion for a partial mediator, when I regressed the presumed mediator, interdependence, on the independent variable, age, I found that age significantly predicted interdependence ($b = 1.32, t = 2.33, p < .025$). Fulfilling the third criterion for a partial mediator, the influence of the presumed mediator of interdependence on the outcome of primary control remained significant ($b = -.13, t = -5.02, p < .0005$), even when including the path between the predictor variable and the outcome in the model. Since the path between the predictor variable of age and the outcome of primary control remained significant, in this last analysis ($b = 2.78, t = 8.07, p < .0005$), the mediator of interdependence met the criteria of a partial mediator. The Sobel test (Kenny et al., 1998; Preacher & Leonardelli, 2001) confirmed that interdependence acted as a partial mediator in the model in this mediation analysis ($z = -2.08, p < .04$).

Figure 5: *Mediation Effect of Interdependence on the Relationship between Age and Primary Control*

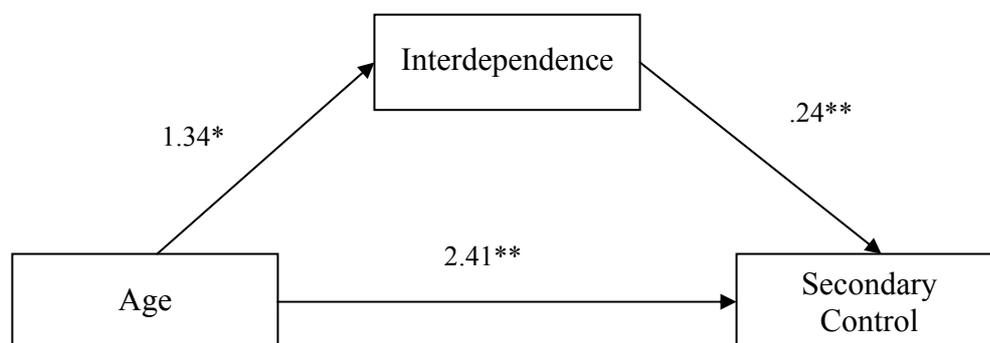


* $p < .025$

** $p < .0005$

In the second mediation analysis with secondary control as the outcome, I found that, fulfilling the first criterion, the independent variable (age) predicted the outcome of secondary control ($b = 2.73, t = 7.90, p < .0005$). Fulfilling the second criterion for a partial mediator, when I regressed the presumed mediator, interdependence, on the independent variable, age, I found that age significantly predicted interdependence ($b = 1.34, t = 2.37, p < .025$). Fulfilling the third criterion for a partial mediator, the influence of the presumed mediator on the outcome remained significant ($b = .24, t = 9.64, p < .0005$), even when including the path between the predictor variable and the outcome. Since the path between the predictor variable of age and the outcome of secondary control remained significant, in this last analysis ($b = 2.41, t = 7.53, p < .0005$), the mediator of interdependence met the criteria of a partial mediator. The Sobel test (Kenny et al., 1998; Preacher & Leonardelli, 2001) confirmed that interdependence acted as a partial mediator in the model ($z = 2.29, p < .025$).

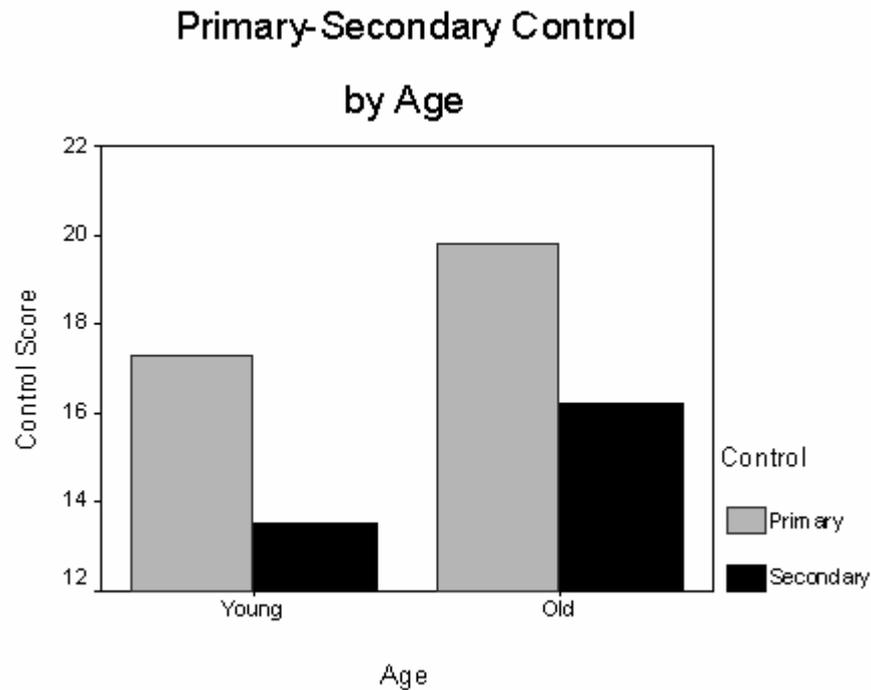
Figure 6: *Mediation Effect of Interdependence on the Relationship between Age and Secondary Control*



* $p < .025$

** $p < .0005$

The third hypothesis was confirmed as older participants scored higher than their younger counterparts on both primary control, $t(548) = -7.63, p < .0005$ and secondary control, $t(545) = -8.11, p < .0005$ (Figure 7) and no interaction of Age x Control type was found. These results confirm the findings of earlier studies reviewed herewith (Heeps, 2000; Wrosch et al., 2000). As reported by Wrosch et al. (2000), it is possible that the older adults invest more resources in primary control due to losses in efficiency, while increasing secondary control to support these efforts and protect the self from deleterious effects of aging and failure. Also as predicted, older participants were significantly more interdependent than the young, $F(1, 508) = 5.91, p < .015$. This result is hardly surprising: as discussed earlier, as one ages, reliance on others for assistance is quite inevitable. Yet, interdependence is not necessarily an end-stage of one having to rely on others to survive. In fact, this would be better termed as dependence rather than interdependence. Instead, from a lifespan developmental perspective, the aged become more interdependent not necessarily due to physical declines, but as a result of arriving at the stage of generativity (Erikson, 1974). I believe the link between increased interdependence and control is of paramount importance. To the best of my knowledge, none of the studies reviewed herewith considered that the boost in control striving may be attributed to interdependent self-concept rather than to chronological age alone.

Figure 7: *Control by Age Group*

The above results suggest a role for self-concept in control striving. On one hand, findings suggest that overall primary control is preferred to secondary control by individuals regardless of culture. On the other hand, the robust effect of interdependence on control selection cannot be ignored. Quite possibly, both Japanese and Americans seek to actively interact with their environments as suggested by Heckhausen and Schulz (1995), hence maintaining the primacy of primary control. However, due to their cultural system, Japanese go about it differently, adjusting rather than influencing. In actuality, the universal end goal may be identical, but the means of reaching it might be quite different.

Reverse mediation Age→Control →Interdependence was not performed as it does not seem relevant to the topic of this paper for several reasons. First, we know that age affects interdependence; and age affects control. In both cases, older age

leads to increases in interdependence and control striving. There would be little point in testing for the mediating role of control on the effect of age on interdependence as age is a biological fact unlike interdependence that is determined by culture. Second, the aim of this paper was to examine the role of interdependence on control striving, and given these results were demonstrable in two distinct cultures is the crux of this paper. The literature to date almost exclusively considered culture or country of origin as the determining factor in control striving without considering one's self-concept, which may not necessarily coincide with one's geographic location. Therefore, demonstrating that an interdependent self-concept plays a mediating role in this equation is of importance. Several other mediation and reverse mediation models are possible and should be examined in future research.

5.3 Discussion: Study 2

In this study I found that, as predicted, interdependence contributed to the mechanism by which culture and age influence control striving. This study confirmed differences in control striving that have been found in other studies (Heeps, 2000; Morling, 2000; Morling et al., 2002; Wrosch et al., 2000). Both Americans and Japanese had higher levels of primary control compared with secondary control respectively within their cultures, but Americans had higher levels of primary control than the Japanese, whereas the Japanese had higher levels of secondary control than the Americans. In addition, elderly participants had higher scores on both primary and secondary control and interdependence than the younger participants. The contribution of this study to existing literature is the identification

of a mediating variable, interdependence, that contributes to how both culture and age influence control striving.

In the mediation models, being older and being Japanese were related to higher levels of interdependence and higher levels of interdependence predicted higher levels of secondary control. These results were anticipated because it has been shown that Japanese and other Asians tend to be more interdependent than Americans and older individuals tend to be more interdependent than younger individuals, and as such, are more concerned with socially oriented values, social acceptance, and group belongingness (Church, 1987; Kim et al., 2003; Mishra, 1994; Triandis, 1995; Weisz et al., 1984a). Thus, it makes sense that those with a higher level of interdependence would be more likely to strive for secondary control which requires an internal adjustment to others. Thus, it follows that an individual's interdependent orientation is covalently linked with a stronger preference for secondary control.

In the mediation analysis, increased levels of primary and secondary control in old age were mediated by interdependence, which is also enhanced with age. However, interdependence positively predicted secondary control and negatively predicted primary control in old age. In other words, older age may lead to higher levels of both forms of control, but this relationship is mediated by interdependence; in high levels, interdependence leads to increases in secondary control, but conversely, in low levels, results in higher primary control. Since independence is the flip side of interdependence, another way of thinking about this is that the relationship between being older and having higher levels of primary control is mediated by independence. In addition, interdependence did not mediate the relationship between being Japanese and having lower levels of primary control or

being American and having higher levels of primary control. Thus, another quality that was not measured, such as having more of a Type A personality, might contribute to the mechanism by which culture influences levels of primary control.

The finding that the elderly participants scored higher than the younger participants on both primary and secondary control measures is encouraging as it implies individuals do not simply relegate primary control striving as they age, and studies have shown that a sense of control and agency may lead to positive affect and general well-being (Heeps, 2000; Wrosch et al., 2000). The increased secondary control observed in older participants may enable the elderly to maintain high primary control levels. As Heeps (2000) suggests, it may be that secondary control is not merely a compensatory tool, but rather a robust, functional tool of equal importance to primary control. Heeps (2000) found that even for individuals with high primary control, which according to the compensatory theory would not require high levels of secondary control, secondary control was still a significant predictor of subjective quality of life. For Wrosch et al. (2000), the former holds true only for young individuals, as for them, secondary control is interpreted as less adaptive.

The overall higher levels of both forms of control in the older sample suggest these individuals have the capacity to integrate these two types of control. Perhaps over the years, elders have had the opportunity to exert control, adjust their goals, lower their expectations, and engage in various attempts to regulate themselves and their environments. Conceivably by doing so, they have reached a certain level of “mastery,” enabling them to utilize control strategies efficiently. As reported by Heckhausen et al. (1989), older adults were found to hold more elaborate conceptions of development compared to younger adults. Similarly, Pennebaker and Stone (2003) investigated usage of cognitive words and found that older individuals

may have a greater understanding of their experiences and worlds. In other words, over the lifespan individuals gain wisdom, knowledge, and experiences, which may in turn facilitate optimal control utilization.

In future research it would be informative to follow individuals over time from youth to old age. In the current cross-sectional study, I can not tell whether the generational differences in control and interdependence are due to developmental changes or to cohort differences or both. In addition, in future research it would be interesting to study individuals who grew up in the United States but moved to Japan in adulthood and individuals who grew up in Japan and then moved to the United States in adulthood. In this way the malleability of both control and interdependence concepts could be observed.

To summarize, cultural and age differences in control strategies and interdependence emerged as expected. Although both Americans and Japanese preferred primary to secondary control, Americans were relatively more likely to utilize primary control, and Japanese secondary control. In addition, elderly participants obtained the highest scores on both control measures and interdependence. The contribution of this study to existing literature is the inclusion in the model of interdependence as a mediator of the relationship between culture and control, and age and control. Findings suggest that interdependence is a significant predictor of control, particularly secondary control, as well as a mediator of the relationship between age and control.

5.3.1 Control across the Lifespan

Current literature on age differences in control utilization offers inconsistent data. The main view suggests primary control remains constant throughout the

lifespan including in old age. Older adults adaptively refocus on specific areas of development that provide greater opportunity for primary control, while shifting away from obsolete goals that are less likely to be achieved. The awareness of lowered growth potential and reduced opportunities for primary control due to biological limitations leads to increases in secondary control to compensate for these losses (Heckhausen & Schulz, 1995; 1998; Schulz & Heckhausen, 1996). Another view developed more recently by the above authors suggests that primary control increases over the lifespan. Older adults, having realized losses are imposed by age, masterfully shift their focus to more appropriate and attainable goals in such domains as family, work, and community. In addition, they readjust striving from goal attainment to loss avoidance (Heeps, 2000; Wrosch et al., 2000). Therefore, older adults depend more heavily on secondary control, which increases concurrently. This study confirms the latter view. Overall, the elderly scored higher than the young on both control measures.

The implications of adaptive control utilization are substantive. Wrosch, Schulz, and Heckhausen (2004) report that health stressors, which inevitably affect the increasingly aging population in light of increased longevity, fall into one of two categories: controllable and uncontrollable. Controllable health problems are those that may be managed and controlled by means of active exertion of control, hence primary control; for instance, alleviating pain by taking medication, exercising, meditating, etc. In contrast, uncontrollable issues may not be actively controlled or resolved and the individual must therefore resort to secondary control strategies; for example, functional disabilities that restrict one's functioning, independence, and so on. In such cases, one cannot actively control the situation and must reassess overall health goals. Health-related control striving in the face of physical symptoms has

been shown to moderate depressive symptomatology (Wrosch, Scheier, Miller, Schulz, & Carver, 2003; Wrosch et al., 2002). In other words, one may reduce or even avoid psychological distress by adaptively striving for primary and secondary control when encountering physiological stress. This, of course, is of vital importance to the elderly population who, more than any other age group, suffer from circulatory diseases, cancers, chronic conditions such as arthritis, and more (National Center for Health Statistics, 2004). It is therefore suggested that older individuals could dampen the depressive effects of health problems by employing proper control strategies depending on the tractability of their illnesses (Wrosch et al., 2004). In previous chapters I discussed aging and control in terms of establishing and pursuing new goals (primary control) in contrast to maintaining current goals and minimizing losses (secondary control). It is possible to view these two types of goal striving in terms of goal engagement and disengagement, when dealing with health issues. When a condition is manageable, perhaps tractable, an adaptive strategy would be goal engagement. Naturally, the goal would be to alleviate and perhaps completely rid oneself of the condition. This approach would subsequently decrease depressive symptomatology as the individual actively engages in activity to attain the preset goal; conversely, an intractable condition must be viewed as an unattainable health goal and countered by goal disengagement, whereby the result is self-protection, which in turn may not only protect one from depression, but also free additional resources to be invested in other, more attainable goals (Wrosch et al., 2002; 2004).

Wrosch et al. (2002) concluded that proper lifespan development depends on optimal control strategies such that primary control is maximized. Previous studies (Heckhausen, Wrosch, & Fleeson, 2001; Wrosch et al., 2000; 2002; 2003) support

this notion and suggest this strategy results in increased self-efficacy, improved affect and mental health, and reduced depressive symptomatology. I attempted to explore, and unveil at least some of the underlying factors that establish one's control utilization preferences. That is, I believe it is not only important to establish the positive or negative effects of control strategies on individuals' health, but also understand their origin. In this case, culture, and more so, an interdependent self-concept, were found to be highly influential in determining one's control preferences.

It is worth mentioning here that appropriate control strategies are important in maintaining psychological well-being not only in the elderly, but in individuals across the lifespan. For example, Heckhausen et al. (2001) explored control preferences in relation to the childbearing "biological clock." They found that women who had a child, were pregnant, or had no child but were at an age where having a child is becoming "urgent," tended to use more primary control than women who were past childbearing age and had no children. Conversely, the latter group utilized more compensatory secondary control than women in all other groups; and more importantly, these older women were more likely to have higher depressive levels if they endorsed primary control. In this highly specific case, it appears that primary control may not be adaptive because these women, who have passed the biological deadline for childbearing, would probably not be able to attain the goal of having a child and should thus disengage from this goal and divert personal resources to the pursuit of other, more appropriate, attainable goals.

5.3.2 Summary

To date, the bulk of cross-cultural research investigating self-concept and control preferences focused exclusively on inter-cultural comparisons. That is,

researchers succeeded in pointing out major differences between individuals across cultures, yet failed to consider intra-cultural variation that may be just as pronounced. The findings reported herewith exemplify the multifaceted nature of individual self-concept and the role culture may play in its shaping.

Although I replicated previous research demonstrating Japanese are more interdependent than Americans, the current study also suggests that within each country individuals differ greatly. Thus, although as a whole, Japan is a collectivist culture, some individuals within it may hold quite an independent self-concept. The same applies to the USA, an individualist culture, which is also comprised of interdependent individuals. These marked individual differences, in turn, influence control preferences. The notion of control may be discussed in three parts: (1) primacy; (2) cross-culturally; and (3) intra-culturally.

In terms of primacy, consistent with Heckhausen and Schulz (1995) and Heckhausen (1997), the current findings show that regardless of culture, individuals prefer primary to secondary control; having said that, there are some provisos to this statement. First, the predilection for primary control is consistent within cultures, but still differs cross-culturally. That is, although both Americans and Japanese preferred primary to secondary control within their respective cultures, they differed significantly in their control endorsement so that Japanese were significantly higher on secondary control and Americans on primary control measures. Second, the age-related finding that the elderly possess increased striving for both forms of control is in line with the most recent works on lifespan development theory. The original evolutionary perspective put forth by Heckhausen and Schulz (1993) suggests primary control remains constant across the lifespan. More recently, investigations led to some revisions in the theory such that primary control is now believed to

increase as one ages (Heeps, 2000; Wrosch et al., 2000). Wrosch et al. (2000) concluded that older adults need to compensate for age related declines in control potential by investing even more in primary control striving, which may require more resources and effort than before.

Overall, the finding of increased secondary control in later stages of the lifespan is also consistent with the literature; however, the reasoning behind it may still require further investigation. Secondary control plays a supportive role to primary control, which is affected by aging limitations (Heckhausen, 1993; 1997). More recent accounts suggest secondary control is an adaptive tool in itself, while incompatible opportunity structures give rise to compensatory secondary control striving (Wrosch et al., 2000). Secondary control then becomes a self-protective mechanism in the face of reduction in developmental goals. That is, protecting self-esteem gains higher priority than attaining a new goal or persistence (primary control). Thus, it is not that primary control is reduced with age; rather it becomes less adaptive as it is less effective for goal attainment. To preserve well-being, which is a crucial goal in older age, one must readjust goals and the means by which these goals are accomplished utilizing control strategies. Moreover, it appears that individuals gain mastery through continuous application of these strategies over the lifespan. Whatever the reason, secondary control is highly dependent on an interdependent self-concept, which appears to increase concomitantly with age. Thus, chronological aging, which in turn results in increases in interdependence and control striving, may operate quite similarly across cultures.

In terms of cross-cultural differences in control striving, the USA and Japan are different but also share some interesting commonalities. Japan is a collectivist culture emphasizing group harmony, giving way, and the

interdependence between individuals. Conversely, the USA is an individualist culture, in which individuals learn at an early age to individuate, pursue personal goals, and become independent. These contrasting views are deeply ingrained in history, religion, philosophy, literature, and other spheres of influence. It is therefore not surprising to find that despite the overriding robustness of evolutionary determinants of control utilization; namely, the primacy of primary control, individuals tend to adjust their striving for control according to cultural sanctions. Specifically, although Japanese still prefer primary control over secondary control, their absolute primary control level is far lower than that of their American counterparts. The opposite is true for Americans who not only preserve the primacy of primary control, but in fact raise it to a new level of supremacy. It is perhaps theoretically pragmatic to suggest a distinction between primary control primacy vs. supremacy.

The intra-cultural variation in control striving was examined by re-stratifying the data according to interdependent self-concept. Results were quite revealing. At the very least, this study demonstrated that we cannot make the generalization that all Japanese highly endorse secondary control while all Americans pursue primary control. As reported above, I found that interdependent Americans scored similarly to Japanese on primary control measures. I stress that this result is not relative, but uses absolute terms, and may be viewed in either direction. First, Americans who tend to be interdependent, resemble Japanese individuals in primary control striving. That is, these individuals relegate their culturally-appropriate control striving perhaps as a means to adjust and avoid exerting control over their environments. Second, Japanese can strive for as much primary control as Americans, provided those American individuals hold an

interdependent self-concept, which is theoretically in-line with the Japanese. The commonalities between these individuals is informative. It should be noted that both independent and interdependent Japanese did not differ on primary control measures among themselves or in comparison to the interdependent Americans. This is perhaps due in part to Japanese culturally-accepted practices, which tend to stress adjusting and may impose sanctions on those behaving inappropriately. In this case, even the independent Japanese, who we would expected to favor primary control more than their interdependent Japanese counterparts, did not exceed cultural guidelines and curbed their primary control striving. Not surprisingly, of all groups, independent Americans scored highest on this measure.

In terms of secondary control, I found significant intra-cultural variation. Interdependent Americans preferred secondary control more than independent Americans; and similarly, interdependent Japanese scored higher than independent Japanese. As expected, overall, interdependent Japanese obtained the highest secondary control score. This suggests that certain individuals may be inclined to behave in a manner that is not necessarily prescribed by their respective cultures. In actuality, individuals may be aligned closer to individuals from other cultures than their own, at least insofar as control mechanisms are concerned. That is, although Japanese and American cultures are quite dissimilar, individuals in both cultures favored secondary control provided they held an interdependent self-concept. This finding is somewhat encouraging as it suggests individuals may evolve in a manner that is incongruent with socially imposed guidelines. Indeed, tying this result to Study 1, in which socially-transmitted stereotypes produced a detrimental effect on the elderly participants; perhaps the findings of Study 2 suggest that one may resist cultural sanctions, provided a mechanism such as self-concept is in place. That is,

we have seen the ability of an interdependent self-concept to circumvent the socially expected endorsement of primary control. In such a way, perhaps a similar mechanism may be able to maintain elderly will-to-live or willingness to pursue medical intervention in face of adversity perpetuated by culture.

5.4 Conclusions

The results reported here support the assumption that the Japanese and elderly are more interdependent than Americans and the young. However, I found significant variation within cultures and between old and young participants. Moreover, control preferences were highly influenced by an interdependent self-concept in both countries. In this respect, within-culture variation was once again significant. In fact, I was able to show that on measures of control, when factoring self-concept into the equation, Americans and Japanese scored equally on control measures, given their self-concept was congruent with the control strategy employed (e.g., interdependent with secondary control). This finding is important because existing literature fails to consider and explain intra-cultural differences and focuses primarily on inter-cultural variations. As for aging, a number of effects emerged. First, consistent with the literature, the elderly tended to hold a more interdependent self-concept in both countries. Second, in support of some researchers (e.g., Wrosch et al., 2000), I found that age did not degrade individuals' primary control striving. Third, elderly in both countries scored higher than younger participants on both measures of control. Thus, control striving is ever-increasing throughout the lifespan and across cultures.

In conclusion, my results suggest that we have much in common with individuals in other cultures, perhaps more than we had imagined. However, there

are still some fundamental characteristics, unique to each culture. The same applies to aging, where there is more than meets the eye, so to speak. Although some elderly individuals may appear to be striving mainly for secondary control (characterized by giving way, fitting in, etc.), their overall control mechanisms are not impaired with age and they still strive for primary control, even more so than younger individuals.

In this study, several measures were used to quantify self-concept and control preferences. All of these were explored in the context of age and culture. Age is a biological certainty, while society is psychologically plastic. These factors are all dynamic, complex, and intricately intertwined. Social researchers should be encouraged to take a close look at culture's role in shaping individuals and realize this is a powerful role capable of altering developmental trajectories in a myriad of ways; for even a seemingly fixed negative effect, such as that of biological declines, can be mitigated by social-cultural factors (positive stereotypes, opportunities to exercise control, etc.). As studies have shown the profound effects adaptive control strategies produce in physical and mental well-being (Wrosch et al., 2002; 2003; 2004), it would be beneficial for further research to be conducted in this area, particularly cross-culturally, as there are significant difference between elderly across cultures.

Given the results reported here, I support Azuma (1984) and colleagues (Gould, 1999), who claim that current methods and measures used in cross-cultural research could benefit from better examination of within-culture variations. My findings suggest that to predict individuals' pattern of control, it would be useful to know their age, their cultural background, and their level of interdependence. For within each country, control patterns seem to differ by levels of interdependence and

age. Future studies of control should aim at measuring not only cross-cultural differences, but the intra-cultural diversity as well.

CHAPTER 6

CONCLUDING OVERVIEW

6.1 Summary and Conclusions

The aim of this thesis was to explore the effects of stereotypes and self-concept on social cognition in individuals across the lifespan and cultures. More specifically, the studies examined how age, culture, and cognition interact. That is, how stereotypes which are transmitted by society affect decisions about life/death and risk-taking and how individuals in distinct cultures regulate their behavior and cognition utilizing different control strategies in accordance to not only culturally imposed rules, but self-concept.

Research has shown significant effects of aging stereotypes in such areas as memory, self-efficacy, and even blood pressure (Levy 1996; Levy et al., 2000). Nowadays, as the proportion of elderly is continuously growing in our society, it is crucial to consider the role stereotypes play in these individuals' lives as these stereotypes and views on aging give rise to ageism (negative attitudes/behaviors toward the elderly). There are innumerable reasons for the establishment and perpetuation of these stereotypes, a discussion that is beyond the scope of this thesis. However, suffice to say that the young make use of ageism to protect and distance themselves from the negative associations between old age and frailty, helplessness, and loss of abilities and physical attractiveness (Greenberg et al., 2002). By creating an ingroup identification (us, the young) versus the outgroup (them, the old), individuals are able to boost self-esteem and calm their fears, as they highlight and exaggerate the differences between the groups (Greenberg et al., 2002). However, aging stereotypes are not only held by the young. In fact, the elderly who were once

young and members of the outgroup now find themselves in the ingroup, making the stereotypes self-relevant. It is perhaps for this reason that effects of aging stereotypes were only observed in the elderly, but not the young. Although group identification has been found to boost elderly self-esteem and life satisfaction in the face of age discrimination, this may also depend on the type of attitudes or stereotypes on aging (Garstka, Schmitt, Branscombe, & Hummert, 2004). This mechanism for supporting self-esteem seems to work for old adults as their status is “low” permanently, in contrast to the young, who may be “low” only temporarily. That is, considering young individuals also face age discrimination, but will eventually reach middle adulthood and will no longer be subjected to discrimination. The boost in perceived well-being described by Garstka et al. (2004), which seems to be an extension of secondary control strategies, reflects developmental gains in response to age-related challenges. This strategy allows adults to compensate for losses and reduced opportunities for gains. Garstka et al. (2004) suggest that the elderly are probably better adapted to developing strategies for coping with age discrimination. However, this does not mean the young do not utilize such mechanisms as well, only that the elderly are probably better at it. As Garstka et al. (2004) state: “our results suggest that the link between greater age group identification and well-being exists for both young and older adults” (p. 331).

By including both young and older participants in my studies a differential analysis of the effects of stereotypes was facilitated. In addition, two separate tasks were performed, will-to-live, and risk-taking, so as to better assess the salience and effectiveness of the stereotypes on participants. As previous research suggests, the elderly were affected by the aging stereotypes and attenuated their levels of will-to-live, depending on the nature of the stereotypes with which they were primed

(positive/negative). The young, in contrast, remained unaffected by the primed stereotypes. In the risk-taking task, no stereotype effect was observed on either the young or older participants. Furthermore, no differences were found in terms of the quality of decisions made by the young and older participants. This latter finding is in line with previous studies investigating other types of decision-making tasks such as driving route selection and car purchasing, finding no significant age difference (Johnson, 1990; Walker et al., 1997). This finding suggests that across the lifespan, the mechanisms involved in assessing risks and making decisions for this type of tasks are not eroded and individuals maintain these abilities in a somewhat stable fashion. However, although the quality of the decisions made did not decrease with age, a slight reduction in response time was observed between the older and young participants (Figure 3). Perhaps the elderly required a bit more time than the young when making assessments, considering alternate outcomes of their decisions, and so on. However, other factors might have contributed to the slower performance. For example, their vision may have been slightly impaired and this made it more difficult to read the computer screen. Nevertheless, the quality and speed of decisions made were not affected by the aging stereotypes. In conclusion, it seems the robustness of aging stereotypes is dependent upon their nature (positive/negative), target group (old/young), and the task at hand. These stereotypes operate in our society and seem to selectively affect the elderly, at least in making health-related decisions.

The results suggest that aging stereotypes can alter certain decision-making outcomes in elderly individuals. In contrast, the young seem impervious to these stereotypes, probably due to their inability to identify with the elderly, who are members of the outgroup. These stereotypes, based on the premise that eventually across the lifespan, become self-stereotypes, will affect these seemingly

unsusceptible individuals in the long run. This increases the importance of dealing with these stereotypes as early in life as possible so as to thwart their establishment at earlier stages of life. Discouraging negative aging stereotypes may not only benefit the elderly currently, but also the young who would profit in the long run as they may avert the transformation of these stereotypes into self-stereotypes. Another possibility is to encourage and enhance positive aging stereotypes, as in my study, these have produced an actual increase in will-to-live. More significantly, the elderly were observed to have equal levels of will-to-live to the young, provided they were primed with positive stereotypes of aging. In short, positive as well as negative aging stereotypes have robust effects on the elderly in terms of will-to-live.

After completing Study 1, I was interested in investigating other ways by which society is able to influence individuals' attitudes and behaviors. I proceeded to examine other important, yet often misunderstood components of social cognition, namely self-concept and control. More specifically, in this thesis I focused on independent and interdependent self-concepts and their interactions with primary and secondary control. Individuals are usually categorized primarily as holding an interdependent or independent self-concept and as utilizing primary or secondary control. Most research to date concludes that both dichotomies are determined by culture. That is, Asians are interdependent and secondary control users, while Americans are independent and primary control users. In this thesis, I explored the interactions and effects of self-concept on control strategies, thus changing the dichotomous view on these constructs to a more comprehensive and continuous model. In addition to the integral part society plays in regulating one's control strategies and self-concept, the effects of age were of utmost importance to my study because control strategies are said to be highly dependent not only on culture, but

biological determinants and follows a specific, preset trajectory throughout the lifespan.

In simple terms, two main views on control exist. The first stipulates that primary control is intrinsically a natural, more adaptive, evolutionary-based form of control and as such is preferred by all individuals universally (e.g., Heckhausen & Schulz, 1995). Furthermore, with progressive aging, physical and cognitive declines make it difficult for the individual to continue pursuing the same goals using primary control. Therefore, the individual must rely more heavily on secondary control. In other words, one must accommodate and accept rather than continue to make attempts to influence the environment and others. The second view questions the primacy and universality of primary control (e.g., Gould, 1999). This theory argues that a Western bias has overemphasized the importance of primary control as the gold standard in adaptive development. As such, variance exists between cultures and secondary control may be just as important as primary control. Furthermore, in terms of age effects, primary control does not decline with age, although it requires corresponding increases in secondary control (e.g., Heeps, 2000).

My second study in this thesis is an attempt to reconcile these seemingly divergent views by measuring not only the effects of country of origin or age on control, as previous studies have done, but the effect of self-concept. Self-concept, as a complex construct, is derived not only by culture or country of origin, but by experiences, opinions, and many more factors. As a whole, this self-concept, which defines to the individual who she or he is, in turn mediates the direct effects of country and age on control. The results of this study reconcile both views mentioned above. First, the primacy and universality of primary control have been observed. That is, individuals within two distinct cultures preferred primary over secondary

control (consistent with the former view). However, a between-culture analysis revealed that Americans were higher in primary control while Japanese were higher in secondary control (consistent with the latter view). Second, secondary control increased with age (consistent with both views). However, primary control did not remain stable, but rather increased (consistent with the latter view). Third, a mediating effect of self-concept on secondary control was observed. That is, interdependent self was a powerful mediator between country of origin and secondary control. This became clearer after re-stratification of participants according to interdependent self-concept. Findings suggest that independent of country, one's self-concept can influence control preferences and under these conditions some Americans and Japanese may show signs of similar control strategies. Again, the demarcation of these individuals is no longer dichotomous i.e., Asian or Westerner but rather interdependent Asians or interdependent Westerners. This reveals great variation not only between cultures, but within them. With that in mind, we must re-consider the methods we use to investigate these and other constructs cross-culturally. This is because not all Asians are interdependent; not all Asians prefer secondary over primary control; not all Westerners are independent; and not all Westerners prefer primary over secondary control. In this respect, when we as researchers screen potential participants for these studies, it is necessary to employ methods of analysis that would facilitate accurate evaluation and formation of experimental and control groups. In other words, simply assuming an individual is a suitable participant based on the fact he or she is Asian or White simply will not do.

It is somewhat more difficult to interpret the observed age effects. The first view (e.g., Heckhausen & Schulz, 1995) makes intuitive sense. That is, with age,

biological declines impose limitations on the individual who must then adjust and resort to different modes of control. For example, lowering expectations and accommodating are two possible forms of secondary control one might use when he or she is less able to exert primary control over others. In addition, it is more difficult for the aging individual to change the environment to fit him or her as this may require physical strength (primary control). He or she will then try to fit the environment by adjusting oneself. The results of my study expand on this view. Although I have found secondary control to increase with age, primary control displayed a similar trend. The elderly in this sample had higher primary and secondary control levels when compared to the young.

As suggested by Heckhausen and Schulz (1995), the increased level of secondary control can possibly be interpreted as compensation for biological decline and individuals' attempt to protect and boost self-esteem in the face of failure and inability to exercise primary control. Studies (e.g., Heckhausen & Schulz, 1998; Wrosch et al., 2000) including this thesis found that humans primarily strive for primary control. However, it is sometimes impossible or not beneficial for the individual to utilize this form of control. For example, one may suffer from a serious illness or social etiquette may restrict opportunities for exercising primary control. In such cases, secondary control acts to minimize the deleterious psychological impact on the individual as a result of foregoing primary control and affords him or her tools for dealing with the situation. That is, secondary control compensates for primary control failure. This is certainly the case in old age when secondary control strategies allow individuals to reset their goals and attenuate losses in cognitive and physical function. As mentioned, Heckhausen and Schulz (1995) suggest that secondary control acts as a backup system that is utilized when primary control is

lost or threatened. By the same token, individuals may utilize secondary control to protect themselves from the negative effects of aging stereotypes such as those described in Study 1 of this thesis. It has been suggested that secondary control is also responsible for “quality assurance” because it enables the individual to optimize primary control striving by maintaining good levels of cognitive skills such as attention and concentration (Heeps, 2000). It does so by means of reducing feelings of discontent and failure, and as such minimizes distractions. It makes way for the individual to re-focus on the task at hand, namely primary control striving. At any rate, increases in secondary control bolster primary control.

Based on this approach suggesting that higher secondary control levels maintain cognitive skills, it is quite possible that the results of the risk-taking task in study one may be due to the higher levels of secondary control. That is, secondary control enabled the elderly to focus on the task at hand and perform well, albeit at lower speed. The inevitable slowing down of certain processes and mechanisms force the aged individual to recruit help; this help may come in many forms. For example, secondary control may act to enhance and support primary control. In addition, increased interdependence in old age (observed in my study) may attenuate and balance control strategies while the individual becomes more heavily reliant on cultural resources.

This increased reliance on cultural assets (and other individuals within this culture) however is a double-edged sword. Although we can see the benefits of interdependence and control in old age, it is important to refer back to the first part of study one of this thesis. Culture and its assets unfortunately not only avail the individual with benefits such as healthcare, welfare, and so on, but also transmits negative aging stereotypes that give rise to ageism and also influence elderly will-to-

live. In this way, culture may actually do a great disservice to the individual who is not only the target of ageism exercised by others toward him or her, but also makes important life and death decisions tainted by cultural stereotypes.

Since the need for cultural resources increases with age, it is important to acknowledge the significant effects of aging stereotypes. That is, although elderly individuals seem to adapt quite successfully to the challenges of old age by increasing secondary control and maintaining cognitive function, they are highly susceptible to societal aging stereotypes, which can alter their cognitive decision-making processes when the task at hand is highly salient. In this case, it is not imprudent to assume that questions of medical treatment and life and death are of the utmost importance for the elderly individuals. When aging stereotypes are activated, they are so powerful that they can bypass secondary control, which may no longer protect the individual and consequently, cognition is influenced.

In conclusion, the results in this thesis suggest a vital role for culture as a source of aging stereotypes and a force shaping individual self-concept, which has been shown to significantly affect individual decisions, cognition, and behavior across the lifespan.

DEFINITIONS

1. Stereotype: A fixed or conventional notion or conception, as of a person, group, idea, etc.
2. Subliminal Priming: The activation of concepts or shapes without the individual's awareness.
3. Implicit stereotyping: The activation of stereotypes without one's awareness (Banaji & Greenwald, 1994; Levy, 1996).
4. Implicit self-stereotyping: Unconscious activation of stereotypes influencing one's self-perception (Levy, 1996).
5. Advance Directive (AD): A document describing individual wishes and instructions to be followed should the individual become mentally or physically unable to choose between options, such as accepting or refusing medical treatment.
6. Ageism: The differential association of negative traits with the aged (Perdue & Gurtman, 1990).
7. Primary Control: attempts at changing the external environment to fit one's needs (Heckhausen & Schulz, 1995).
8. Secondary Control: attempts to adjust one's cognitive processes to fit the environment, and serves to minimize losses in primary control (Heckhausen & Schulz, 1995).
9. Self-concept: Self construals or definitions shaped by how individuals understand the world around them and determines social behavior (Triandis, 1995).

Appendix A: Study 1 Questionnaire (Will-to-Live)

Year/Place of birth:

In what country did you grow up (spend the majority of your childhood years)?

Gender: Male Female

Are you right or left handed? Right handed Left handed

Have you ever used a computer before? Yes No

Are you able to read a computer screen without glasses? Yes No

If not, are you presently wearing corrective lenses? Yes No

How many years of formal education have you completed (12=completed high school)___

What is (was) your primary occupation? _____

What is (was) your mother's primary occupation? _____

What is (was) your father's primary occupation? _____

How would you rate your overall health?

1	2	3	4	5	6	7
Terrible	Very poor	Poor	Average	Good	Very good	Excellent

What is your religion? _____

How religious are you?

1	2	3	4	5	6	7
Not at all						Extremely

When you think of yourself, what are the first five words or phrases that come to mind?

1. _____

2. _____

3. _____

4. _____

5. _____

When you think of an old person, what are the first five words or phrases that come to mind?

1. _____

2. _____

3. _____

4. _____

5. _____

The following are hypothetical medical choices. Please respond to the best of your ability. There are no right or wrong answers.

1. You have caught a rare disease. In the opinion of your doctor and two consultants, if you leave the disease untreated, you will die within a month. Only one treatment for your disease exists. Although the medication does not have any clinical side effects, it is very expensive. If you take the medication, you have a 75% chance of total recovery and 25% chance of dying within the month. If you start taking the medication it will cost almost all of your savings and a considerable portion of your family's savings. Despite the costs, you will:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

2. You have caught a rare disease. In the opinion of your doctor and two consultants, if you leave the disease untreated, you will die within a month. Only one treatment for your disease exists. Although the medication does not have any clinical side effects, it is very expensive. If you take the medication, you have a 50% chance of total recovery and 50% chance of dying within the month. If you start taking the medication it will cost almost all of your savings and a considerable portion of your family's savings. Despite the costs, you will:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

3. You have caught a rare disease. In the opinion of your doctor and two consultants, if you leave the disease untreated, you will die within a month. Only one treatment for your disease exists. Although the medication does not have any clinical side effects, it is very expensive. If you take the medication, you have a 25% chance of total recovery and 75% chance of dying within the month. If you start taking the medication it will cost almost all of your savings and a considerable portion of your family's savings. Despite the costs, you will:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

4. You have caught a rare disease. In the opinion of your doctor and two consultants, if you leave the disease untreated you will die within a month. Only one treatment for your disease exists, a very labor intensive process that would require that your family take care of you 12 hours a day. If you take the treatment you have a 75% chance of total recovery and 25% chance of dying within the month. You would:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

5. You have caught a rare disease. In the opinion of your doctor and two consultants, if you leave the disease untreated you will die within a month. Only one treatment for your disease exists, a very labor intensive process that would require that your family take care of you 12 hours a day. If you take the treatment you have a 50% chance of total recovery and 50% chance of dying within the month. You would:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

6. You have caught a rare disease. In the opinion of your doctor and two consultants, if you leave the disease untreated you will die within a month. Only one treatment for your disease exists, a very labor intensive process that would require that your family take care of you 12 hours a day. If you take the treatment you have a 25% chance of total recovery and 75% chance of dying within the month. You would:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

7. In making a decision about refusing or accepting treatment, how important is your age at the time of your illness?

Not important at all 1 2 3 4 5 6 7 Most important

8. Would you trust your spouse or children to make the decision of refusing/accepting treatment for you, in case you are unable to communicate your wishes?

Would not trust at all 1 2 3 4 5 6 7 Completely trust

9. In the opinion of your physician and two consultants, you have an incurable chronic disease that involves mental disability or physical suffering and ultimately causes death. In addition, you have an immediate life threatening disease that is reversible. However, you are unable temporarily to make a decision. You wish:

Refuse treatment 1 2 3 4 5 6 7 Accept
treatment

Did you have any idea of what this study was about?

If yes, what?

Could you see anything flashing on the screen?

If so, what?

Appendix B: Study 2 Questionnaire

Date: _____

Place: _____

Code: _____

Questionnaire

Thank you for your participation.

DO NOT PUT YOUR NAME ON THIS BOOKLET!

The questions in this survey ask you for your personal feelings and opinions on a variety of topics. The results of this study could be used to better understand how different cultures operate. Take your time reading and answering the questions. Check off the first natural answer as it comes to you, and be honest about what it means for **you**.

Please remember to answer **all questions even if some do not seem to apply to you**.

ALL RESPONSES WILL BE KEPT CONFIDENTIAL!

Please indicate how well the following statements describe you. Remember that there are no right or wrong answers.

1. When things don't go according to my plan, my motto is, "Where there's a will, there's a way."

1—————2—————3—————4—————5
not at all a lot

2. When faced with a bad situation, I do what I can do to change it for the better.

1—————2—————3—————4—————5
not at all a lot

3. Even when I feel I have too much to do, I find a way to get it all done.

1—————2—————3—————4—————5
not at all a lot

4. When I encounter problems, I don't give up until I solve them.

1—————2—————3—————4—————5
not at all a lot

5. I rarely give up on something I am doing, even when things get tough.

1—————2—————3—————4—————5
not at all a lot

6. When my expectations are not being met, I lower my expectations.

1—————2—————3—————4—————5
not at all a lot

7. To avoid disappointments, I don't set my goals too high.

1—————2—————3—————4—————5
not at all a lot

8. I feel relieved when I let go of some of my responsibilities.

1—————2—————3—————4—————5
not at all a lot

9. I often remind myself that I can't do everything.

1—————2—————3—————4—————5
not at all a lot

10. When I can't get what I want, I assume my goals must be unrealistic.

1—————2—————3—————4—————5
not at all a lot

Please read the following statements. Each item consists of statement A and statement B. By circling a number on the scale from 1 to 4, please choose which best describes you, or with which statement you best identify or agree with. There are no right or wrong answers.

1. A: I agree with the opinions of the others.
B: I express my own opinion.

1—————2—————3—————4
B is accurate more toward B more toward A A is accurate

2. A: I show my individuality.
B: I cooperate with the others.

1—————2—————3—————4
B is accurate more toward B more toward A A is accurate

3. A: In order to meet the expectations of the others, I usually conform with their ways of thinking.
B: Despite receiving criticism from the others, I rarely change my way of thinking.

1—————2—————3—————4
B is accurate more toward B more toward A A is accurate

4. A: I usually express my feelings honestly.
B: My manner usually conforms with that of the others.

1—————2—————3—————4
B is accurate more toward B more toward A A is accurate

5. A: When I have to do something, I usually think first about how the others expect me to act.
B: When I have to do something, I usually think first about how I can make the best use of my abilities.

1—————2—————3—————4
B is accurate more toward B more toward A A is accurate

6. A: I usually do what I want to do despite opposition from the others.
B: I usually give up doing what I want to do, if the others do not want to do it.

1—————2—————3—————4
B is accurate more toward B more toward A A is accurate

7. A: I usually accomplish my goals despite opposition from the others.
 B: I usually give up trying to accomplish my goals, if I meet with opposition from the others.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

8. A: I express my individuality rather than behaving the way the others want me to behave.
 B: I behave the way the others want me to behave.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

9. A: I behave the way the others want me to behave rather than making the most of my abilities.
 B: I make the most of my abilities.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

10. A: When I have to do something, I usually think first about how to please the others.
 B: When I have to do something, I usually think first about how I can make the best of my abilities.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

11. A: I usually avoid conflicts of interest.
 B: I usually make my interests and desires clear to the others.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

12. A: In expressing my opinion, I usually consider how the others think.
 B: I usually have confidence in my opinion, and therefore, I express them frankly.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

13. A: In acting, I usually consider the values of the others.
 B: I usually act according to my own values.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

14. A: Whenever I do something, I usually make concessions to the others.

B: Whenever I do something, I rarely make concessions to the others.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

15. A: I usually make a decision based on my own judgment, and I take responsibility for the decision.

B: I usually make a decision after consulting the others.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

16. A: At a meeting with the others, I usually speak without reservation.

B: At a meeting with the others, I am usually reserved.

1—————2—————3—————4
 B is accurate more toward B more toward A A is accurate

Please check to see if you left any responses blank in the questionnaire. If at all possible, please try to fill in any blank answers with your best guess we would really appreciate it.

THANK YOU FOR YOUR PARTICIPATION. PLEASE RETURN THIS PACKET TO THE RESEARCHER.

Appendix C: Sample Advance Directive

I, _____, write this document as a directive regarding my medical care.

In the following sections, put the initials of your name in the blank spaces by the choices you want.

PART 1. My Durable Power of Attorney for Health Care

_____ **I appoint this person to make decisions about my medical care if there ever comes a time when I cannot make those decisions myself. I want the person I have appointed, my doctors, my family and others to be guided by the decisions I have made in the parts of the form that follow.**

Name: _____

Home
telephone: _____

Work
telephone: _____

Address: _____

If the person above cannot or will not make decisions for me, I appoint this person:

Name: _____
 Home
 telephone: _____
 Work
 telephone: _____
 Address: _____

_____ I have not appointed anyone to make health care decisions for me in this or any other document.

PART 2. My Living Will

These are my wishes for my future medical care if there ever comes a time when I can't make these decisions for myself.

A. These are my wishes if I have a terminal condition.

Life-sustaining treatments

_____ I do not want life-sustaining treatment (including CPR) started. If life-sustaining treatments are started, I want them stopped.

_____ I want the life-sustaining treatments that my doctors think are best for me.

_____ Other wishes

Artificial nutrition and hydration

_____ I do not want artificial nutrition and hydration started if they would be the main treatments keeping me alive. If artificial nutrition and hydration are started, I want them stopped.

_____ I want artificial nutrition and hydration even if they are the main treatments keeping me alive.

_____ Other wishes

Comfort care

_____ I want to be kept as comfortable and free of pain as possible, even if such care prolongs my dying or shortens my life.

_____ Other wishes

B. These are my wishes if I am ever in a persistent vegetative state.

Life-sustaining treatments

_____ I do not want life-sustaining treatment (including CPR) started. If life-sustaining treatments are started, I want them stopped.

_____ I want the life-sustaining treatments that my doctors think are best for me.

_____ Other wishes

Artificial nutrition and hydration

_____ I do not want artificial nutrition and hydration started if they would be the main treatments keeping me alive. If artificial nutrition and hydration are started, I want them stopped.

_____ I want artificial nutrition and hydration even if they are the main treatments keeping me alive.

_____ Other wishes

Comfort care

_____ I want to be kept as comfortable and free of pain as possible, even if such care prolongs my dying or shortens my life.

_____ Other wishes

C. Other directions

You have the right to be involved in all decisions about your medical care, even those not dealing with terminal conditions or persistent vegetative states. If you have wishes not covered in other parts of this document, please indicate them below.

PART 3. Other Wishes

A. Organ donation

_____ I do not wish to donate any of my organs or tissues.

_____ I want to donate all of my organs and tissues.

_____ I only want to donate these organs and tissues:

_____ Other wishes

B. Autopsy

_____ I do not want an autopsy.

_____ I agree to an autopsy if my doctors wish it.

_____ Other wishes

C. Other statements about your medical care

If you wish to say more about any of the choices you have made or if you have any other statements to make about your medical care, you may do so on a separate piece of paper. If you do so, put here the number of pages you are adding: _____

PART 4. Signatures

You and two witnesses must sign this document before it will be legal.

A. Your signature

By my signature below, I show that I understand the purpose and the effect of this document.

Signature: _____ Date: _____

Address: _____

B. Your witnesses' signatures

I believe the person who has signed this advance directive to be of sound mind, that he/she signed or acknowledged this advance directive in my presence and that he/she appears not to be acting under pressure, duress, fraud or undue influence. I am not related to the person making this advance directive by blood, marriage or adoption nor, to the best of my knowledge, am I named in his/her will. I am not the person appointed in this advance directive. I am not a health care provider or an employee of a health care provider who is now, or has been in the past, responsible for the care of the person making this advance directive.

Witness #1

Signature: _____ Date: _____

Address: _____

Witness #2

Signature: _____ Date: _____

Address: _____

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