

GETTING WISDOM: AGING, CULTURE AND PERSPECTIVE

by

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DEDICATION

This dissertation is dedicated to my mother, Lubov Grossmann.

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ABSTRACT

The main scientific goal of this dissertation is to understand the processes that enable individuals to think and act “wisely.” Past theories suggest that (a) age-based life experience; (b) culture, and (c) psychological distance are among key factors in wisdom acquisition across the lifespan. Combining experimental method with an individual difference approach and situating the results in a larger cultural context, the present dissertation systematically addresses the question of wisdom-related processes across adulthood.

After reviewing previous wisdom scholarship, I propose that wisdom involves the following set of pragmatic strategies to address social dilemmas: (i) consideration of perspectives involved in the conflict; (ii) recognition of the likelihood of change; (iii) recognizing multiple ways how the conflict might unfold; (iv) recognition of uncertainty and the limits of knowledge; (v) search for a compromise; and (vi) prediction of conflict resolution. Chapter II validates this characterization of wisdom by a group of professional counselors and wisdom researchers. Moreover, two studies address the question of age differences in wisdom, using a representative community sample. Older Americans made more use of proposed wise reasoning schemes when talking about social conflicts than young and middle-aged Americans. Chapter III examines consequences of wise reasoning and showed that it is positively related to individual well-being and longevity.

Chapter IV situates wisdom-related processes in a larger socio-cultural context by examining aging and cultural differences in wise reasoning simultaneously among random samples of Japanese vs. Americans. Findings indicate that younger Japanese reason more wisely than young Americans, yet yet older Americans are as wise as older Japanese. These results, suggest that aging plays a larger role in the attainment of wisdom in Western than in East Asian cultures. Chapter V concludes by reporting two experiments demonstrating that a distanced perspective on the self enhances wise reasoning, attitudes, and behavior. Together, these streams of research begin to illuminate a psychological construct of wisdom by highlighting developmental trends, cultural factors and individual processes that underlie it, and lay the foundation for developing interventions and designing curricula to increase wisdom in daily life.

CHAPTER I

Introduction

With the increasing complexity of social life and resulting uncertainties in the new millennium require more wisdom is needed more than ever before. Some scholars go as far as to propose that the chief purpose of social sciences should be to promote practical wisdom (Flyvbjerg, 2001; Maxwell, 1984). Wisdom was a central topic in ancient philosophy. However, it has not been a topic of mainstream scientific inquiry. Empirical research on wisdom has been very limited, in particular in social psychology. Yet social psychology, with its focus on reasoning and behavior in a social context, provides an ideal ground for empirical work on this topic. This dissertation makes an initial step towards filling this gap by focusing on wisdom-related processes.

Lay beliefs and philosophical theories suggest that age-related experiences, culture, and distance from the self play key roles in wisdom acquisition and that wisdom leads to well-being across the lifespan. Integrating insights from research on cultural psychology, human development, and social cognition, the main goal of this dissertation is to evaluate the impact of these factors on wisdom.

Theoretical construct and literature review

The concept of wisdom has a long intellectual history. Therefore, in the next section I first provide a brief cultural-historical review, examining some ancient roots and philosophical scholarship on this topic. Specifically, this review focuses on some ideas

about the nature of wisdom as a psychological construct. Then I review research on beliefs and lay theories about wisdom. Finally, I review previous operationalizations of wisdom-related processes, pointing out their commonalities, as well as methodological shortcomings.

Wisdom and the Ancients

In the arts and humanities, the *wisdom literature* refers to ancient writings about the conduct of good life. Such literature goes as far back as the second or third millennium B.C. (Lambert, 1960; Rudolph, 1987) and it is predominantly Near Eastern, or East and South-East Asian. Much of this literature focuses on practical conduct of wisdom and cultivation of wisdom through learning. For instance, the Babylonian *Teachings of Shuruppak* discuss adaptive individual dispositions and behaviors (Alster, 1991). In a similar vein, Chinese Confucianism and Taoism stress experiential learning and critical thinking as essential components for wisdom (Brown, 1938; Lin, 1994). Confucius is claimed to have said that “to know what you know and what you don’t know is the characteristic of one who knows” (Confucius, 2000). This statement suggests that one aspect of wisdom is recognition of limits of knowledge (Birren & Svensson, 2005). Similarly, Taoist writing such as Laozi’s *Tao Te Ching* emphasizes experiential learning. According to Laozi, wisdom can be acquired by following the *Three Treasures*: compassion, simplicity, and humility (Laotse, 1948). In a similar vein, Buddhist thought stresses learning through observation, analysis, and self-improvement. The *Four Noble Truths* in Buddhism suggest that selfishness is the key barrier to wisdom. According to this teaching, selfishness leads to conflict and misery. One step in overcoming selfishness is to recognize how one’s desires affect oneself. A further step focuses on spiritual

training (the *Eightfold Path*) that involves self-distance from and compromise between different desires (Humphreys, 1961, p. 21).

Researchers who have reviewed the definition of wisdom in the ancient literature suggest that the ancient schools of thought emphasize several common wisdom principles. First, ancient schools of thought emphasize the recognition of the ever-changing quality of things and uncertainty (e.g. Baltes, 2004, p. 73). Second, they emphasize interdependence and contextualism of things in the world (e.g. Humphreys, 1961, p. 21). Finally, the ancient wisdom literature suggests that wisdom involves an orientation towards the social context and a concern with the well-being of others (e.g. Baltes, 2004, p. 71).

Wisdom in Western Philosophy

Plato's dialogues about Socrates were among the first Western attempts to define wisdom. The oracle of Delphi pronounced Socrates to be the wisest man in Greece, yet Socrates believed this claim to be unjustified. Socrates went on to question his fellow citizens who claimed to possess a great deal of knowledge in their field (politicians, craftsmen, and poets) and found them all overestimating their knowledge. Plato concluded that his mentor's wisdom stemmed from Socrates recognizing the limits of his own knowledge (Plato, 2000). In a similar vein, Aristotle, in his *Metaphysics*, suggests that wisdom involves a deliberation about what is variable, and deep understanding of causes behind events (vs. the mere knowledge of these events; Aristotle, 2002). Aristotle suggests that wisdom manifests itself in different forms: *sophia* - the divine ability to discern the truth; and *phronesis* - the human ability to reflect and decide how to live well (Aristotle, 1953; Birren & Svensson, 2005; Robinson, 1990). For Ancient Greeks, this

latter practical wisdom is a deeply social virtue: reflective, judgmental, and rooted in conversation (Matson, 1987, p. 66). Wisdom was also a central topic in medieval philosophy and that of the Renaissance, which were heavily influenced by Platonism and Aristotelianism. For Thomas Aquinas, practical wisdom or *prudence* was the cause and form of all virtues (Aquinas, 2006). In his view it included cognitive components (e.g. good memory, logic), but also such reasoning abilities as recognition of uncertainties, recognition of alternatives, and recognition of the context when making a judgment (Aquinas, 2006, pp. 2a2ae, 47-56) . For Nicholas of Cusa, wisdom constituted the awareness of one's limitations (Rice, 1958, pp. 22-23). However, by the Age of Enlightenment, philosophers lost their interest in wisdom as a scholarly discussion topic. (Baltes, 2004; Birren & Svensson, 2005).

There has been a small revival of wisdom philosophy in the second part of the 20th century. Instead of providing new definitions, researchers extended the classic works with a focus on the elements underlying wisdom and its consequences. Working off Aristotle's theory that wisdom includes knowledge about *how to live well* (Aristotle, 1953), modern philosophers emphasize several wisdom-related qualities that may help one to live a good life (Dawes, 1988; Kekes, 1995; Lehrer & Smith, 1996; Nozick, 1989; M. C. Nussbaum, 1986; Oelmüller, 1989; Tiberius, 2008; Wundt, 1940). Some of these qualities focus on a holistic view of the tasks at hand, including reflection on issues from a distance, recognition of interrelation, and balance between goals, means, and contexts (e.g. Oelmüller, 1989). Another set of proposed qualities centers around management of uncertainty, including recognition of one's limits (Dawes, 1988; M. C. Nussbaum, 1986; Wundt, 1940), recognition of contradictions and potential conflict (Nozick, 1989) and

awareness of different perspectives on uncertain situations (Kekes, 1995; Tiberius, 2005; Welsch, 1989). Finally, modern philosophers suggest that the process of wisdom acquisition involves going through a series of direct or vicarious experiences that are based on personal life circumstances (Oelmüller, 1989).

Psychological Theory and Research on Wisdom

Though scholarship on wisdom originated in philosophy, there are limitations to a purely philosophical treatment of this topic. Philosophical analysis of wisdom is often driven by a priori methods of reasoning, and the intuitions of individual philosophers can be idiosyncratic (Baltes, 2004; Tiberius & Swartwood, 2011). Complementary to this type of analysis is the empirical - experimental study of mind and behavior, which is used in psychology.

Unfortunately, psychological research on wisdom has been limited and mostly theoretical rather than empirical (Kunzmann & Baltes, 2005). Researchers who study human development have been among the first to devote their attention to the wisdom construct. Erik Erikson described wisdom in his theory of identity development. In his view, wisdom is attained through mastery of several challenges people encounter over their life course. Specifically, Erikson suggested that wisdom is acquired late in life through the transcendence of self-focused priorities and acceptance of one's life as it is (i.e. ego-integrity vs. despair about the alternatives that were not pursued; Erikson, 1980, 1984). Another theoretical perspective on wisdom comes from motivational psychology. For Abraham Maslow, the key to wisdom was the desire for self-actualization – the final level of human development, which includes the fulfillment of one's unique potential, focus on problems outside oneself, and acceptance of limitations of oneself and others

(Maslow, 1968). In Maslow's hierarchy of needs this level can be achieved when lower level needs such as physiological, safety, or esteem needs are satisfied.

Vivian Clayton conducted an early empirical study on wisdom which examined what adjectives Americans associate with wisdom (Clayton & Overton, 1976). The multidimensional scaling analysis revealed three dimensions commonly associated with wisdom: cognition (e.g. pragmatic experience, observant), reflection (e.g. introspection and intuition), and socio-emotional considerations (e.g. empathy, understanding). Importantly, this implicit wisdom construct was more salient for older than younger Americans (Clayton & Birren, 1980, p. 137). Another frequent measure of implicit theories people have about wisdom involves content analyses of descriptions of wise people. For instance, Sowarka (1989) analyzed interviews of 41 elderly Americans and found that descriptions of the wise persons were associated with memories about difficult social problems. Consistent with these findings, research by Robert Sternberg found that lay and academic beliefs about wisdom and intelligence concepts overlap mostly when looking at social characteristics (Sternberg, 1985). Bluck and Glück (2005) reviewed existing studies on people's lay conceptions of wisdom and identified five common components: cognitive-pragmatic (e.g. good reasoning abilities), insight (e.g. recognition of limits of knowledge), reflective attitude (e.g. deliberation on action), concern for others (e.g. ability to see others' perspectives), and real-world problem-solving skills. In many ways, these categories show a resemblance to the ancient and philosophical characterizations of wisdom. Another finding that resonates with philosophical ideas on wisdom is that lay people expect wisdom to increase in older age (Heckhausen, Dixon, & Baltes, 1989; Orwoll & Perlmutter, 1990; Rowley & Slack, 2009)

Researchers have also examined beliefs about one's own wisdom, building on Erikson's and Maslow's earlier theoretical work on wisdom as part of personality development. For instance, Carol Ryff (Ryff & Keyes, 1995), and more recently Chris Peterson and Nansook Park (2008) and Monika Ardelt (2003, 2010) used self-report questionnaires, in which they asked people to report what they believe is their level of personality or socio-emotional development. This research produced inconsistent results. Ryff found that older adults report lower level of personal ego-integrity (and thus lower wisdom in Erikson's terms) than younger adults (Ryff & Keyes, 1995), whereas Park and Peterson (2008) found no aging effect, and Ardelt (2010) found that older adults believe they have better reflective abilities (e.g. self-insight) than college students. There are limitations to studying wisdom this way. Self-report measures are influenced by inaccuracy of self-judgments (Nisbett & Wilson, 1977), self-presentation tendencies and context-effects (Schwarz, 1999). Moreover, self-report measures of wisdom are inconclusive with regard to philosophical work and lay beliefs, which suggest that wisdom involves recognition of limits of one's own knowledge (see Staudinger & Glück, 2011, for a similar point). Specifically, it is not clear whether the person who reports higher vs. lower mastery of wisdom-related processes is doing it because she is indeed wiser or because she lacks a certain level of self-insight.

Whereas empirical research has focused on defining wisdom and its correlates, behavioral assessment of wisdom has been limited (Birren & Svensson, 2005). A few conceptualizations of wise reasoning show a great deal of similarity to philosophical themes and lay theories that I reviewed previously. One conceptualization has been proposed by Michael Basseches (1980, 1984) and Deirdre Kramer (1990), who represent

the neo-Piagetian or post-formal view of reasoning. These researchers formulated a set of cognitive schemas involved in wise thinking, among them acknowledgement of others' points of view, appreciation of contexts broader than the issue at hand, sensitivity to the possibility of change in social relations, acknowledgment of the likelihood of multiple outcomes of a social conflict, concern with conflict resolution, and preference for compromise. Another conceptualization came from Paul Baltes, who developed the Berlin Wisdom Paradigm. According to this paradigm, wisdom is knowledge useful for dealing with life problems. This knowledge includes an awareness of the varied contexts of life and how they change over time, recognition that values and life goals differ among individuals and among groups, and acknowledgement of the uncertainties of life together with ways to manage those uncertainties (Baltes & Smith, 2008).

Given the human developmental background of these research groups, it is not surprising that the key research question they explored dealt with development of wisdom across the lifespan. Researchers hypothesized an age-related increase in wisdom in general and pragmatic reasoning competence in particular. Consistent with this hypothesis, both Basseches (1980, 1984) and Kramer (1990; 1992; 1986) found that some aspects of content-coded wise reasoning were positively associated with age. However, due to serious problems in the samples they used, their results were inconclusive with regard to difference between the middle-aged and the elderly. Basseches' sample consisted solely of college students and mostly middle-aged university faculty members, but no sample of older adults. Kramer used non-representative samples. Furthermore, in both lines of research age was confounded with degree of education and possibly with

intelligence, and wisdom scores were confounded with the length of the content-analyzed narratives.

In the most important effort so far, Baltes and colleagues content-analyzed narratives that participants generated when asked to comment on another person's personal problems. This work, however, did not find consistent support for the idea that wisdom increases into old age. Instead, the researchers found that wisdom approaches an asymptote at young adulthood and increases little thereafter (Baltes & Staudinger, 2000). Unfortunately, the vast majority of the study populations tested in this project, if not all of them, were non-representative samples of adults, leaving open the possibility that selection effects may have colored the results (e.g. sampling only college educated subjects could lead to a greater selection bias of older vs. younger adults, particularly among females; for a general comment on such selection effects in aging research, see Whitbourne, 2000). In addition, most of the study populations in the Berlin Wisdom project were well-educated adults, which could have restricted the likelihood of detecting individual differences in wisdom-related reasoning. Moreover, the stimulus materials in the Berlin project consisted of very brief descriptions of personal problems (Smith & Baltes, 1990; Staudinger & Baltes, 1996; Staudinger, Smith, & Baltes, 1992). For instance, participants were asked to read and respond to such scenarios as "a 15-year-old girl wants to get married right away. What should she consider and do?" (Baltes & Staudinger, 2000). Such scenarios provided little information about the social context, which may be a critical factor in wisdom assessment (Sternberg, 2004). Thus, it is still debatable whether older adults are wiser than younger adults. As the quote by Robert Sternberg at the beginning of this dissertation illustrates, wisdom is largely an untapped

field of empirical study and more refined methodologies are necessary to provide conclusive evidence to the question of aging-related wisdom-gains. Further, there are other factors than aging that may influence wisdom, and these factors have not been explored yet.

Wisdom-related processes

The main goal of this dissertation is to provide a systematic analysis of four wisdom-related factors: age, culture, self-distance, and well-being. I propose that wisdom involves the use of certain types of pragmatic reasoning to navigate important challenges of social life. This broad view is consistent with the philosophical and lay theories, as well as behavioral research I reviewed earlier. Specifically, the following six categories emerged as the most the most frequently mentioned characterizations of wisdom in psychological literature (Baltes & Smith, 2008; Basseches, 1984; Kramer, 1990; Riegel, 1973): 1) *perspective shifting from one's own point of view to the point of view of people involved in the conflict*; 2) *recognition of the likelihood of change*; 3) *prediction flexibility, as indicated by multiple possible predictions of how the conflict might unfold*; 4) *recognition of uncertainty and the limits of knowledge*; 5) *search for conflict resolution* and 6) *search for a compromise*. Focusing on these types of pragmatic reasoning, my work addresses four questions: 1) Does wisdom come with age? 2) What are the consequences of wise reasoning? 3) What role does culture play in wisdom-related processes? 4) Can we facilitate wisdom and if so what are the underlying psychological mechanisms?

Research Strategy and Study Overview

In order to address these questions, the present series of seven studies focus on “wisdom in action” – asking participants to reflect on a variety of social problems and personal challenges, thus hoping to achieve high ecological validity. The present research employs content-analysis techniques to score participants’ responses on the degree to which they apply higher-order reasoning strategies. In addition, and rare for studies of wisdom, the present work uses a sample of counseling professionals and wisdom researchers to validate the investigator’s view as to what were wise responses. Moreover, the present dissertation examines wisdom-related processes on multiple levels of analysis. It addresses macro-level cultural differences and consequences, as well as the micro-level individual mechanisms. Finally, the present dissertation used random sampling procedures for recruiting subjects in most of the present studies, thus making it more likely that the results would have high external validity.

Does wisdom come with age?

The current state of behavioral research on wisdom led to a paradox: on the one hand, there is a common lay belief that wisdom comes with age, suggesting age-related gains in understanding and resolving social conflicts (e.g. Heckhausen, et al., 1989) . On the other hand, research has provided little conclusive evidence corroborating this assumption. Instead, substantial evidence demonstrates that cognitive capacities decline in old age (Schaie, 1994). Studies 1-2 resolve this paradox by avoiding methodological limitations associated with previous work. Past research indicated that older adults are more sensitive to their testing environment than younger adults. Specifically, a standard laboratory testing environment often induces an aging stereotype threat – a fear that one’s

behavior may reinforce a negative stereotype that exists about aging and cognitive performance (Hess & Blanchard-Fields, 1999). Further, substantial contextual detail provided in the description of a social problem may be essential to wisdom assessment. Therefore, Studies 1-2 examine wise aspects of reasoning using naturalistic, context-rich materials about social conflicts, and measuring wisdom in a series of structured interviews. In these interviews, a community sample read newspaper articles describing a series of intergroup (e.g., political power, immigration, natural resources; Study 1) and interpersonal conflicts (friends, relatives, spouses; Study 2), and participants were asked to reflect on the future development of issues at hand. In addition, Study 3 presented the coding scheme of wisdom-related processes to a group of professional counselors and wisdom researchers, with the expectation that such individuals would endorse my judgments of what constituted wise reasoning.

What are the consequences of wise reasoning?

Lay theories suggest that wise people make the “right” decisions throughout their life and, consequently, have better lives (Sternberg & Jordan, 2005). Consistent with these lay theories, ancient philosophers, as well as modern well-being researchers, have proposed that wisdom makes people happy (Aristotle, 1953; Seligman, 2002). Study 4 examines the relationship between wise reasoning and multiple aspects of well-being, including general life satisfaction, social network quality, daily positive and negative affect, ruminative brooding, as well as longevity. Furthermore, it addresses the question of how aging impacts the relationship between wise reasoning and well-being. Work by Carstensen and colleagues suggests that as people age they develop greater socio-emotional competence (Charles & Carstensen, 2010). Study 4 builds on this research and

tests whether older adults' tendency to report greater well-being is associated with their tendency to reason wisely about social conflicts.

What role does culture play in wisdom-related processes?

Cultures differ in their members' tendencies to emphasize harmonious relationships and encourage behaviors that affirm interdependent social orientation (e.g. Markus & Kitayama, 1991). In particular East Asian cultures endorse these tendencies to a greater degree than do North American cultures (e.g. Varnum, Grossmann, Kitayama, & Nisbett, 2010). These findings raise several questions for the study of wisdom-related processes. First, these cross-cultural observations suggest that cultures that emphasize interpersonal harmony (e.g. Japan) would show greater use of wise reasoning strategies when analyzing social conflicts than cultures that promote self-expression (e.g. the U.S.). Moreover, observed cultural differences raise the question whether interdependent cultures show a development of wisdom across the lifespan similar to that of people from Western cultures. The interdependent social orientation of East Asians may result in wiser reasoning early on, yet it may also result in less conflict resolution experience over time. Thus, the aging gains in wise reasoning may be larger for Americans than for Japanese. In order to address these hypotheses Study 5 replicated Studies 1-2 on a diverse, randomly selected sample in Tokyo, Japan.

Can we facilitate wisdom and if so what are the underlying psychological mechanisms?

Some of the features of wisdom have much in common with a holistic mode of thought associated with Eastern cultural traditions (Nisbett, 2003) and Eastern perspectives on the self (Cohen, Hoshino-Browne, & Leung, 2007). Specifically, the Eastern style of thinking has been characterized by an outside-in phenomenology on the

world – looking at social events from a self-distanced or third person perspective. For example, various Eastern philosophical traditions such as Buddhism suggest that self-distancing (or detachment) is a core strategy to obtain greater wisdom. In line with philosophical theories, research in social psychology suggests that the ability to maintain a distanced perspective on the self has adaptive consequences for how people think and feel about negative experiences (Grossmann & Kross, 2010; Kross & Ayduk, 2011). Studies 6-7 integrate these theoretical and empirical insights to examine whether experimentally cueing participants to adopt a self-distanced view of the world when reasoning about future life dilemmas will lead to greater wisdom-related thinking.

CHAPTER II

Studies 1 - 3 – Age and Wisdom

Folk psychology holds that people become wiser as they get older (Heckhausen, et al., 1989; Orwoll & Perlmutter, 1990; Rowley & Slack, 2009), even in the face of significant age-related declines in many (but not all) forms of cognitive processing (D. C. Park et al., 2002). A sufficient reason for assuming that older people are wiser is that they have more life experience, especially experience of social life (Erikson, 1980; Glaser, 1984; Rowley & Slack, 2009). Moreover, the idea of aging-related gains in wisdom is consistent with views of the aging mind in developmental psychology (Baltes, 1993).

There are many different views of the nature of wisdom (Sternberg & Jordan, 2005). As reviewed in the introduction, there is some consensus that wisdom involves the use of certain types of pragmatic reasoning to navigate important challenges of social life. Specifically, I propose six wisdom dimensions: 1) *perspective shifting from one's own point of view to the point of view of people involved in the conflict*; 2) *recognition of the likelihood of change*; 3) *prediction flexibility, as indicated by multiple possible predictions of how the conflict might unfold*; 4) *recognition of uncertainty and the limits of knowledge*; 5) *search for conflict resolution* and 6) *search for a compromise*.

In line with lay beliefs, as well as philosophical and psychological theories of human development, I expected to find aging gains in wisdom throughout the lifespan by avoiding the limitations of the previous work and by examining several aspects of wise reasoning using naturalistic, context-rich materials concerning social conflicts, and by measuring reasoning in a structured interview with a researcher rather than via written materials. Specifically, I presented participants with several stories involving conflicts between social groups (Study 1) and between individuals (Study 2). I measured wisdom by performing a content analysis of participants' verbal reflections on possible ways that social conflicts might develop.

Study 1 – Intergroup Conflicts

In Study 1, a representative probability sample of young, middle-aged, and older adults first performed several cognitive ability tests and next read three newspaper articles describing an *intergroup conflict* with two strong groups opposing each other (topics: ethnic tensions; political tensions; natural resources).

Methods

Sample

Participants were contacted by letter and then by phone 1366 households in Washtenaw County, Michigan, of which the two primary cities are Ann Arbor, a predominantly middle- and upper-middle-class community, and Ypsilanti, a predominantly working-class community. Households were randomly chosen from the county phonebook and personalized letters were sent out with the contact information of

the Research Center for Group Dynamics inviting them to participate in the study and announcing that we would also attempt to contact them by phone. A disproportionate stratified sampling was used (Kish, 1965), attempting to include an approximately equal number of participants of both sexes, and of each of three age groups (25-39, 40-59, 60+), as well as an adequate number of lower SES participants (see Table II.1). In order to achieve this goal, I oversampled middle-aged male stratum. The overall rate of agreement to participate was 57 %. The resulting sample of 247 included proportionally more whites and more highly educated people than the U.S. population as a whole but the full range of social class - from the nonworking poor to the wealthy - was represented. Participants were compensated with \$70 for two hours of their participation, which included responding to a large number of questions about personal relations and working on a variety of cognitive tasks.

Procedure and Materials

Participants were first pre-screened for cognitive impairment using the Mini Mental State Exam (impairment cut-off: 26 out of 30), as well as participants' self-report (e.g. Alzheimer's or brain damage). Eleven subjects were excluded on the basis of extremely low cognitive functioning. Following pre-screening for cognitive impairment, participants completed several cognitive ability tasks. I measured crystallized or knowledge-based intelligence using the comprehension sub-test of the Wechsler Adult Intelligence Scale (WAIS ; Wechsler, 2008) and I measured speed-related intelligence using two processing speed tasks (Hedden et al., 2002).

In the main part of the study, participants read three alleged newspaper articles describing a fictitious *intergroup conflict* between two equally strong groups from an unfamiliar country (Tajikistan, Chuuk, Djibouti; see Appendix A). The topics were chosen to be relevant to contemporary social issues, and included ethnic tensions due to immigration; political tensions over power, and conflict over natural resources. Because the newspaper articles were not real, I first confirmed that our subjects were not familiar with the country they read about. None of the subjects indicated that they knew the countries well. Because the countries were unfamiliar to our participants and in order to ensure that the participants focused on the conflict situation in the articles, the interviewer read out loud a summary after participants had read each story, see Table II.2.

Table II.1 – Demographics of the Sample in Studies 1-2: Education, Age, and Gender

Frequency Study 1 (n=233)							
		<u>Age</u>		<u>Education</u>			
	Gender (n)	Range	Mean	No College	Some college	College	Post Grad
<u>Young</u>	Female (47)	25-40	32.30	4	15	17	11
	Male (42)	25-39	32.57	3	17	10	12
<u>Middle</u>	Female (38)	42-58	49.08	5	11	11	11
	Male (35)	41-57	48.58	5	13	9	8
<u>Old</u>	Female (39)	60-90	70.15	6	11	17	5
	Male (42)	60-93	70.55	8	8	13	13
Frequency Study 2 (n=196)							
		<u>Age</u>		<u>Education</u>			
	Gender (n)	Range	Mean	No College	Some college	College	Post Grad
<u>Young</u>	Female (34)	25-40	32.68	3	13	12	6
	Male (35)	25-39	32.54	2	15	8	10
<u>Middle</u>	Female (34)	42-58	49.29	5	9	11	10
	Male (29)	41-57	49.00	3	12	8	6
<u>Old</u>	Female (33)	60-90	69.79	5	10	13	5
	Male (31)	60-83	68.58	5	8	7	11

Note: Numbers represent participants without missing data. Due to cognitive impairment or procedural error data from 14 participants in Study1 and 4 participants in Study 2 was not included.

Table II.2 – Summaries of the Intergroup Conflict Stories Provided in Study 1

<i>Topic/Country</i>	<i>Summary</i>
Ethnic tensions/Tajikistan	Due to the economic growth of Tajikistan many people from Kyrgyzstan immigrate to the country. Whereas Kyrgyz people try to preserve their customs, Tajiks want Kyrgyz people to assimilate fully and abandon their customs.
Natural resources/Chuuk	Huge crude oil resources have been discovered in the economically disadvantaged Chuuk state. Due to governmental restrictions many interested firms cannot establish the required infrastructure for production. On the one side government tries to preserve the ancient laws. On the other side, there are also a huge number of people in Chuuk who would like to eliminate the regulations entirely.
Political tensions/Djibouti	Two ethnic groups in Djibouti, the Issa and the Afari, have completely different perspectives on politics. Whereas one group tries to preserve traditions, the other group wants to alter the society entirely. Both groups are very strong.

After each story the interviewer instructed participants to talk about future developments of the conflict, guided by three questions in the following order: “What do you think will happen after that?”, “Anything else?” and “Why do you think it will happen this way?” In case a participant showed difficulty in understanding a question, it was repeated without changing the content and/or revealing additional information. Participants’ responses were audio-recorded. The majority of structured interviews were conducted by hypothesis-blind trained interviewers. Analysis indicated that interviewer’s knowledge did not influence participants’ responses ($F < 1$, *ns.*).

Demographics

At the end of the study session, participants answered demographic questions. Participants were asked their age, education, ethnicity, and occupation (as well as the occupation of their significant other). This information was used to obtain an index of their socio-economic status. I coded occupations using the International Standard Index

of Occupational Status (ISEI; Ganzeboom & Treiman, 1996). The *ISEI* scale refers to relative job prestige. *ISEI* job prestige scores are estimated using average level of income and education within a specific occupation. I also took into account the occupations of significant others. In order to determine the socio-economic status of a participant, the higher score of the two (participant and significant other) was used.

Coding Procedure

Participants' transcripts were masked and the age-related information was removed. Two coders were trained on sample materials, until they reached high inter-rater reliability ($r > .9$). After extensive training, raters coded participants' transcripts on the six dimensions of wise reasoning on a scale from 1 to 3. Raters were blind to the hypothesis, age, gender, and social class of the participants. Overall inter-rater reliability was good ($.61 < \text{Cohen's } \kappa < .75$), with the disagreement resolved in a group discussion. High scores indicated greater wisdom for the dimensions *uncertainty*, and *perspective*, and low scores indicated greater wisdom for the dimensions *compromise*, *flexibility*, *change*, and *conflict resolution*. See Table II.3 for example responses. Thereafter, the obtained ratings were pooled in the same direction (1- not at all to 3 – a great deal). Finally, text analysis software (Pennebaker, Francis, & Booth, 2001) counted the number of words in each essay. In the interest of parsimony and to enhance the measurement reliability, scores across three stories were collapsed (average correlations across 3 stories: $.15 \leq M(r) \leq .40$). I also created a composite wisdom score by taking the mean across the six dimensions (Cronbach's $\alpha = .71$).

Table II.3 – Responses to the Ethnic Tensions Story, Indicating High / Low Scores

<i>Wisdom Dimension</i>	<i>High score</i>	<i>Low score</i>
Compromise	They might want to let them continue with their ways and maybe at the same time maybe try to do some kind of promotion to encourage them to better assimilate into the culture though, not throw away their own culture, but to try to make the country more unified, maybe bring customs together that might be similar for both cultures, in order to unify the country.	I'm sure that each, each culture will keep their original customs. It's not likely that someone that's lived a certain way is going to change just because they moved to a new area. (...) People are pretty true to their nature and they're not really big on change so I'm sure that it won't be an easy thing for them to change their culture.
Perspective-Shifting	I think there'll be friction between those two ideas. People do assimilate eventually but it often takes a couple generations to do that. (...) There'll be influences both ways but people who are in particular countries that receive immigrants, they always see it from their point of view, namely that these immigrants are changing the country. They don't necessarily see it from the other point of view. Also, immigrants might be upset because their children are not the way they would be if they were back in their homeland.	Most likely there is going to be very similar things as going on in the United States: economic drivers are going to want to keep the immigration going and traditionalists (...) are going to want to stem it and make laws like only speaking Tajik, instead of both. It's just like "English only." So I think there is going to be a lot of pressure on political stage and most likely a new political leader from right or left will come up and try to fight for or against what's going on.
Uncertainty	I don't know. That's a tough one. I guess that's like what's going on here with the Mexicans that are immigrating here. (...) I don't know too much about the Tajiks and their national pride. I don't know how much of that they actually want to keep. And I'm sure when the Kyrgyz come over they're acting and speaking differently and they don't want to assimilate.	I say it's up to them and if you can't speak the language stay at home or get the hell out of there. Same as all the people coming over here. (...) You got all the outsiders coming in and they want to change everything. They're welcome to come, but you got to adapt to the ways of their country that's already there. Any immigrants should have to adapt to where they're going, not that country adapting to the immigrants in my opinion.

Distraction in Interviews: Going off on a Tangent

In addition to the aforementioned wisdom dimensions, coders rated participants' level of distraction when answering the interview questions. Participants' interviews were evaluated with regard to the participant *going off on a tangent* (1 = "not at all" to 3 = "a great deal"). For instance, some participants talked about unrelated subjects without

explaining a connection to the interview questions (e.g., interior U.S. politics) or talked about unrelated personal life experiences.

Results

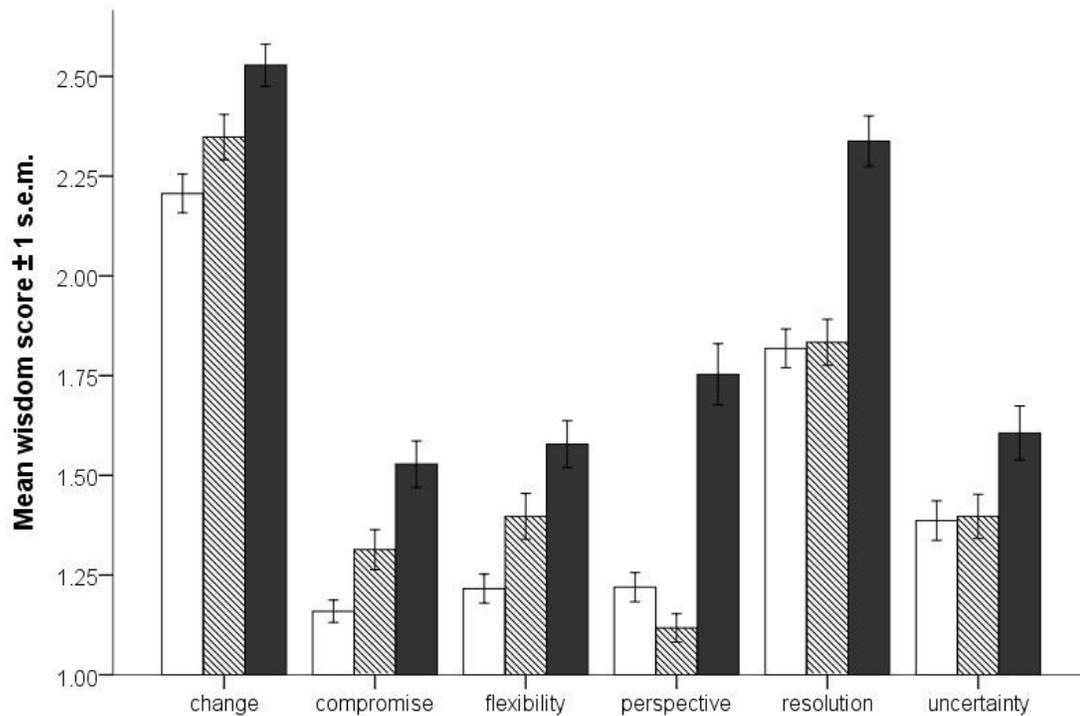
Age and cognitive abilities

In line with most life-span studies of intelligence (Birren & Schaie, 2001; Bosworth & Hertzog, 2009; Schaie, 1994), I found aging to be associated with decline in fluid IQ, measured by processing speed (dot matching: $\beta = -.49, p = .001$; pattern matching: $\beta = -.44, p = .001$), but not in crystallized IQ, measured by comprehension subtest of *WAIS* ($\beta = .04, t < 1, ns.$). In line with research on inhibition deficit of the elderly (Hasher, Tonev, Lustig, & Zacks, 2001; Hasher & Zacks, 1988), content analysis of interview responses showed that older participants manifested significantly more distractibility and inclination to drift from the topic at hand than did younger participants ($\beta = .26, t = 4.11, p < .001$). The effect of age on distractibility was substantial even when response length was controlled ($\beta = .20, t = 3.64, p < .001$).

Age and Wisdom

Analyses of wisdom ratings supported the aging hypothesis in this study. Older participants scored significantly higher for each wisdom dimension (see Figure II.1) as well as for the composite score of wisdom ($\beta = .51, t = 9.21, p < .001$). Length of response was positively correlated with wisdom ($r = .33, p < .001$), but the effect of age was very substantial even when response length was controlled ($\beta = .52, t = 9.77, p < .001$).

Figure II.1 – The Effect of Age on Wise Reasoning in Study 1



Note: For presentation purposes, age is divided into 3 categories used during participants' recruitment: Young (25-40; $n = 89$; white), Middle (41-58; $n = 73$; striped), and Older (60-90; $n = 81$; black). Higher bars indicate higher scores on wisdom-related dimensions. Older participants showed more wisdom than younger ($t = 10.26, p < .001$), and middle-aged adults ($t = 7.97, p < .001$), whereas the contrast between younger and middle-aged adults revealed a marginal trend in the predicted direction ($t = 1.71, p = .09$).

Unsolicited Advice-giving in Interviews

Advice is an important component of wisdom (Baltes & Staudinger, 2000; Thiele, 2006). An initial observation of the interviewers was that some participants had a tendency to give advice in addition to a descriptive prediction of the future. Therefore, I analyzed responses for the amount of advice given (1 = "not at all" to 3 = "a great deal of advice;" $M = 1.27, SD = .43$). This was possible in Study 1, because the instructions in this study did not solicit advice. The advice score across the three stories in Study 1 was submitted to a general linear model analysis with age as a predictor. Greater age was associated with more advice-giving ($\beta = .34, t = 5.52, p = .001$).

Study 1 provided some initial support to the hypothesis that greater age is associated with greater use of wise reasoning in analysis of social conflicts. However, it is not clear if this effect goes beyond analysis of intergroup conflicts. Furthermore, it is not clear if such effects translate from the artificial scenarios into real life. In order to test this idea, Study 2 focuses on real interpersonal conflicts.

Study 2 – Interpersonal Conflicts

Study 2 investigated age-related thinking in the domain of *interpersonal* conflict, following similar experimental and coding procedures as in Study 1.

Sample

Participants in Study 1 were re-contacted within a year of completing Study 1, and invited to participate in a follow-up study having a similar format. I could not reach 13%; 2 % were reached but declined to participate; see Table II.1. As in Study 1, participants received \$70 for 2 hours of their participation.

Procedure and Materials

Participants first completed cognitive ability tests, the WAIS Vocabulary and WAIS Digit Span Subtests. In the main part of the study, Participants read these three authentic, detailed letters addressed to an advice columnist (“Dear Abby”; see Appendix B; letter length: 145-180 words), which described *interpersonal conflicts*: relational conflicts between siblings, friends, and spouses. The interviewer asked participants four questions about the further developments of the described relationships: 1) “How did the

story develop after this letter;” 2) “Why do you think it happened as you said;” 3) “What was the final outcome of this conflict;” 4) “What do you think should be done in this situation.” These questions were more specific than in Study 1, in order to reduce participants’ tendency to go off on a tangent. Their responses were audio-recorded. At the end of each interview, the interviewer asked the participant a forced-choice question: “In the long run, do you see this conflict as a benefit (a) or as an obstacle (b) for the further development of relationship?” Note that the questions in Study 2 were more specific (e.g. “What will be the final outcome of this conflict?”), which were introduced to reduce the amount of distraction. I collapsed these scores across individual stories to form an index of distraction in Study 2 ($M = 1.03$, $SD = .13$).

Coding Procedure

The same procedure as in Study 1 was followed. Two hypothesis-blind coders judged the use of the six wisdom categories in participants’ transcripts ($.52 \leq \text{Cohen’s } \kappa < .98$). An index score for each of the six wisdom dimensions was obtained by collapsing ratings across three stories (average correlations across 3 stories: $.10 \leq M(r) \leq .29$). Composite wisdom scores were created by taking the mean across the six dimensions (Cronbach’s $\alpha = .56$). An additional composite score across both studies (Cronbach’s $\alpha = .80$; $r = .30$, $p < .001$) was obtained.

Results

Aging and Cognitive Decline

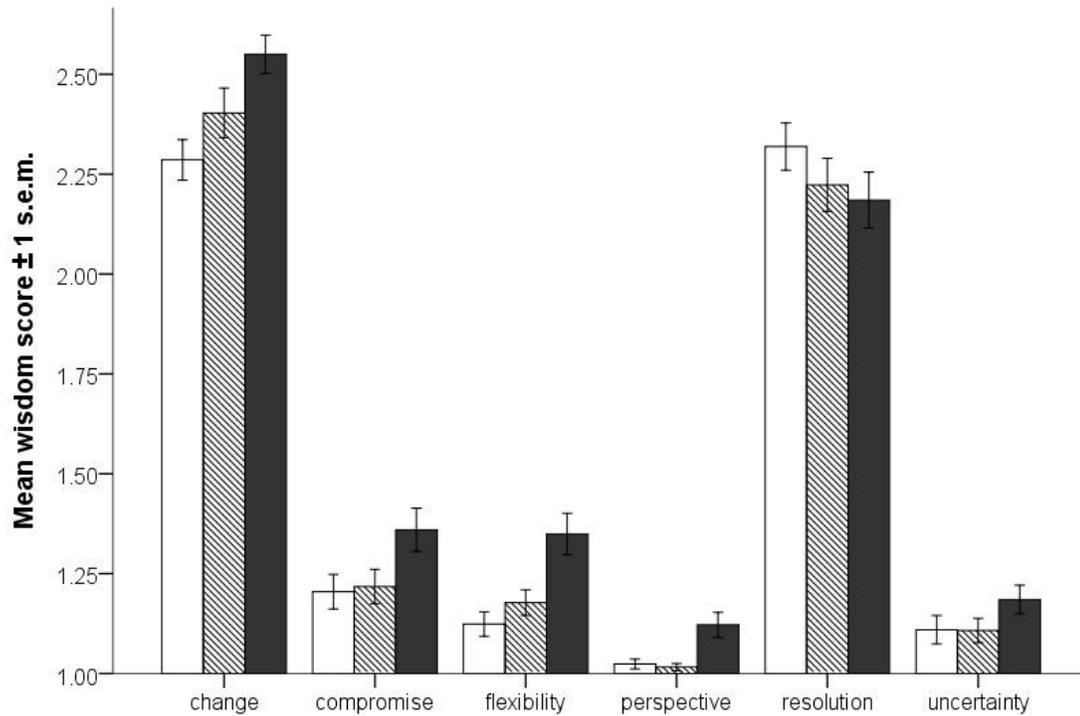
Consistent with Study 1, greater age was associated with lower performance on the fluid cognitive ability measure (WAIS digit-span: $\beta = -.17, p = .02$), but not with crystallized IQ, as measured by the performance on the WAIS vocabulary ($\beta = .06, ns.$). I did not replicate the effect of age on distractibility measure in Study 2 [$F(1,193) < 1, ns.$]. This might be because the topics in Study 2 were more familiar and the stories contained less information. In addition, in order to have fewer participants going off on a tangent, I made the questions more specific in Study 2.

Aging and Wisdom

The results indicated that older participants scored significantly higher for each wisdom dimension, except conflict resolution and uncertainty (see Figure II.2), and scored higher for the composite score of wisdom ($\beta = .21, t = 2.97, p = .003$). Replicating the results from Study 1, length of response was positively correlated with wisdom ($\beta = .22, t = 3.06, p = .003$), but the effect of age remained unchanged when response length was controlled ($\beta = .22, t = 3.13, p = .002$). In Study 2, the interviewer also noted whether the participant spontaneously mentioned a contextual “it depends” statement instead of answering in line with the two categories provided. The number of stories in which participant made an “it depends” statement was taken as a measure of *outcome contextualism* ($M = .36, SD = .67$). There was a marginally significant tendency for older

participants to provide more responses indicating outcome contextualism than younger participants ($\beta = .12, t = 1.73, p = .06$).

Figure II.2 – The Effect of Age on Wise Reasoning in Study 2

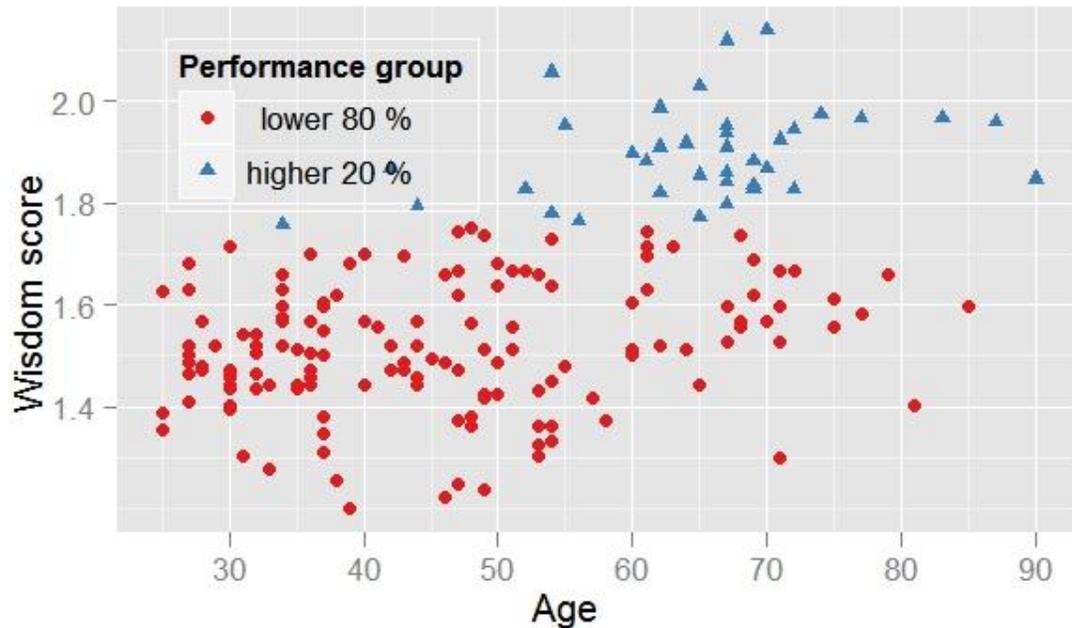


Note: Age in 3 categories: Young ($n = 69$; white), Middle ($n = 73$; $n = 63$; striped), and Older ($n = 64$; black). Older participants showed more wisdom than younger ($t = 3.54, p < .001$), and middle-aged adults ($t = 3.05, p = .003$); the contrast between younger and middle-aged adults was not significant ($t = .41, ns$).

Wise Reasoning across Studies 1-2

I explored the effects of age on the aggregate wisdom score across both studies (Cronbach's α across all scores = .8). As Figure II.3 illustrates, the overall effect of age was substantial ($\beta = .52, t = 9.09, p < .001$), with older people being significantly overrepresented among the top 20 % on wisdom performance. The average age of the participants in the top 20% was 64.90 years; the average age of participants in the bottom 80% was 45.46 years.

Figure II.3 – Age Distribution of Top-performers on Wise Reasoning



Analyses with Covariates: IQ, Length of the Response, Gender, and Socio-Economic Status

Next, I examined the association between wisdom and several demographic and cognitive variables. Men and women did not differ in aggregate wisdom ($\beta = -.001, t < 1, ns.$). Fluid IQ was negatively related to wisdom in Study 1 ($\beta = -.19, t = 2.96, p = .007$), but this was due solely to the fact that the older participants had lower fluid IQs (with age as a covariate: $\beta = .09, t = 1.42, ns.$). Crystallized IQ was positively and non-trivially related to wisdom in Study 2 ($\beta = .27, t = 3.96, p < .001$).

Simultaneously entering SES, education, and IQ in regression indicated that age and crystallized IQ remained significant predictors of wisdom (see Table II.4). This latter analysis is particularly important because it establishes that the age effects on wisdom hold at every level of social class, education, and IQ level. In contrast, neither SES nor

educational attainment contributed to wisdom over and above the fact that participants with higher SES have higher IQ (IQ_{crystallized}: $r = .28, p < .001$; IQ_{fluid}: $r = .21, p = .002$) and participants with higher education have higher IQ (IQ_{crystallized}: $r = .36, p < .001$; IQ_{fluid}: $r = .29, p = .002$).

Table II.4 – Regression Analyses with Age, Cognitive Abilities and Demographics across Studies 1-2

Model	IVs	Study 1+2 Regression β s						
		COM	UN	FLEX	PER	CH	RES	WIS
I	Age	.37***	.15*	.34***	.42***	.36***	.23**	.51***
II	Age	.36***	.24**	.40***	.46***	.37***	.27***	.58***
	C.IQ	.11	.10	.18*	-.08	.20**	.19*	.20**
	F.IQ	.01	.17 [†]	.08	.07	.01	.08	.12
	SES	.10	-.01	-.05	-.04	.02	.05	.02
	Education	-.08	.019	.16*	.19*	-.01	-.03	.07

Note: C.IQ = Crystallized IQ; F.IQ = Fluid IQ; R/Length = Length of the Response; COM = Search for a Compromise; UN = Uncertainty/Recognition of Limits of Knowledge; FLEX = Flexibility in Predicted Outcomes; PER = Perspective of People in the Conflict; CH = Prediction of Change; RES = Search for Conflict Resolution; WIS = Composite Wisdom Score. *** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$. [†] $p \leq .1$.

Wisdom of Academics vs. Non-academic Professionals

One of the research sites in Studies 1-2 was located in Ann Arbor, MI – a community with a large percentage of academics. Could it be that older academics produced the aging effect in our studies? In order to control for this possibility, I conducted an analysis with age and profession (1 = “academic” vs. -1 = “non-academic”) among participants with post-graduate education. Comparing the composite wisdom scores of academics vs. non-academics in Study 1 ($n = 12$ vs. $n = 44$) and Study 2 ($n = 8$ vs. $n = 37$), I found that academics (Study 1: $M = 1.65, SD = .27$; Study 2: $M = 1.67, SD = .23$) and non-academic post-graduates (Study 1: $M = 1.72, SD = .37$; Study 2: $M = 1.57, SD = .21$) did not differ in wisdom (Study 1: $F(1,54) < 1, ns.$; Study 2: $F(1,43) = 1.45, ns.$). Next, controlling for occupation (academic vs. non-academic), greater age remained

a significant predictor of greater wisdom (Study 1: $\beta = .58, t = 5.12, p < .001$; Study 2: $\beta = .35, t = 2.44, p = .02$).

Distractibility and Wisdom

Previous research by Hasher and colleagues suggests that distractibility may be associated with broader attention and can be adaptive when distracting information becomes relevant (Healey, Campbell, & Hasher, 2008; Kim, Hasher, & Zacks, 2007). Could broader attention processing contribute to more wisdom among the elderly? I addressed this question by performing a series of regression analyses on the composite scores of distractibility and wisdom across both studies. The results indicated that distractibility was positively associated with wisdom ($\beta = .20, t = 2.87, p = .005$). A linear regression with wisdom scores as a dependent variable and age and distractibility as predictors indicated a significant effect of age ($\beta = .46, t = 7.22, p < .001$), and a marginally significant effect of distractibility ($\beta = .11, t = 1.65, p = .10$). The reduction in the effect of distractibility after controlling for age differences was statistically significant, as indicated by the Sobel test ($Sobel = 2.62, SE = .03, p = .008$).

Study 3 – Expert Validation

Is it possible that the present operational definition of wisdom was idiosyncratic? To address this question, I consulted experts on wisdom – researchers working on this topic, as well as counseling professionals – to examine whether their definition of a wise response overlaps with the coding scheme in the first two studies.

Methods

Sample

I contacted members of the “Defining Wisdom Research Network” at the University of Chicago - a large scale collaboration and news platform for researchers and professionals interested in wisdom research ($N = 543$). I first verified the entries in the network database, focusing on wisdom-related research fields and members with high levels of professional expertise in domains of legal, economic, or psychological consulting ($N = 386$). Next, I identified those members of the network who were researchers with post-graduate degrees, as well as those who were executives of large companies, inviting them to participate in a short survey on wisdom ($N = 327$). One hundred forty-one agreed to participate in the study ($M_{\text{age}} = 50.35$; $SD_{\text{age}} = 12.70$; see Tables II.5 - II.6 for further demographics).

Procedure

I randomly selected a set of four responses to each of the stories presented in Studies 1-2 (24 responses in total) and asked the expert group to evaluate the wisdom of these responses, using a procedure similar to that used by Baltes (Baltes, Staudinger, Maercker, & Smith, 1995). Two of these responses were randomly chosen from the pool of participants who scored one *SD* above the mean wisdom score (*SD plus*) for the story. The other two responses were chosen from the pool of participants who scored one *SD* below the mean (*SD minus*) of the story. Therefore, each individual was presented with four responses to the same story.

Table II.5 – Demographics of the Wisdom Expert Sample: Gender, Geographic Location, Ethnicity, and Occupations

<i>Demographic Variable</i>	<i>Frequency (%)</i>
Gender	35♀
Geographic location	
North America	77
South America	1
Australia	2
East/South-East Asia	5
Eastern Europe	2
Western Europe	15
Ethnicity	
Caucasian	81
African American	1
Asian/Asian American	8
Latino	1
Middle Eastern	2
Others	8
Occupations	
University professor	52
Post-graduate researcher	18
Independent researcher	6
CEO/Director/Managerial	12
Consultant	6
Law	1
Others	5

Note: Numbers represent participants without missing data. Information from 16 participants was missing due to technical errors when filling out the on-line survey or because participants decided not to provide this information.

Table II.6 – Academics by Research Area in Study 3

<i>Academic Field</i>	<i>Frequency (%)</i>
Anthropology	1%
Biology	4%
Business/Finance	3%
Education	11%
Human Development	7%
Health	3%
Information Sciences	4%
Law	3%
Leadership/Organizational Behavior	4%
Liberal arts	6%
Neuroscience	3%
Philosophy	24%
Psychology	17%
Religious studies/Theology	4%
Social Work	1%
Sociology	6%

Note: Numbers represent participants without missing data. Information from 32 participants was missing due to technical errors when filling out the on-line survey or because participants decided not to provide this information.

Participants completed the study on-line (using DatStat Illume™ 4.7 survey platform), guided by written instructions, which informed them that the study they were about to participate in explored wisdom of four responses to a newspaper story describing either a societal or an interpersonal conflict. Next, participants were randomly assigned to read one of the six newspaper stories and the set of four responses to these stories. Half of the experts were presented with the following order of the responses: first *SD* plus response, followed by first *SD* minus response, second *SD* plus response, and second *SD* minus response. The other half of the participants were presented with these responses in reversed order. Follow-up analyses indicated that order of the presentation did not influence the results ($F < 1$, *ns.*). After reading the four responses, they were asked, which of them was the wisest. Next, participants indicated which of the responses was the least wise. Finally, they indicated which one was the wisest response among the remaining two transcripts. At the end of this study, participants provided additional demographics: age, gender, geographic location, ethnicity, and occupation (Table II.5). Furthermore, academics also indicated their field of research (Table II.6).

Results

The analyses indicated that the professional counselors and wisdom researchers agreed with the coders in the first two studies. Overall, they ranked the two “high-score” responses as being significantly wiser than the two “low-score” responses [$F(1,140) = 94.98$, $p < .001$]. The predicted pattern was significant for five out of six stories ($ps < .005$). The results of expert ratings for the spousal conflict story did not show a significant difference between the responses 1 *SD* above and below the mean on our

wisdom ratings ($F(1,27) < 1, ns.$). The overall pattern of results didn't change when this story was excluded from the omnibus analysis ($\beta = .45, t = 7.80, p < .001$).

Discussion

The results of the three studies presented in this chapter provide some support the proposed model of wise reasoning in two ways. First, wisdom experts gave high wisdom marks to responses of participants who scored high on the six aspects of wise reasoning proposed in this dissertation: *perspective shifting from one's own point of view to the point of view of people involved in the conflict; recognition of the likelihood of change; prediction flexibility, as indicated by multiple possible predictions of how the conflict might unfold; recognition of uncertainty and the limits of knowledge; search for conflict resolution search for a compromise*. Second, Studies 1-2 suggest wisdom gains in older age, which is consistent with several theoretical models of wisdom development (Erikson, 1980, 1984; Maslow, 1968). Using a large, randomly selected sample in two studies looking at societal and interpersonal conflicts I found that older Americans made more use of proposed wise reasoning schemes when talking about social conflicts than young and middle-aged Americans. These findings document that despite the well-established cognitive declines in fluid intelligence associated with old age (Birren & Schaie, 2001; Hasher, et al., 2001; Hasher & Zacks, 1988; D. C. Park, et al., 2002; Schaie, 1994), reasoning about social conflicts improves. Moreover, my results indicate that wisdom gains occur mainly between middle and old age.

It is important to note that one unique aspect of the present studies is the focus on naturalistic, context-rich materials concerning social conflicts. Another key aspect deals

with the naturalistic setting of a structured interview. These methodological considerations are important, and consistent with some philosophical and lay theories, suggesting that wisdom is oriented towards resolving problems in a social context (Sowarka, 1989; Sternberg, 2004).

An important question concerns the limits of wisdom of the elderly. Are the old still wise when the social dilemma requires a great amount of emotional involvement? In other words, does psychological distance (Lieberman & Trope, 2008) act as a moderator of wisdom? It is possible that self-immersion in the problem and the associated emotional involvement (Kross & Ayduk, 2011) might impair the judgment of older people more than that of younger people. On the other hand, the elderly may chronically self-distance from the social conflict more than younger counterparts and be less emotionally affected when reasoning about social life dilemmas. The proposed distancing mechanism is experimentally tested in the Chapter V of the present dissertation. Further, I elaborate on these boundary conditions in greater detail in the general discussion.

Another important question deals with the consequences of the wise reasoning strategies. Theorists in philosophy and human development have frequently conceptualized wisdom as an optimal level of human development. If so, one would expect wise reasoning to have adaptive consequences. This notion stands in contrast to empirical observations about other types of cognitive abilities, that are unrelated to individual well-being, and which decline over the lifespan. Can it be that wisdom and not intelligence contributes towards greater well-being in older age? I address this hypothesis in the next chapter, focusing on multiple aspects of individual well-being and longevity.

CHAPTER III

Study 4 – Wise Reasoning, Intelligence and Well-being

Scholars since at least the time of Aristotle have been interested in the sources of well-being. Over the last 50 years, psychologists have conducted a large number of studies exploring subjective well-being, which includes people's emotional responses and global judgments of life satisfaction (Kahneman, Diener, & Schwarz, 1999). Some of the major findings in this literature have detailed the effects of socio-demographic factors such as marriage or unemployment on subjective well-being (Diener, Suh, Lucas, & Smith, 1999).

The relationship between reasoning and well-being has also been explored; however these studies have revealed inconclusive results. On one hand, people who report greater well-being believe that they have superior reasoning abilities (Campbell, Converse, & Rogers, 1976; Diener & Fujita, 1995). On the other hand, studies in Germany (Wirthwein & Rost, 2011), Norway (Watten, Syversen, & Myhrer, 1995), and the U.S. (Sigelman, 1981) have shown no relationship between standard measures of intelligence and subjective well-being. However, standard intelligence tests don't necessarily measure people's ability to think about social relations (e.g. Sternberg, 1999) and real-world decision-making (e.g. Stanovich, 2009), and thus may underestimate actual abilities (Carragher, Carragher, & Schliemann, 1985).

A number of cross-sectional and longitudinal studies also indicate that fluid cognitive abilities such as working memory decline over adulthood (e.g. D. C. Park, et al., 2002), yet older adults report greater well-being than their younger counterparts (e.g. Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Mroczek & Kolarz, 1998). Theoretically, it is possible that the recognition of one's own limitations triggers greater allocation of resources to the interpersonal domain that is more important in older age (Charles & Carstensen, 2010). This shift in resource allocation may result in greater social sensitivity and adaptation to strategies that maintain interpersonal harmony (Baltes, 1993), and that enhance one's well-being.

Integrating these lines of work, I propose that superior reasoning may in fact be related to well-being, but that it is pragmatic reasoning strategies (Cheng & Holyoak, 1985) that are influenced by life experiences and situated in a social context which are relevant for subjective well-being. Specifically, I focus on a set of strategies that I have previously identified as 'wise.' Little if any work has directly tested the relationship between wise reasoning and well-being. The only two known studies that examined this question were conducted within the Berlin Wisdom Paradigm. However, these studies showed inconsistent results. In one study wiser reasoning about social conflicts was related to life-satisfaction, but not related to people's emotional responses (Mickler & Staudinger, 2008). In the other study wise reasoning was *negatively* related to emotional responses in general (Kunzmann & Baltes, 2003). Unfortunately, as I discussed earlier, the Berlin Wisdom Paradigm has several methodological shortcomings, including rather abstract descriptions of personal problems, which provided little contextual information.

In order to address the relationship between wise reasoning and well-being, I measured reasoning about real world dilemmas and various indicators of well-being. In order to void the limitations of previous work, I examined wise reasoning using naturalistic, context-rich materials concerning social conflicts, and by examining reasoning in a structured interview with a researcher. In addition, I addressed the question of how aging impacts wise reasoning and well-being. Building on Studies 1-2, I predicted that older adults would show greater well-being, because they are wiser than younger adults when reasoning about social conflicts.

Methods

Sample

Participants from Studies 1-2 were invited to participate in a further study on reasoning and personality.

Well-being and Longevity

Participants completed a set of questionnaires measuring their well-being and associated emotion regulation tendencies. Participants recalled ten mundane events during the preceding two days, reporting *positive* and *negative affect*. Scores were collapsed across situations. Participants answered a *life satisfaction* question “All things considered, how satisfied are you with your life as a whole these days?” on a 10 point scale with 1 = “not at all” and 10 = “very much satisfied” (a common technique in well-being research; Kahneman, et al., 1999). Following previous research (Fiori, Antonucci, & Akiyama, 2008), participants reported their *relationship satisfaction* by specifying

network members providing social support and those causing annoyances, with the proportion of supportive vs. detrimental relationships taken as an index of social network quality. I measured depressive *brooding* using the 4-item Brooding subscale of the Ruminative Response Scale $\alpha = .69$ (e.g., think ‘What am I doing to deserve this?’; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). I explored how participants construed social conflicts, analyzing percentage of positive relative to negative words contained in their narratives. Past research indicates that this measure reliably predicts self-reported emotional well-being and individual health outcomes (Pennebaker, 1997). Finally, because subjective well-being is a strong predictor of longevity (Chida & Steptoe, 2008), I explored how wise reasoning relates to longevity five years after completion of Study 1 by examining publicly available death records.

Discriminant Measures: Cognitive Abilities and Personality

Given the novelty of the present measure of wise reasoning, I additionally tested psychometric properties of the proposed model of wise reasoning, focusing on its discriminant validity via its relationships to cognitive abilities and personality traits. Data on cognitive abilities came from Studies 1-2. The Big-Five personality dimensions were measured using the Ten Item Personality Measure (Gosling, Rentfrow, & Swann Jr, 2003), which has adequate convergence with other Big-Five personality measures.

Control Variables: Health and Social Class

Perceived health was measured with a 3-item health questionnaire (e.g. "Compared to other people your own age, how would you rate your physical health?";

Hedden, et al., 2002; $\alpha = .78$). Participants also provided demographic information including their age, education, level of income, and occupation. I coded participants' occupations using the International Socioeconomic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Results

Preliminary Analyses: Inter-item Correlations and Factor Extraction

Results from exploratory analyses are summarized in Table III.1. All pair-wise correlations of wise reasoning dimensions were significant except for *limits of knowledge* being unrelated to *change* and *conflict resolution* (mean $r = .25$). Principal component analyses and a screeplot provided evidence for a single factor, which accounted for over 38 % of the variance. An alternative two-factor solution yielded highly correlated factors ($r = .67$), with the second factor explaining comparable amount of variance as each of the six items by itself (17%).

Table III.1 – Factor Loadings for the Six Wisdom Dimensions, and Dimension Inter-correlations

	Factor Loadings	Inter-correlations				
		2.	3.	4.	5.	6.
1. change	.56	.23***	.23***	.26***	.38***	.03
2. compromise	.70	-	.44***	.35***	.27***	.14*
3. flexibility	.76		-	.35***	.25***	.43***
4. perspective	.64			-	.17**	.17**
5. resolution	.55				-	.03
6. limits of knowledge	.44					-

Note. *** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$.

Discriminant Relations with Cognitive Abilities and Personality

As shown in Table III.2, WAIS-vocabulary scores were positively correlated with wise reasoning, whereas speed of processing was negatively correlated with wise reasoning (an artifact of older participants having lower processing speed). Among the Big Five factors, only agreeableness was positively related to wise reasoning. The positive associations were modest in size (the two largest betas were .27 and .25), suggesting that wise reasoning is associated with crystallized cognitive abilities and some personality traits, but is distinct from these constructs. Wise reasoning was not related to neuroticism, suggesting that it is distinct from affective personality characteristics.

Relations with Well-being

Table III.2 indicates a significant association between wise reasoning and a wide range of well-being indicators. Participants who scored high on wise reasoning reported less negative affect in daily life, better relationship quality, greater life satisfaction, less tendency to brood, and a more positive emotional construal of social conflicts, but not more positive affect in daily life. Importantly, including wise reasoning in the model significantly improved the fit of regression models for each well-being indicator except for positive affect, as indicated by the difference¹ in R^2 between Models *I* and *II*, explaining additional variance above and beyond the variance explained by socio-economic factors (education, occupation, income) and subjective health (see Table III.3). In contrast to wise reasoning, neither fluid nor crystallized cognitive abilities were related to any of the well-being indicators (mean $r_{\text{fluid}} = -.06$; mean $r_{\text{fluid}} = -.01$), with the

¹ *Model II* R^2 significance level indicates the significance of the R^2 -change between two models.

exception of a negative relationship between crystallized abilities and positive affect ($r = -.22, p < .001$).

Table III.2 – The Relationship between Wise Reasoning, Well-being, as well as Analytic Abilities and Personality

		Wise Reasoning
		Relation to well-being
Life-satisfaction		.17*
Positive affect		-.08
Negative affect (reverse-scored)		.26***
Relationship quality		.25***
Depressive brooding (reverse-scored)		.33***
Emotional Construal		.19**
		Discriminant validity
Analytic abilities		
Speed of processing		-.25***
WAIS Digitspan		.01
WAIS Comprehension		.08
WAIS Vocabulary		.25***
Big Five personality dimensions		
Neuroticism		-.15
Extraversion		-.06
Openness		.06
Agreeableness		.27**
Conscientiousness		.12

Note. Standardized beta coefficients. Personality measures were assessed via a mailed questionnaire 2 years upon completion of the laboratory sessions, leading to an attrition ($n = 104$). *** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$.

Table III.3 – Regression Analyses with Socio-economic Factors and Health (Model I), and Addition of Wise Reasoning (Model II) Predicting Well-being

Model		LS	POS	NEG	RQ	EMO	RUM
		$n = 144$	$n = 222$	$n = 222$	$n = 166$	$n = 221$	$n = 185$
I	Occupational prestige	-.08	-.23**	.04	-.05	-.07	-.01
	Education (years)	.10	-.03	.07	.06	.04	.02
	Income (log)	.03	-.01	-.04	-.09	.13 [†]	-.12
	Health	.21*	.24***	.23***	.17*	.07	.29***
	R²	.05	.09***	.07**	.04	.02	.10**
II	Occupational prestige	-.10	-.22**	.01	-.08	-.09	-.04
	Education (years)	.09	-.03	.06	.05	.03	.01
	Income (log)	.03	-.01	-.04	-.10	.12 [†]	-.12 [†]
	Health	.20*	.24***	.22**	.16*	.06	.27***
	Wise reasoning	.16 [†]	-.06	.23***	.24**	.19**	.32***
R²	.08[†]	.10	.13***	.10**	.06**	.20***	

Note. Standardized beta coefficients. POS = positive affect; NEG = less negative affect; RQ = relationship quality; LS = life satisfaction; RUM = less rumination; EMO = positive emotional construal. Life satisfaction was assessed via a survey a year upon completion of the experimental sessions, thus smaller N *** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$. [†] $p \leq .1$

Longevity

The results of logistic regression with wise reasoning and age as predictors, and longevity (1 = “dead” vs. 0 = “alive”) as the dependent variable showed significant effects of age [$B = .07, SE = .03, Wald(df = 1) = 13.93, p < .001$], and a marginally significant effect of wisdom on longevity [$B = -2.31, SE = 1.43, Wald(df = 1) = 2.60, p = .10$]. Subsequent analysis with addition of socio-demographic factors (education, occupation, income) and subjective health as predictors suggested that the effect of wise reasoning on longevity five years later was even stronger when socio-demographic factors were controlled [$B = -5.36, SE = 2.06, Wald(df = 1) = 6.79, p < .01$].

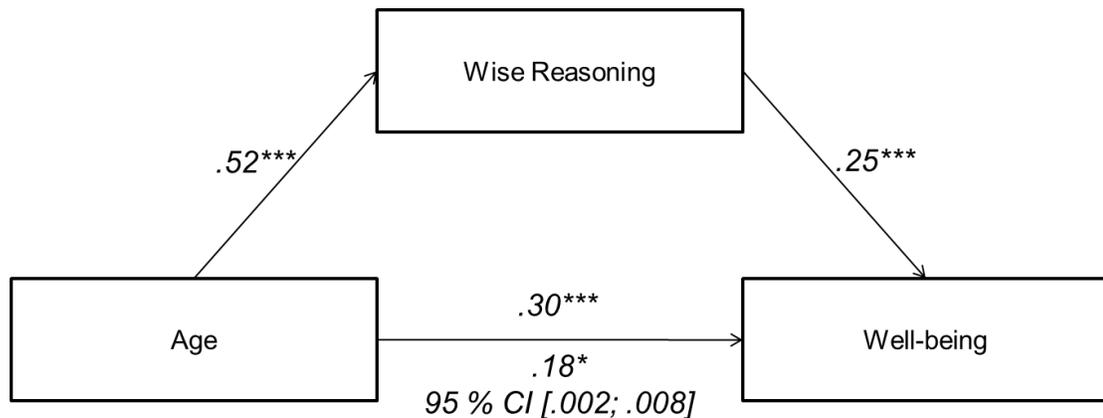
Age, Wisdom, and Wellbeing

I subsequently examined whether wise reasoning mediates the relationship between age and composite well-being by performing a series of multiple regression analyses². As Figure III.1 illustrates, in each case the conditions for establishing mediation according to Shrout and Bolger (2002) were met. Specifically, age was positively related to wise reasoning, and both of these variables were related to well-being. Importantly, the results of a bootstrapping test (Shrout & Bolger, 2002) indicated that controlling for wise-reasoning significantly attenuated the relationship between age and well-being (see Figure III.1 for 95% Confidence Intervals generated by the

² Preliminary analyses indicated that positive affect was not related to other well-being indicators (mean $r = .09$; PCA loading on the well-being factor = .28). Therefore, it was not included in the omnibus analyses.

bootstrapping test for each mediation analysis). These findings demonstrate that wise-reasoning partially mediated the association between age and well-being.

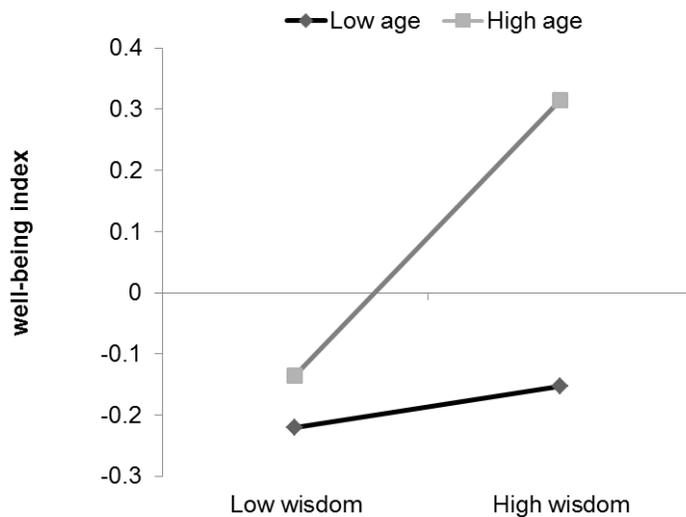
Figure III.1 – Path Analysis Examining the Role that Wise Reasoning Plays in Mediating the Effect of Age on Well-being



Finally, I conducted a mixed-model analysis with mean-centered age, wise reasoning, and their interactions as between subject predictors and z-transformed well-being indicators as a within-subject variable. The results showed a significant effect of age ($B = .01, SE = .003, t = 3.05, p < .005$), wise reasoning ($B = .62, SE = .236, t = 2.61, p = .01$), and their interaction ($B = .03, SE = .013, t = 2.07, p = .04$), such that the positive relationship between wise reasoning and well-being was stronger for older adults than for younger adults³. Subsequent moderated mediation analysis (Preacher, Rucker, & Hayes, 2007) indicated that the age \rightarrow wisdom \rightarrow well-being path model was significant for middle-aged ($\beta_b = .18, Sobel Z = 2.25, p < .05$) and older adults ($\beta_b = .37, Sobel Z = 3.94, p < .001$), but not for younger adults ($\beta_b = -.01, Sobel Z = -.10, ns.$).

³ Comparable analyses with gender and wise reasoning predicting well-being showed a significant effect of wise reasoning on well-being ($B = 1.02, SE = .282, t = 3.61, p < .001$), but no significant effects of gender ($B = .05, SE = .079, t = .59, ns.$) nor a gender X wise reasoning interaction ($B = .17, SE = .390, t = .44, ns.$).

Figure III.2 – Simple Plot Effect of Wise Reasoning on Well-being at 1 *SD* above/below Age Mean



Discussion

Consistent with prior research, fluid and crystallized cognitive abilities were not related to well-being. In contrast, the ability to reasoning wisely about social conflicts was positively related to greater global life satisfaction, greater satisfaction with social relationships, less negative affect in daily life, a relatively positive construal of social conflicts, a lower propensity to brood, and greater longevity. Importantly, wise reasoning was not related to greater positive affect in daily life. The latter finding suggests that people who reason wisely are more content without having unusually high positive affect in daily life. Moreover, the relationship between wise reasoning and well-being was highly robust. Wise reasoning explained a greater amount of variance in individual well-being than did gender or various socio-economic indicators. I also observed two age-related patterns. First, the link between wise reasoning and well-being was somewhat

stronger among older adults. Second, for middle-aged and older adults wise reasoning mediated the age-related differences in well-being.

The present results suggest that lay beliefs about the relationship between reasoning abilities and well-being are correct, with one caveat. Whereas wise reasoning about social conflicts contributes to well-being, cognitive abilities in general do not. Psychologists have long sought to identify strategies to reliably improve well-being (e.g. Kahneman, et al., 1999; Seligman, 2002). The observation that wise reasoning improves into old age (Studies 1-2) suggests that wise reasoning is a malleable construct and thus it may be possible to train people to reason wisely in daily life.

The present work examined psychological processes associated with wisdom (aging, and well-being) in the North-American cultural context. However, the growing body of literature in cultural psychology suggests that cultures vary considerably on the dimensions relevant for the discussion of wisdom-related processes (Kitayama & Uskul, 2011; Markus & Kitayama, 1991). Western cultures place a greater emphasis on independence of the self and, correspondingly, value active personal goal pursuit, self-determination, and working through possible social conflicts. In contrast, East Asian cultures place a greater emphasis on interdependence of the self with significant others. Correspondingly, these cultures value social harmony, fitting in to social norms and role expectations (Morling & Evered, 2006), and conflict avoidance strategies (Ohbuchi & Takahashi, 1994). Do these macro-level cultural differences in value of interpersonal harmony have an impact on wisdom acquisition across the lifespan? In the next chapter, I explore this question by extending the study of wise reasoning to Japan.

CHAPTER IV

Study 5 – Age and Wisdom: Culture Matters

The results from the previous studies of this dissertation indicate that older Americans are wiser than younger Americans in analysis of social conflicts, which is consistent with widespread beliefs about wisdom (Erikson, 1984). However, cultures differ in the ways they approach social conflicts (Triandis, 1989). East Asian cultures encourage interpersonal harmony (Markus & Kitayama, 1991; Triandis, 1989) and avoidance of conflicts (Leung, 1988; Ohbuchi & Takahashi, 1994) more than Western cultures and much of socialization is oriented towards this end. Thus, social orientation of East Asians may result in wiser reasoning early on, but also result in less conflict resolution experience over time. If so, one would expect younger East Asians to think more wisely about social conflicts than younger Americans, yet one would expect larger age gains in wise reasoning among Americans than East Asians. Study 5 tested this possibility by performing interviews of random samples of Japanese ($N = 186$), who reflected on the social issues in a similar vein as American participants in Studies 1-2.

Methods

Sample

A random sampling procedure was used to recruit age-stratified community sample of Japanese in the Tokyo Metropolitan area. Names were randomly selected from

a municipal registry, oversampling low educated adults. The resulting sample included an approximately equal number of participants of both sexes, and of each of three age groups (25-39, 40-59, 60-75), as well as an adequate number of adults from lower socio-economic strata approximated by level of education and occupational prestige (Ganzeboom & Treiman, 1996). In Japan, a survey company contacted participants first and gave them a survey composed of demographic questionnaires. Participants responded to the survey at home and mailed it back. Participants who responded to the survey were further invited to participate in subsequent lab sessions, similar to the U.S. procedure. The overall rate of participation agreement for the initial session was 53%. Participants were compensated with 7,000 yen per each of the 2h individual experimental session. For each session participants completed a large battery of social and cognitive measures. Because Japanese sample ranged between 25 and 75, an equivalent sub-sample of Americans from Studies 1-2 was selected for further cross-cultural analyses.

Cognitive Tasks

I measured crystallized or knowledge-based intelligence using the Japanese equivalent of the comprehension and vocabulary subtests of the Wechsler Adult Intelligence Scale, and I measured fluid or working-memory and speed-related intelligence using the Japanese equivalent of the digit span subtest of WAIS and two tasks designed to test speed on processing in East Asian and Western cultures (Hedden, et al., 2002). The two crystallized tasks were highly correlated, $r = .47, p < .001$, thus z-transformed and collapsed into a single index. Because culture-normed measures of

crystallized abilities were used, analysis for crystallized abilities was performed separately for each culture.

Interviews

The procedure in this Study was identical to the one described in Studies 1-2. All materials were back translated into Japanese (Brislin, 1970). The American names of the characters in the interpersonal conflict scenarios were replaced with equally common Japanese names. In two sessions participants read a series of newspaper articles describing *intergroup* and *interpersonal conflicts*. Intergroup conflicts involved fictitious scenarios such as a story about crude oil discovery at the shore of a poor Pacific island, with a debate among the islanders whether foreign investors should be let in. Interpersonal conflicts involved actual letters to an advice columnist. For instance, friends conflicts described how a friend of a married couple was forced by each spouse to take his/her side. Participants were asked: "What do you think will happen after that?" and "Why do you think it will happen this way?" Participants took on average 40 minutes for each interview session, similar to the American participants in earlier studies. None of the subjects indicated prior familiarity with the scenarios or countries they read about. Wisdom-related reasoning was measured by performing a content analysis of participants' verbal reflections on possible ways that social conflicts might develop, using the same six reasoning schemata as in earlier studies: 1) *perspective shifting from one's own point of view to the point of view of people involved in the conflict*; 2) *recognition of the likelihood of change*; 3) *prediction flexibility, as indicated by multiple possible predictions of how the conflict might unfold*; 4) *recognition of uncertainty and the limits*

of knowledge; 5) search for conflict resolution and 6) recognition of conflicting points of view and search for a compromise.

After transcribing and removing age-related information, trained hypothesis-blind coders who were also blind to the age of the subjects coded the overall response for each story on the six wisdom-related schemata. I established cross-cultural equivalence by having one rater from each culture code random samples of 50 translated responses from another culture, and comparing the agreement rate ($r > .90$), resolving discrepancies in a group discussion.

Results

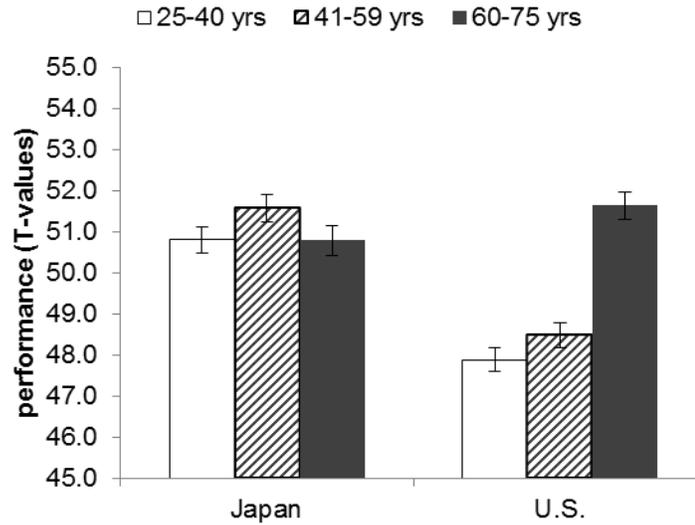
Cognitive Abilities and Distractibility

Similar to the Americans, Japanese older adults scored lower on fluid cognitive abilities across all tasks (dot matching: $r = -.53, p < .001$; $r = -.61, p < .001$; WAIS digitspan: $r = -.37, p < .001$), but not with crystallized abilities, $r = -.03, ns$. Importantly, neither young [$F(1,163) = 1.14, ns$.] nor older [$F(1,163) = 1.50, ns$.] adults differed in fluid abilities across cultures. Further, older Japanese were also more distracted and had an inclination to drift from the topic at hand than did than younger Japanese, as revealed by content analysis of interview responses ($r = .22, p < .005$). Finally, older Japanese also talked significantly more than younger and middle-aged Japanese ($r = .21, p = .004$).

Wise Reasoning

Length of response, as quantified by the number of sentences, was positively correlated with wisdom scores (e.g. flexibility: $r = .24, p = .001$; perspective-taking: $r = .29, p < .001$), and therefore it was regressed out, performing subsequent analyses on wisdom residuals across all types of conflict (Cronbach's $\alpha = .61$).

Figure IV.1 – Wise Reasoning Across Age-groups in Japan and the U.S.



Note: Each bar represents a T-score ($M = 50$, $SD = 10$) of composite wise reasoning (mean of standardized scores across 6 categories) on a full sample. Error bars represent standard error.

As Figure IV.1 illustrates, there were age differences in wisdom in the U.S. [$F(1,166) = 54.90$, $p < .001$], but not in Japan [$F(1,141) < 1$, *ns.*; culture X age interaction: $F(1,307) = 30.48$, $p < .001$]. The culture X age interaction was significant for each aspect of wise reasoning [$4.73 < Fs \leq 30.42$, $ps < .05$], except for uncertainty [$F(1,336) < 1$, *ns.*], see Table IV.1. Younger and middle-aged Japanese scored significantly higher than their American counterparts [$F_{25-40}(1,117) = 66.89$, $p < .001$; $F_{41-59}(1,102) = 41.27$, $p < .001$], yet this cultural difference was not found for older participants [$F_{60-75}(1,86) = 2.29$, *ns.*]. Looking at scenarios separately, Japanese scored consistently higher on wise reasoning about each scenario than Americans ($16.45 < Fs < 48.29$; $ps < .001$), except for the politics story, which indicated a predicted non-significant trend [$F(1,154) = 1.93$, $p = .17$]. Conflict resolution was an exception to the overall cultural pattern, with Americans of all ages ($M = 52.67$, $SE = .49$) mentioning it more often than Japanese [$M = 46.73$, $SE = .53$; $F(1,336) = 65.56$, $p < .001$].

Overall men did not score differently from women ($F < 2.29$, *ns.*). Finally, wise reasoning was positively associated with education, occupational prestige and crystallized IQ (Table IV.1), but controlling for these variables did not change the age-wisdom results ($r_{\text{partial}} = -.05$, *ns.*).

Table IV.1 – Aging, Wisdom, and Culture: Descriptives, Zero-order Correlations, and Regression Analysis

		<i>M (SD)/ %</i>	CH	COM	FLEX	PER	RES	UN	WIS
Japan <i>n</i> =186	Gender	53.2 % ♀	.12	-.08	-.12	-.09	.02	-.21**	-.12
	Age	46.98 (14.01)	-.22**	.06	-.08	.00	-.01	.02	-.07
	Age group								
	25-40	39.8%							
	41-59	34.4%							
	60-79	25.8%							
	Edu		.15†	.06	.09	.10	.15†	-.11	.14†
	high-sch.	21.5%							
	some col.	23.7%							
	college	54.8%							
	Occupat.	56.43 (12.76)	.10	.03	.14†	.28***	.09	-.06	.18*
	Speed	.12 (.89)	.18*	-.02	.20*	.12	.08	-.05	.16*
	Digitspan	18.72 (5.50)	.19*	.00	.14†	.01	.03	-.02	.11
C.IQ		.12	.04	.11	.13†	.09	.03	.16*	
U.S. <i>n</i> =225	Gender	51.6 % ♀	-.04	-.07	-.06	.03	-.04	-.01	-.06
	Age	47.34 (14.70)	.35***	.33***	.30***	.38***	.22**	.08	.48***
	Age group								
	25-40	40%							
	41-59	32%							
	60-79	28%							
	Edu		.04	.07	.18*	.09	.05	.12†	.17*
	high-sch.	11.1%							
	some col.	30.4%							
	college	58.6%							
	Occupat.	58.08 (16.34)	.11	.14†	.10	.07	.13†	.07	.18*
	Speed	-.10 (1.08)	-.11	-.18*	-.07	-.08	.03	.04	-.10
	Digitspan	17.97 (4.15)	-.09	-.03	.13†	-.10	.07	.21**	.07
C.IQ		.11	.14†	.26***	.00	.20**	.20**	.28***	
<i>Culture X Age</i>			-.28***	-.12*	-.23***	-.16***	-.11*	-.04	-.16***
<i>β (SE)</i>			(.05)	(.05)	(.06)	(.04)	(.05)	(.06)	(.03)

Note: ♀=-1; ♂=1; C.IQ = Crystallized IQ (country-wise *z*s); Speed = Speed of Processing (full sample *z*s of the two standardized tasks); COM = Compromise; UN = Limits of Knowledge; FLEX = Flexibility; CH = Change; RES = Conflict Resolution; WIS = Composite Score. *** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$. † $p \leq .1$.

Discussion

Using diverse samples of Americans and Japanese, the present study tested aging and cultural influences on reasoning schemas that are commonly associated with wisdom.

As predicted, Japanese, whose culture encourages interpersonal harmony, gain wisdom about social conflict and its avoidance earlier than Americans. The present findings fit well with the observation that Americans experience more conflicts than Japanese (Ohbuchi & Takahashi, 1994). It is possible that Americans gain wisdom in older age, because they learn about conflict resolution over the life span. Future research may test these patterns longitudinally, and explore whether they generalize to socio-emotional aspects of wisdom.

So far, this dissertation focused on individual and cultural differences in wisdom and consequences of wisdom. An important question concerns the malleability of this construct. Can wisdom be facilitated? Work in cultural psychology and social cognition suggests that one such mechanism is the tendency to distance oneself from one's immediate experience and to take a third-person or self-distant perspective when thinking about interpersonal experiences. Indeed, East Asians use self-distanced perspective more often than Americans, who have a tendency to self-immense, or to adopt an "inside-out" perspective (e.g., Cohen et al., 2007; Wu & Keysar, 2008). Theoretically, East Asians (e.g. Japanese) have a higher propensity to adopt a self-distanced perspective because it enhances their sensitivity to contextual information, helping them fulfill their superordinate goal of maintaining interpersonal harmony. Americans are more likely to adopt a self-immersed perspective because it fosters personal agency, which is more important in their culture (Cohen et al., 2007). Thus, it is possible that self-distancing may be the underlying mechanism explaining cultural differences in wisdom observed in Study 5. Chapter V will discuss two studies that directly test whether self-distance is indeed the mechanism facilitating wise reasoning and behavior.

CHAPTER V

Studies 6-7 – Boosting Wisdom through Distance from the Self

Although humans strive to be wise, they often fail to do so when reasoning over issues that have profound personal implications. Consider, for example, the unemployed worker who stops searching for employment during tough times under the assumption that the job market will never improve or the party loyalist who predicts doomsday if the candidate they support loses the election. In the last part of my dissertation I examine how wisdom can be enhanced when people reason about such profoundly meaningful personal issues – by adopting a self-distanced perspective on these issues.

The psychological model of wisdom I propose is that wisdom involves certain forms of pragmatic reasoning and behavior that help people navigate important life challenges (Baltes & Smith, 2008; Basseches, 1980; Craft, Gardner, & Claxton, 2008; Kramer, 2000). A variety of factors give rise to this quality. In my dissertation work I identified several common aspects of wise reasoning about social conflicts. Some of these strategies are: *recognizing that the world is in flux and the future is likely to change*; *recognizing that there are limits associated with one's own knowledge*; and *possessing a prosocial orientation that promotes the "common good."* These strategies are also applicable to issues that do not involve a group conflict.

A common feature of these different dimensions of wisdom is that they require people to transcend their egocentric viewpoints to take the "big picture" into account and

reason holistically (Cohen, et al., 2007; Craft, et al., 2008; Ji, Nisbett, & Su, 2001; Staudinger & Glück, 2011). Findings from multiple areas of research indicate that people from Western cultures experience difficulty engaging in this process when they reason about personally meaningful issues (Epley & Caruso, 2009). Under such circumstances, people tend to reflexively focus on the concrete details of their experiences (Ayduk & Kross, 2010; Grossmann & Kross, 2010). This suggests that to enhance wise reasoning a mechanism is needed to allow people to transcend their egocentric point of view as they reason about self-relevant issues.

I hypothesize that one way of facilitating this shift in the way people reason about personally meaningful issues is to enhance psychological distance. Preliminary evidence supporting this view comes from experiments indicating that cueing people to reflect over negative past experiences from a self-distanced or “fly on the wall” perspective leads them to reason more abstractly (c.f., Kross & Ayduk, 2011; Trope & Liberman, 2010) and research indicating that psychological distance enhances global processing (Förster, Liberman, & Kuschel, 2008). However, no research has examined whether the particular type of thinking style that distancing promotes translates into wise reasoning.

I addressed this issue by cueing participants in two experiments to reason about how a personally meaningful issue would develop from either a distanced or immersed perspective. I examined the implications of these manipulations for two common types of wise reasoning – dialecticism (i.e., recognizing that the world is in flux and future is likely to change; Basseches, 1984; Kramer & Woodruff, 1986), and intellectual humility (i.e., recognizing the limits of one’s own knowledge; Baltes & Smith, 2008; Ryan, 2008). Because prosocial orientation is often conceptualized as an important consequence of

wise reasoning (Sternberg, 1998), Study 7 also examined the effect of distancing on two prosocial tendencies.

Study 6 – Wisdom in the Time of Economic Recession

College seniors and recent college graduates who were unsuccessful at securing a job after graduation were asked to reason about how the economic recession characterizing the United States economy at the time of the study would influence their career prospects. I focused on this issue to examine how distancing would influence wise reasoning over an issue that was both ecologically valid and meaningful to the present sample. Participants were randomly assigned to reason about this issue from a distanced or immersed perspective. I predicted that distancing would enhance wise reasoning.

Method

Sample

A random sample of 57 University of Michigan college seniors and recent graduates who were unsuccessful at securing a job after graduation at the time of data collection (35 females; $M_{age} = 21.57$, $SD_{age} = 2.22$) participated in a study on human reasoning in exchange for \$12.

Procedure

A hypothesis-blind experimenter informed participants that the study explored “the ways people talk and reason about different future events.” Participants were asked to select a card from a deck to choose a topic to discuss. Each card described the current recession in the U.S. and rising unemployment rates. Participants were first instructed to “take a few minutes to think about how the current economic climate will impact you personally.” They were then randomly assigned to reason aloud to an interviewer about

how the recession would impact their career prospects from either an *immersed perspective* (i.e., “imagine the events unfolding before your own eyes as if you were right there”; $n = 27$) or a *distanced perspective* (i.e., “imagine the events unfolding as if you were a distant observer”; $n = 30$) using a modified version of established procedures (Kross, Ayduk, & Mischel, 2005). Interviewers followed a standardized script to deliver all instructions.

Affect

Participants rated their current mood on a 1 (very unhappy) to 9 (very happy) scale at baseline ($M = 6.57$, $SD = 1.28$) and immediately after reasoning about their future ($M = 6.00$, $SD = 1.21$).

Wise reasoning

Participants’ responses were recorded, transcribed and content analyzed for dialectical thinking and intellectual humility following similar procedures to those in Studies 1-5. Two hypothesis and condition-blind raters coded participants’ responses on these dimensions using a 1 (not at all) to 3 (a lot) scale (inter-rater $rs > .9$).

Results

Response omissions and an equipment malfunction resulted in missing values for post manipulation affect ($n = 3$), and wise reasoning ($n = 4$). I used a multiple imputation approach to replace missing values (Rubin, 1996), which produces parameter estimates that are less biased than listwise deletion and mean substitution procedures (Schafer & Graham, 2002). Missing values were not related to condition [$\chi^2(1, N = 57) = .86$, *ns.*]; the results of all analyses remained substantively the same when analyses were performed without missing values imputed.

All participants reported feeling less happy after reasoning about their future compared to baseline [$F(1,56) = 24.41, p < .001, \eta^2_p = .30$]. This effect was not moderated by condition [$F(1,55) < 1, ns.$].

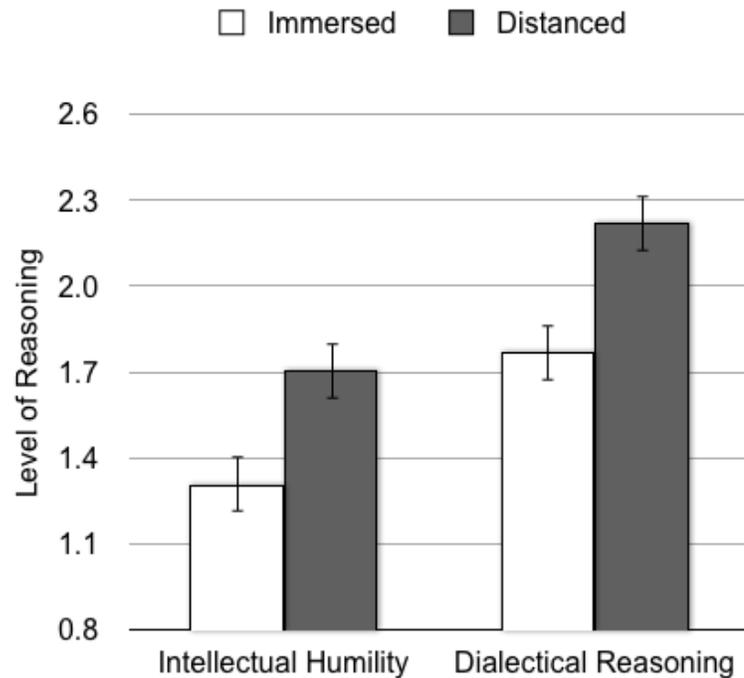
The main predictions concerned the effect of distancing on wise reasoning. As predicted, participants in the distanced group were significantly more likely to recognize the limits of their knowledge [$F(1,55) = 7.00, p = .01, \eta^2_p = .11$] and recognize that the future was likely to change [$F(1,55) = 7.14, p = .01, \eta^2_p = .12$; see Table V.1 and Figure V.1, Panel A]. Controlling for gender, baseline affect and pre- vs. post-manipulation change in affect did not alter these results.

Table V.1 – Examples of Wise Responses from Study 6

Wisdom Dimension	Examples
Recognition of limits of knowledge/ humility	This is a challenge. In the immediate future I see myself enrolled in a vet school at Michigan State, and being a lab technician. And then this would roll out either to vet school after the lab technician or working somewhere whether it be as a doctor in a clinic setting or in a lab. Maybe I see myself in Michigan, in the close proximity and then maybe in a different state wherever any of these paths take me, possibly abroad in Latin America. [...] <i>But I can't really understand what the future of the economy is going to be like. In part, this is because I don't really understand the economic situation well enough.</i>
Recognition of the likelihood of change	It's going to be hard in the first couple of years to find a job, because the whole economy has just gone downhill. But once I do get a job, it's going to be a good job. It'll be good pay and then I'll be able to afford for myself and then eventually my family, so <i>I think it'll be hard for the first couple of years and after that, it should look better. [...] The economy right now is just bad, but it's coming back up. I think the current economy will be an obstacle that will actually help me become a better and more motivated worker.</i>

Note: Italics added for emphasis.

Figure V.1 –The Effect of Self-Distancing on Wise Reasoning in Study 6



Note: Error bars represent 1 standard error above/below the mean value for each condition.

Study 7 – Wisdom and Political Downfall

The Study 6 findings provide preliminary evidence indicating that distancing enhances wise reasoning. Study 7 aimed to extend these findings in four ways.

The first goal of Study 7 was to conceptually replicate the Study 6 results by having participants' reason about a different personally meaningful issue. Specifically, during the 3 weeks preceding the 2008 U.S. presidential election I asked strongly liberal and conservative participants to think about how various foreign and domestic issues would play out over the next four years *if the candidate that they did not endorse were to win the election* from a distanced or immersed perspective.

Second, prior research indicates that different types of distancing manipulations similarly influence the way people construe information (Trope & Liberman, 2010).

Therefore, to further establish the relationship between distance and wisdom I used a different type of manipulation.

Third, I examined the effect of distancing on two prosocial tendencies, dealing with participants' political beliefs and willingness to discuss heated political issues with the members of the other party. I expected participants in the distancing group to become less extreme and thus endorse their liberal or conservative views less strongly after the experiment. In addition, I measured openness to diverse viewpoints behaviorally by asking participants if they would like to join a *bipartisan* group devoted to discussing political issues in an informal setting at the end of the study. I predicted that participants who distanced would be more likely to join this group.

Finally, I explored the relationship between distance, wise reasoning, and prosocial tendencies. If distancing influences prosocial tendencies, I predicted that it would do so via wise reasoning.

Method

Sample

Three weeks before the 2008 U.S. presidential election 54 strongly liberal or conservative participants (27 females; $M_{age} = 18.5$ years, $SD_{age} = .81$) were recruited for a study on human reasoning in exchange for course credit. All participants were U.S. citizens. Participants were enrolled if they scored in the “very liberal” (≤ 3 ; $n = 47$) or “very conservative” (≥ 7 ; $n = 7$) range on a 10-point political ideology question (Inglehart & Baker, 2000) administered during university subject pool prescreening.

Procedure

Participants first read summaries of the Democrat and Republican parties' position on a variety of issues that were taken from each party's website. They were then asked to focus on two issues they felt strongly about. Next, they were randomly assigned to reason aloud to an interviewer about how each issue would develop over the next four years *if the candidate that they did not endorse wins the election* from an immersed ($n = 29$) or distanced ($n = 25$) perspective.

I used a spatial distance paradigm to manipulate distance (Fujita, Henderson, Eng, Trope, & Liberman, 2006). Specifically, participants in the immersed group reasoned about each issue from the perspective of a U.S. citizen living in the U.S. for the next four years; distanced participants reasoned about each issue from the perspective of a citizen of Iceland living in Iceland for the next four years.

Affect

The same measure was used to measure baseline ($M = 6.58$, $SD = 1.09$) and post-manipulation affect ($M = 6.02$, $SD = 1.18$) as in Study 6.

Wise reasoning

Participants' predictions about the future were content analyzed for dialectical thinking and intellectual humility following the Study 6 procedures (inter-rater $r_s > .9$).

Attitude assimilation

Participants' rated their level of political ideology after the interview using the same question administered before the experiment. Political ideology adjustment scores were computed by first reverse coding scores for liberal participants and then subtracting

post-manipulation scores from pre-manipulation scores for all participants such that lower scores reflected less extreme views ($M = -.19$, $SD = 1.73$).

Openness to diverse viewpoints

At the end of the study participants were asked if they were interested in joining a bipartisan group devoted to discussing political issues in an informal setting. They were told to leave their email address if they wanted to join the group.

Results

Preliminary analyses

Response omissions and a procedural error resulted in missing values for post manipulation affect ($n = 2$), wise reasoning ($n = 8$) and attitude assimilation ($n = 7$). I again used a multiple imputation approach to replace missing values, which were unrelated to condition [$\chi^2(1, N = 54) = .52$, *ns.*]. The magnitude of our observed effects remained substantively the same when analyses were performed without missing values imputed. Neither gender, nor political ideology, nor the type of political issue that participants discussed moderated the results.

Affect and wise reasoning

Participants reported feeling more distressed after the experiment compared to baseline [$F(1, 52) = 22.49$, $p < .001$, $\eta^2_p = .29$]. This effect was not moderated by condition ($F < 1$).

As in Study 6, distanced participants were more likely to predict that the future was likely to change [$F(1, 52) = 11.14$, $p = .002$, $\eta^2_p = .18$] and acknowledge the limits of their knowledge [$F(1, 52) = 11.80$, $p = .001$, $\eta^2_p = .19$; see Figure V.2].

Figure V.2 – The Effect of Self-Distancing on Wise Reasoning in Study 7

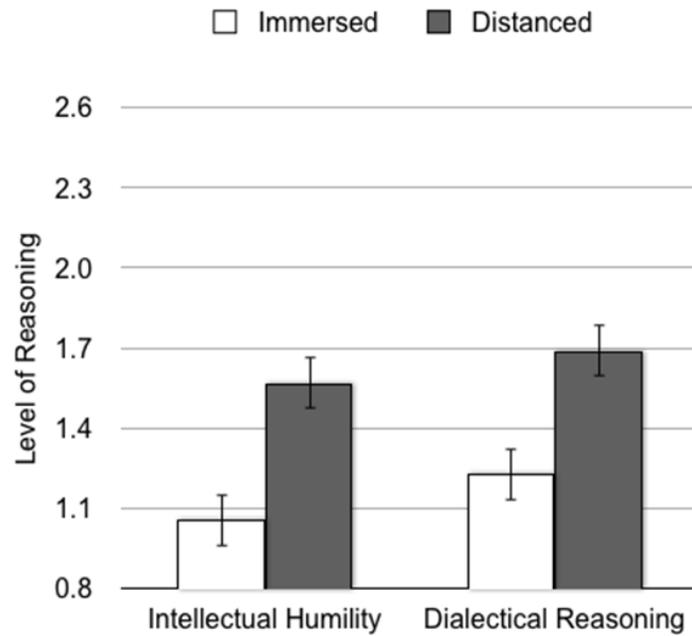
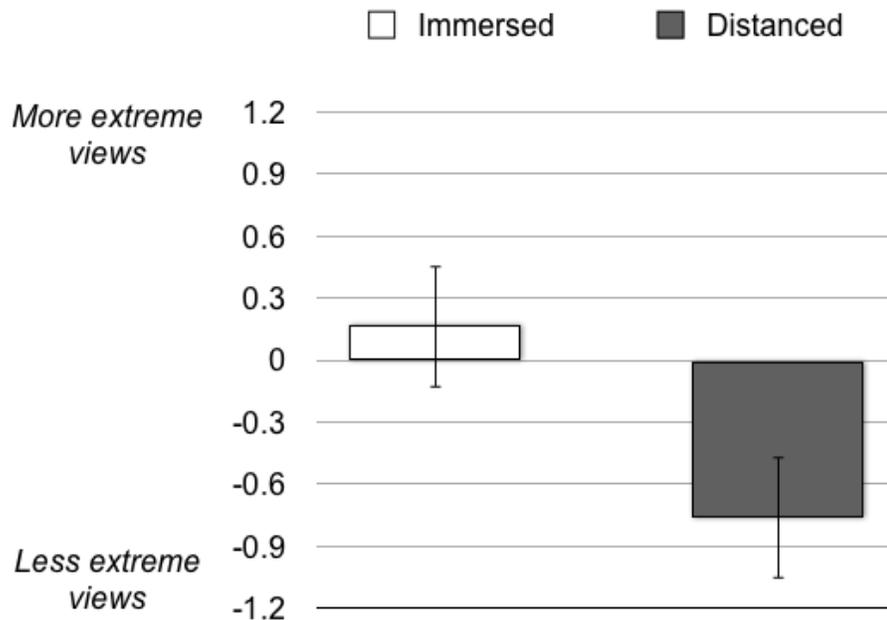


Figure V.3 – Change in Political Ideology as Effect of Self-distancing



Note: Post manipulation scores minus pre manipulation scores. Negative values mean that participants’ endorsed their political ideological beliefs *less* strongly after the experiment; positive values mean that participants endorsed their political ideological beliefs *more* strongly after the experiment. Error bars represent 1 standard error above/below the mean value for each condition.

Prosocial tendencies: Attitude assimilation and openness to alternative viewpoints

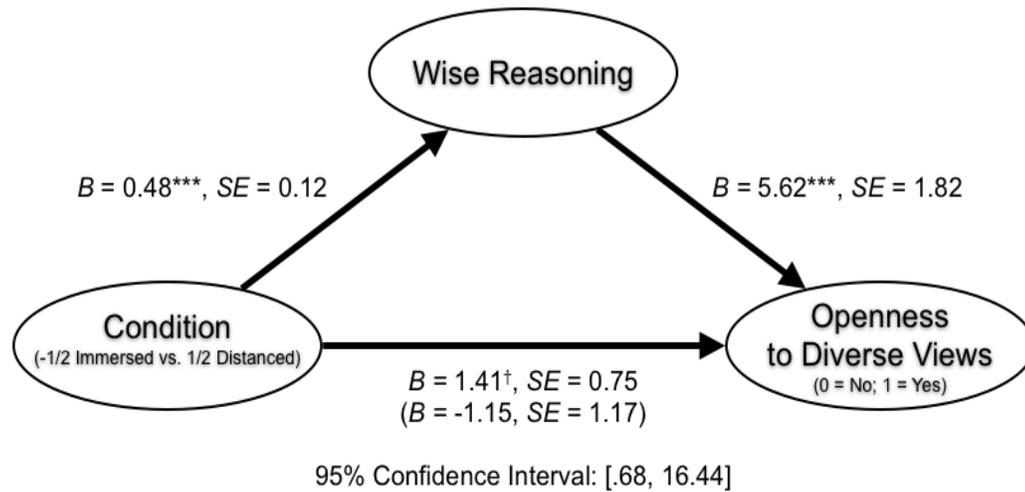
Participants in the distancing group endorsed their political views less strongly after the experiment compared to baseline ($F(1,52) = 4.84, p = .03, \eta^2_p = .09$; see Figure V.3) and signed up to join a bipartisan political issue discussion group at the end of the study at a higher rate (8/25) than immersed participants (3/29; $B = -1.41, SE = .75, Wald = 3.56, p = .059$).

Mediation analyses

I performed a path analysis to examine whether the effect of condition on prosocial tendencies was mediated by wise reasoning, which I operationalized as the average of participants dialectical reasoning and intellectual humility scores ($r = .49, p < .001$). Wise reasoning was correlated with openness to diverse viewpoints (Spearman's $\rho = .57, p < .001$) but not attitude assimilation scores ($r = -.09$). Thus, I focused on the former measure.

Because the pathway I examined included both a continuous variable (wise reasoning) and a categorical variable (openness to diverse viewpoints), I ran a series of linear and logistic regressions to test for mediation following established procedures (Mackinnon, Fairchild, & Fritz, 2007). These analyses provided evidence for mediation (see Figure V.4 for statistics). Specifically, self-distancing predicted wise reasoning and openness to diverse viewpoints, and the effect of wise reasoning on openness to diverse viewpoints was significant when controlling for self-distancing. Finally, a bootstrap test indicated a significant indirect effect of condition on openness to diverse viewpoints via wise reasoning.

Figure V.4 – Wise Reasoning Mediates the Effect of Self-distancing on Openness to Diverse Viewpoints



Note: Unstandardized coefficients (betas) are shown. The value in parentheses reveals the relationship between condition and openness to diverse viewpoints after controlling for wise reasoning. Statistical significance is indicated by superscripts ($^{\dagger}p = .06$, $*p \leq .05$, $**p \leq .01$, $***p \leq .005$). The values in the square brackets correspond to the 95% confidence interval from a bootstrap test performed to assess the significance of the indirect effect. The mediation is significant if the confidence interval does not include zero.

Discussion

These findings illustrate one way of cultivating wisdom when people reason about personally meaningful issues. They furthermore suggest that people need not go to great lengths to reason wisely – distancing was manipulated in both studies with minimal intervention. Future research is needed to examine the mechanisms underlying the aforementioned effects, and whether people can be trained to distance in daily life.

Two caveats are in order before concluding. First, distancing did not influence self-reported mood in either study. This suggests that mood did not mediate the effects of distancing on wise reasoning. On the other hand, this finding was unexpected given prior research indicating that distancing dampens emotional reactions (e.g., Kross, et al., 2005). One explanation for this asymmetry concerns methodological differences across these

studies. In the present studies 6-7 participants' reasoned about *what* would happen in their *future*, whereas studies linking distancing with less emotionality have cued participants to focus on *why* they felt the way they did in their *past*. This explanation notwithstanding, future research is needed to examine the relationship between distance, emotion, and wisdom.

Further, attitude assimilation was not significantly correlated with the other wisdom measures in Study 7. However, failure to observe a significant relationship between conceptually related outcomes measured across levels of analysis is not uncommon. For example, established measures of cognitive style (Na et al., 2010), attitudes (Greenwald & Farnham, 2000), and emotion (Ayduk, Mischel, & Downey, 2002) often correlate weakly or non-significantly. It is also possible that another aspect of wise reasoning that I did not assess influenced attitude assimilation.

CHAPTER VI

General Discussion and Conclusion

Summary

Only recently have researchers started to investigate psychological processes related to wisdom (Baltes & Smith, 2008; Jeste et al., 2010; Staudinger & Glück, 2011). Little is understood about the macro-and micro-level mechanisms influencing wisdom, or the consequences of wise reasoning. The studies presented in this dissertation take a step toward filling this gap. I started by reviewing previous theoretical and behavioral research. A psychological model was proposed that characterizes wisdom through the use of pragmatic reasoning strategies. Focusing on these strategies, Chapter II addressed the question of age-related gains in wisdom, specifically in the domain of social conflicts. Results from two studies indicated that older people, relative to young and middle-aged people, display greater wisdom when analyzing social conflicts. These results were robust when controlling for various cognitive and socio-economic factors (e.g. cognitive abilities, social class, or education). Furthermore, an extensive group of professional counselors and wisdom researchers validated the coding scheme used to measure wise reasoning. Building on this work, Chapter III assessed the consequences of wise reasoning. Specifically, Study 4 tested whether wisdom is positively related to well-being. Results showed that people who made more use of wise reasoning schemas reported

greater well-being on the majority of indicators. Moreover, wise reasoning partially mediated the positive relationship between aging and well-being. Next, Chapter IV situated the findings about the adult development of wisdom in a larger cultural context. To this end, Study 5 used procedures similar to those implemented in Studies 1-2 in Japan. The results indicated that younger and middle-aged Japanese were wiser in analysis of social conflicts than Americans, yet unlike Americans did not show aging differences in wisdom across the life span. Finally, Chapter V reported two studies testing the malleability of wise reasoning and behavior. In Study 6, unemployed college graduates who were reminded of the current economic recession showed greater wisdom when predicting the events from a detached, third-person perspective vs. an immersed first-person perspective. In Study 7, two weeks before the U.S. presidential election college students were asked to imagine their favorite candidate losing the election. Those students instructed to take a perspective of a distant observer living outside the United States (vs. an immersed perspective of a U.S. citizen) showed greater wisdom when predicting anticipated societal changes. Moreover, wise reasoning mediated the effects of distance from the self on cooperative behavior.

Implications and future directions

I posed the following four questions in the introduction: i) Does wisdom come with age? ii) What are the consequences of wise reasoning? iii) What role does culture play in wisdom-related processes? iv) Can we facilitate wisdom and if so what are the underlying psychological mechanisms?

Aging and well-being

One of the central findings is that older Americans are wiser than younger Americans. This finding stimulates several questions dealing with potential underlying processes. First, at this point it is not clear whether wisdom-related processes are general or rather domain/situation specific. The present research focused on personal problems and social conflicts – which are all important domains of life in where wisdom or the lack of it can be demonstrated. Yet, there are other domains of equal importance, such as ethical dilemmas. One endeavor for future research concerns examining whether strategies associated with wisdom can be found in legal reports dealing with ethical and non-ethical dilemmas, thus testing the association between ethics, legal decision making, and wise reasoning. Moreover, it would be worthwhile exploring theoretical links between wisdom and morality. Though originating in developmental research, a concern with morality is nowadays strongly embedded in social psychology (for review, see Haidt & Kesebir, 2010). Research on morality has gone through a historical transition: from the virtue-based conception of a good person to the development of moral reasoning to more recent work on underlying mechanisms. In some ways this transition is comparable to the change in focus advocated for future wisdom research (Staudinger & Glück, 2011), and implemented in Studies 5-7 of the present dissertation. In addition, social psychological work on morality has shown that emotions and intuitions often guide our moral reasoning (e.g. Ditto, Pizarro, & Tannenbaum, 2009; Haidt, Koller, & Dias, 1993). In a similar way, one important future direction in research on wisdom involves establishing links between the present research and wisdom for emotionally-charged events. Are the old still wise when a social dilemma requires a great amount of emotional

involvement? It is possible that self-immersion in the problem and the associated emotional involvement impairs the judgment of older people more than that of younger people, because older adults are generally less able to inhibit such information when its distracting than younger adults (Hasher & Zacks, 1988). On the other hand, the findings from Studies 6-7 suggest that older adults may chronically self-distance from the social conflict more than their younger counterparts and be less emotionally affected when reasoning about social life dilemmas. These boundary conditions should be examined in further detail in future work.

In addition to its relevance for the wisdom construct in general, the question of specificity vs. generality of wisdom has direct implications for understanding how it is acquired and maintained. If wise reasoning is solely context-specific, generational changes in knowledge may prevent successful maintenance and transmission of wisdom from one generation to the next (Birren & Svensson, 2005). Thus, rapid generational changes – as found in many modern societies these days – may put older adults at a disadvantage. In line with this hypothesis, Staudinger and Baltes showed that the context of the scenario – dealing with an issue that is typical for an older vs. for a younger person – facilitates the wisdom-related reasoning performance (Staudinger & Baltes, 1996). Research in the social psychological tradition would be of great value here, because it could help to identify social contexts under which older adults perform at their best.

Studies 1-4 highlight the positive side of growing older, even in light of general cognitive decline. These findings are consistent with several theoretical models of human development. Paul and Margret Baltes (Baltes & Baltes, 1990) suggested in their Selective Optimization with Compensation Model that successful development

encompasses the selection of functional domains on which to focus one's resources, optimization of developmental potential (i.e. maximization of gains) and compensation for losses, thereby ensuring the maintenance of functioning (i.e. minimization of losses). It is plausible that older adults concentrate their resources more in the interpersonal domain than younger adults and gain greater experience to deal with losses in this domain. Consistent with this assumption, research indicates that older (vs. younger) Americans are more motivated to invest in harmonious interpersonal relationships (Carstensen, Isaacowitz, & Charles, 1999). Another model that is consistent with the present finding has been put forward by Lynn Hasher and colleagues (Healey & Hasher, 2009; Zimmerman, Hasher, & Goldstein, 2011). Specifically, Hasher pointed out that under some circumstances age-related declines in basic cognitive functions (e.g. working memory) may incidentally result in more optimal decision-making. For instance, when deciding between multiple options older adults reduce the number of choices to a manageable number or rely on efficient decision search strategies (Yoon, Cole, & Lee, 2009). The present research suggests that this mechanism of compensation may also extend to higher-order reasoning. However, the exact nature of such compensation models (e.g. explicit vs. implicit) is not yet fully understood.

Study 4 also sheds light on the relationship between reasoning abilities and well-being. This research indicates that pragmatic reasoning strategies, which are influenced by life experiences and situated in a social context, are relevant for subjective well-being, whereas cognitive abilities (as measured by intelligence tests) are not. Beyond its direct contribution to well-being research, this finding has implications for the body of work on aging and well-being. Past research reliably demonstrated that aging in Western cultures

is associated with changes in cognitive and socio-emotional processing. Whereas fluid cognitive abilities such as working memory or executive functioning decline over adulthood (e.g. D. C. Park, et al., 2002), on measures related to emotion and emotion regulation, a positivity effect is quite common when people get older: both cross-sectional and longitudinal studies find older adults to report more positive well-being than their younger counterparts (e.g. Carstensen, et al., 2000; Mroczek & Kolarz, 1998). Though such findings of well-being differences between younger and older adults are abundant (e.g. Stone, Schwartz, Broderick, & Deaton, 2010), limited empirical work has addressed the questions of its origin. Some theorists suggest that this positivity effect in well-being may reflect optimization of affect and cognition (e.g. Labouvie-Vief & Blanchard-Fields, 1982). Indeed, research by Blanchard-Fields and colleagues indicates that older adults solve emotionally salient and interpersonal problems in more effective ways than young adults do (for review, see Blanchard-Fields, 2007). The present dissertation extends these findings, proposing that wise reasoning may be one of the mechanisms leading to greater well-being in older age. Indeed, Study 4 shows that wise reasoning statistically mediates the positive relationship between aging and various components of middle-aged and older adults' well-being: aging leads to greater well-being in part because aging facilitates greater use of wise reasoning strategies.

Social identity perspective may provide further insights about the mechanisms of wisdom development. One plausible hypothesis is that wisdom-related expertise in resolving social dilemmas in advanced adulthood is in part due to the continuous expectations from the elderly to give “wise” advice on matters of social life to the younger generations. Frequently assuming the role of advice-givers, older adults may

gain greater experience in dealing with social dilemmas over time. Such advice-giving may promote wise reasoning. Consistent with this idea, research shows that giving advice to someone else (vs. deciding for oneself) can promote a more balanced decision (Kray & Gonzalez, 1999), including a more holistic search of information when making a decision (Jonas, Schulz-Hardt, & Frey, 2005). Following this logic, it is possible that aging gains in wisdom observed among Americans in Studies 1-2 were in part due to older people being interviewed by younger people⁴. Future research may address this question by systematically testing wise reasoning and behavior when the participant is giving advice to a more mature/more-experienced vs. younger/less-experienced communication partner, as well as consequences of such role expectations on wisdom development over time.

Finally, there is a concern about the causality of the aging-wisdom and aging-wisdom-wellbeing links. One alternative hypothesis to the one put forward in this dissertation is that the current *Generation Me* of Americans is more self-absorbed than previous generations, including the older Americans in our study, and thus less wise when thinking about social issues. Indeed, some researchers suggests that the current generation of young Americans has a more inflated sense of the self (e.g. Twenge & Campbell, 2001) and they are less empathetic than earlier generations (Konrath, O'Brien, & Hsing, 2011). However, others found little if any generational change in egotism, self-enhancement, or individualism (Trzesniewski & Donnellan, 2010). Further, this research is based on self-reported level of individualism or empathy, thus measuring belief about one's dispositions rather than actual performance. As indicated in the introduction,

⁴ Note, this explanation does not account for the difference between middle-aged and older Americans.

inferences from such measures may be problematic for wisdom research, because it is not clear what greater scores on such measures (e.g. a belief that one is very empathetic) mean. Finally, Studies 1-2 indicate significant effects between middle-aged and older adults, which cannot be accounted for by this hypothesis. With regard to the question of directionality of the relationship between aging, wisdom, and well-being, positive affect was not related to well-being, thus it seems unlikely that wisdom is the product of chronic positive emotional experiences (Fredrickson, 1998; Isen, 1993). On these grounds I suspect that wise reasoning leads to greater well-being, rather than vice-versa. However, additional longitudinal research is desirable before strong claims regarding causality may be made.

Distance from the Self

Ancient and modern scholars on wisdom, as well as lay beliefs about this concept suggest that wisdom is not innate and that it can be gained through experience (Jeste, et al., 2010). Yet little attention has been devoted to identifying psychological mechanisms explaining how these gains can be achieved. I hypothesized that one path to greater wisdom may have to do with the capacity for individuals to “distance” themselves from their immediate experience, as suggested by both Eastern and Western philosophies (e.g. James, 1890; Lopez, 2007). Indeed, a growing body of empirical work suggests that people are capable of taking such a distanced perspective and to detach themselves from their egocentric viewpoint of “here and now” (Trope & Liberman, 2010). This research shows that a detached viewpoint can lead to greater sensitivity to moral issues (Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009), greater self-control (Metcalf & Mischel, 1999), better emotion-regulation (Kross & Ayduk, 2011), and greater likelihood

of reaching an agreement in negotiations (Henderson, Trope, & Carnevale, 2006). The present Studies 6-7 add to this research by showing that a distanced perspective on the self further promotes wise reasoning about personally relevant concerns.

What are the processes underlying the effects of distancing from the self on wise reasoning? One possibility is that the act of self-distancing influences the experience of the immediate situation at hand, which may in turn result in wiser reasoning and behavior. According to the feelings-as-information hypothesis, our immediate experiences and feelings are often used as a source of information in their own right (Schwarz & Clore, 1996). One such experience deals with fluency of the experience, that is the subjective experience of ease or difficulty associated with completing a mental task. It is plausible that asking people to adopt a self-distanced vs. the habitual egocentric perspective (Epley & Caruso, 2009) when thinking about difficult personal issues results in a meta-cognitive experience of less fluency. This lack of fluency may lead to a more deliberate processing and higher-order reasoning (Oppenheimer, 2008).

Current theories about psychological distance also suggest that its effects are induced by a higher-level construal, which is a relatively abstract, coherent, and superordinate mental representation of the issue at hand (Vallacher & Wegner, 1987). Higher level (i.e. abstract) construal may result in a schematic representation of an experience. However, higher-level construal may also underweight potentially important contextual information (e.g. Wilson & Gilbert, 2003). Several empirical demonstrations illuminate some conditions under which such abstraction may in fact be detrimental. Inducing temporally or spatially distanced perspective results in more correspondence bias (i.e. underweighting situational constraints on observed behavior; Henderson, Fujita,

Trope, & Liberman, 2006; Study 2; S. Nussbaum, Trope, & Liberman, 2003; Study 1), and more spontaneous trait-inferences from trait-implying behaviors (Rim, Uleman, & Trope, 2009). Further, inducing temporal distance leads to overconfident predictions of one's future performance (S. Nussbaum, Liberman, & Trope, 2006), and greater expectation of cross-situational consistency of one's own personality (Wakslak, Nussbaum, Liberman, & Trope, 2008).

An alternative to the dominant interpretation of these finding is that different forms of self-distance (e.g. temporal and visual) may also not be represented hierarchically. For instance, it is plausible that one can maintain a visually distant perspective on an issue without activating a temporally distant representation of oneself. Moreover, philosophical work on the phenomenology of mind suggests that self-distance is inherently social, i.e. it is functionally oriented towards improving one's social experience (Cohen, et al., 2007; Ingerslev, 2011; Sartre, 1992), thus the cognitive abstraction hypothesis may not capture the full range of underlying processes. Nevertheless, it seems plausible that distancing may not always lead to wise reasoning and such boundary conditions need to be explored.

Finally, distance from the self likely involves other processes than construal-level representations or fluency. One such process deals with the reduction of emotional arousal. Indeed, reduction in arousal is a desired outcome in many meditational practices that emphasize self-distance (Shapiro, 2008). Importantly, social dilemmas of high personal concern can elicit high arousal negative emotions, such as anger or fear (Ellsworth & Scherer, 2003). Past research also indicates that these emotions can lower such wisdom-related behaviors as search for a compromise (e.g. Allred, Mallozzi, Matsui,

& Raia, 1997) or perspective-taking (Denham, 1986). It is possible that distance from the self can either *dampen*⁵ the level of arousal, or possibly change the appraisals leading to the high arousal negative emotions. Future work may explore these possibilities by manipulating the levels of self-distancing and emotional arousal in the same research design.

Culture

In the most recent review of empirical wisdom research, Staudinger and Glück (2011) reported a notable increase of psychological work on this topic. These authors concluded with the following recommendation: “It seems important that researchers in this area move beyond the investigation of cultural differences in subjective theories of wisdom and begin to study actual expressions of wisdom in different cultural contexts.” (p. 236).

This dissertation work addresses precisely this issue. It accomplishes this goal by building on a growing body of research suggesting that cultures differ in the ways they approach social conflicts. East Asians are more concerned with maintaining interpersonal harmony and avoiding conflicts than Westerners (e.g. Leung, 1987, 1988; Markus & Kitayama, 1991; Morris, Leung, & Sethi, 1999; Triandis, 1989). The cultural hypothesis proposed in this dissertation is that such cultural differences have developmental consequences for reasoning about social conflict. Consistent with this hypothesis, younger and middle-aged Japanese showed greater use of wise reasoning strategies that emphasize the recognition of multiple perspectives, compromise, and the limits of knowledge than Americans. Yet, older Japanese were not wiser than older Americans.

⁵ However, note that Studies 6-7 failed to observe an effect of self-distancing on mood.

These findings have several implications for cultural psychology. First, it adds to the growing body of research on cultural differences in social orientation (Markus & Kitayama, 1991; Triandis, 1989) and holistic vs. analytic cognitive style (Cohen, et al., 2007; Nisbett, 2003; Nisbett, Peng, Choi, & Norenzayan, 2001; Varnum, et al., 2010) by suggesting that differences in social orientation and cognitive style translate into differences in higher-order reasoning about social conflicts. In addition, Studies 6-7 suggest that distancing may be a mechanism that leads to cultural differences in wisdom observed in Study 5, as well as context-oriented reasoning in general (i.e., dialecticism; Nisbett, et al., 2001). This inference is consistent with research showing that cultures that endorse more context-oriented reasoning also tend to spontaneously distance more when reflecting over their experiences than cultures that are less contextual (Cohen, et al., 2007; Grossmann & Kross, 2010). Moreover, the present findings raise the issue of the generalizability of aging and cultural effects observed on limited populations (Henrich, Heine, & Norenzayan, 2010). Most of the mainstream theories in adult development are based on Westerners (predominantly North Americans). Most of the theories in cultural psychology are based on college students. The current research demonstrates that it is important to examine both culture and adult development within the same research design.

It is important to point out that the operationalization of wisdom in the present research is based on some common characterizations found both in East Asian and Western philosophies, as well as previous behavioral studies. However, there are reasons to believe that cultures differ in their *emphasis* on some wisdom strategies over others. Takahashi and Bordia (2010) examined what adjectives people in different cultures associate with wisdom and found that Americans and Australians relate wisdom to being

“knowledgeable,” whereas Japanese and Indians relate it to being “discreet.” Do these possible differences in lay theories about wisdom also translate into differences in wise reasoning? One finding from Study 5 suggests that this may be the case: young and middle-aged Japanese scored higher than Americans on all dimensions of wise reasoning except *conflict resolution*. In fact, Americans mentioned more conflict resolution statements than Japanese. This raises the question whether conflict resolution as measured in the present dissertation is in fact a universally endorsed, or rather a culture-specific characteristic of wisdom. A task for future research would be to explore culture-specific characterizations of wisdom and associated psychological processes.

Finally, one important future direction concerns the role of practices (Morling & Lamoreaux, 2008) in cultural transmission of wisdom-related strategies. Indeed, some research in the domain of education suggests that differences in practices influencing cultural transmission may start as early as elementary school. Researchers found that East Asian (e.g. Japanese, Taiwanese) textbooks emphasize wisdom-related themes such as interpersonal harmony and compromise, and taking a self-distanced perspective more than American textbooks (Imada, 2010; Lanham, 1979; Wang, 1993; Zimet, 1972). Future research may extend this work to other domains (e.g. newspapers, advertising) to explore how wisdom-related practices are culturally transmitted and maintained.

Practical implications

The results of this dissertation also have a number of practical implications. The finding that older Americans are wiser in analysis of social conflicts than young and middle-aged adults (Studies 1-2) suggests that it may be advisable to consider older Americans for key social roles involving counseling, teaching, legal decisions, and

intergroup conflict negotiations. Given the abundance of research on cognitive decline in late adulthood, this research may provide an impetus to clinicians to emphasize the inherent strengths of the elderly. The finding that wise reasoning is associated with individual well-being and longevity (Study 4) also suggests that boosting wisdom may be a strategy to increase individual well-being. Indeed, the results from a set of experiments in Chapter V demonstrate that wise reasoning and behavior can be boosted via minimal interventions. It is noteworthy that the shifts in wise reasoning and behavior were due to relatively simple manipulations. This suggests that wisdom may be highly malleable. The present work can lay a foundation for developing interventions to increase wise reasoning and behavior in daily life, responding to a recent call for greater role of wisdom in education (Ferrari & Potworowski, 2008; Sternberg, 2001), and social sciences (Flyvbjerg, 2001; Maxwell, 1984). An important future task will be to identify strategies that can help to translate wise reasoning into wise action (Schwartz & Sharpe, 2010).

Conclusion

The current dissertation provides a systematic investigation of the psychological construct of wise reasoning. It highlights individual and group-level factors such as age and culture, explores the association between wisdom and well-being, and examines how wisdom can be facilitated. A key challenge for future research is to develop an increasingly fine-grained understanding of how these processes promote wisdom. Addressing this issue, along with the other questions raised by these findings, promises to enhance knowledge concerning how wisdom operates and can be cultivated in daily life.

APPENDICES

APPENDIX A

Newspaper Stories Used in Study 1

Ethnic tensions/Tajikistan

Migration Problems in Central Asia

by Emomali Akilov

DUSHANBE, Tajikistan, May 18 – Though in recent times Tajikistan has not been a large player on the world stage, it once lay on the ancient silk route and held an important place in the global economy. However, new economic growth in the former Soviet Republic has been robust in recent years.

These positive developments have made Tajikistan an attractive destination for residents of its poorer neighbours. Since independence in 1990 Tajikistan has become prosperous and wealthy, compared to the other countries in the region. Growth is so strong that the country is experiencing labor shortages, despite relatively large scale immigration. Hence, one would expect that immigrants from neighbouring countries, like Kyrgyzstan, would find a warm reception here. The reality is slightly different.

Like Tajikistan, Kyrgyzstan is also a landlocked and mountainous country. It shares borders with China, Kazakhstan, Tajikistan, and Uzbekistan. Due to recent economic and political instability, waves of Kyrgyz have immigrated in recent years to neighboring states like Tajikistan. Kyrgyz immigrants bring with them a different language, different customs, and a distinct sense of identity which many of the Kyrgyz seek to preserve. The Kyrgyz immigrants say they came to Tajikistan seeking education, employment, and a better life.

But there are many Tajiks who feel that Tajikistan is already crowded enough. “If there must be immigration,” said Alikbek Machmetov – a local from Dushanbe, “those who come to Tajikistan should abandon their ways and adopt our customs, our values and our language.”

Recently the government of Tajikistan began to make attempts to stem the flow of immigrants, in response to growing anti-immigrant sentiment. However with 20% of the former population of Kyrgyzstan living within its borders, the question of how to deal with its newest residents is not one likely to go away any time soon.

(from “The Central Asian Observer”, Mai 18, 1994)

“Black Gold” and Governmental Regulations in Central Pacific

by Joseph J. Anefal

BANABA, Mai 29 – Chuuk state is a small island nation located in the central tropical Pacific Ocean with Banaba as its capital and a population of about 53,000 people. Although a small nation, Chuuk state has many laws and regulations, especially ones that effect industry. These regulations are very comprehensive and traditional, some of which have been in place for over 40 years. According to the present government these regulations are still necessary to protect the environment and the health of the inhabitants. However, things change.

For decades, the island's economy has been based on fishing and support from the International Monetary Fund and other international sources. But recently the petroleum industry has discovered the island. As it turns out, the island possesses enormous crude oil reserves. Now, many companies like Morey Oil South Pacific, Royal Dutch Shell, and Exxon are trying to persuade the government to allow them to set up on-shore and off-shore drilling operations and to build oil refineries on the island. For now, Chuuk state laws would make it difficult for these companies to operate.

The oil companies are offering to pay large sums of money for the rights to extract oil from Chuuk territory, and many on this cash-strapped island see the discovery of oil as a boon for the country. There is now a movement among the islanders to eliminate the governmental regulations of industry entirely, so that Chuuk state can share the economic benefits of this unexpected discovery. The supporters argue that allowing foreign firms to set up operations will prove lucrative for Chuuk state, eliminating its dependence on international donors and allowing the government to undertake many new initiatives. “New schools, new housing and new independence!” proclaims Masao Urusemal. And he is not the only one, as the movement to deregulate industry is quickly gaining support among the islanders.

(from “The Independent Observer”, July 29 1995)

New Tensions in South-Eastern Africa

by Ismail Omar Guelleh

DJIBOUTI, Sept. 12 – Located in the Horn of Africa, Djibouti is bordered by Eritrea in the north and Ethiopia in the west and south. The remainder of the border is formed by the Red Sea and the Gulf of Aden. On the other side of the Red Sea, on the Arabian Peninsula, 20 km from the coast of Djibouti, is Yemen. Despite being bordered by states which have had hostilities with each other for years, Djibouti has largely been spared from bloody conflicts. However it has not been without troubles of its own.

Recently, a radical movement has sprung up among the Issa, one of the two main ethnic groups living in Djibouti. The movement, known as "Kishangi" advocates broad social and political change, seeking to alter almost all aspects of the society, including the values that have been dominant for generations. "We want to replace the existing political system with a new and different system, one which will bring us into the next century. The people are with us, and their voice will not be ignored" says Mouna-Hodan Ahmed, one of the leading figures of the new movement.

In opposition to this movement the Afari - the other major ethnic group - seek to keep in place existing traditions and institutions. The Afari are resistant to any change or reform of the system. "We are confident that this new movement among the Issa will not bring our country any further" says Reesom Haile, deputy Prime Minister and a member of the ruling party. Haile also described Ahmed as a "charlatan" and a "conman" and accused him of fomenting civil unrest.

Supporters of both sides are growing more vocal and the politics of this coastal state become more polarized each day. It is difficult to say what will happen next, as both the traditionalists and the radicals have strong support from the population and as conflict between the two sides seems to be worsening.

(from "The International Observer", September 12 1995)

APPENDIX B

Advice Column Stories Used in Study 2

Sibling Conflict

November 24, 2003

Dear A.:

My husband, "Ralph," has one sister, "Dawn," and one brother, "Curt." Their parents died six years ago, within months of each other.

Ever since, Dawn has once a year mentioned buying a headstone for their parents. I'm all for it, but Dawn is determined to spend a bundle on it, and she expects her brothers to help foot the bill. She recently told me she had put \$2,000 aside to pay for it.

Recently Dawn called to announce that she had gone ahead, selected the design, written the epitaph and ordered the headstone. Now she expects Curt and Ralph to pay "their share" back to her. She said she went ahead and ordered it on her own because she has been feeling guilty all these years that her parents didn't have one.

I feel that since Dawn did this all by herself, her brothers shouldn't have to pay her anything. I know that if Curt and Ralph don't pay her back, they'll never hear the end of it, and neither will I. What should I do about this?

-

Conflict between Friends

March 5, 2002

Dear A.:

I am close friends with a couple I'll call "Angie" and "Gil." I met them at the same time and have always been unattached while they are a married couple. This didn't matter, and we hit it off right away.

The problem is, when Angie gets mad at Gil for whatever reason, she wants me to be mad, too. She thinks I should take sides, and this makes me uncomfortable because they are both my friends. Gil has never asked me to take sides with him.

Angie has gone so far as to request that I ignore any attempts by Gil to contact me if they are fighting. (He never does.) I feel bad for him and like I am betraying a friend by agreeing to do as she asks. I don't know how to explain to her that as they are both my friends, I would rather be left out of their arguments and not have to choose sides.

Am I wrong to be friends with a couple? Is this inviting trouble because I am single?

-

Spousal Conflict

Dear A.:

I am recently married, and every night my husband "tells" me when it's time for us to retire for the night. This can be anytime from 9:30 to 11:30 p.m.

If I tell him -- which is not often -- that I am ready for bed before he is, he gets upset. However, if he is ready to go to bed, and I tell him I'd like to finish a book I'm reading or watch a little more TV, he gets upset.

When I try to talk to him about this, he says that married men and women should go to bed "together," period! But, it is always on his timetable. What about mine? Needless to say, we have both gone to bed angry.

How do we deal with this without both of us getting angry and resenting each other?

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