

THESIS

IN DEFENSE OF WISE EMOTIONS:
THE RELATION BETWEEN EMOTION AND WISDOM IN AUTOBIOGRAPHICAL
MEMORIES

Submitted by

Amy Quinn

Department of Human Development and Family Studies

In partial fulfillment of the requirements

For the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Summer 2011

Master's Committee:

Advisor: Thao Le

Christine Fruhauf
Patrick McKee

ABSTRACT

IN DEFENSE OF WISE EMOTIONS:

THE RELATION BETWEEN EMOTION AND WISDOM IN AUTOBIOGRAPHICAL MEMORIES

Autobiographical memories are an often untapped resource in research. The current study utilizes these memories to understand the role of emotions in individuals' reporting of gaining and using wisdom. Bluck & Glück's (2004) previous research on autobiographical memories and how wisdom is used in daily life forms the basis for this study. This study extends Bluck & Glück's (2004) study by examining the nature of emotions in individuals' recollection of events in their lives in which they gained and used wisdom.

To examine the role of emotion in wisdom, this study examined 122 community-dwelling adults' scores on the Three-Dimensional Wisdom Scale (3D-WS; Ardel, 2003) and analyzed participants' responses when asked to recall situations in which the participants gained and used wisdom. Positive and negative emotion words were coded in the interviews, and analyses were conducted using thematic content coding.

Results revealed that when participants discussed an experience in which they gained wisdom, they expressed more negative emotions words in their narrative. On the other hand, when participants were asked to recall an experience in which they used wisdom, they expressed more positive emotion words in their narrative. Participants' expression of using logic/reasoning with respect to wisdom was also examined; it was found that individuals used more logic words

when discussing using wisdom but not when gaining wisdom. The influence of gender and age was also considered and revealed no statistically significant findings.

Autobiographical narratives revealed some interesting findings on the role of emotions in gaining and using wisdom. Future interventions may want to facilitate emotional experiences in order to help individuals either gain or use wisdom to make their lives more positive overall.

ACKNOWLEDGEMENTS

Thank you to all my family members for supporting me through the Master's thesis experience – I love you so much!

A special thanks to my committee members, Thao, Christine, and Patrick, for your amazing insights and suggestions. You helped me turn a regular paper into a thesis!

TABLE OF CONTENTS

1. Wisdom and Emotion in Autobiographical Memories..... 1

2. Development of Wisdom..... 3

 2.1 Definitions of Wisdom..... 3

 2.2 Development of Wisdom Through a Lifetime..... 6

 2.3 Gender as a Moderating Factor..... 9

3. Role of Emotions in Gaining and Using Wisdom..... 11

 3.1 Emotions Defined..... 12

 3.2 Age Development of Emotions..... 15

 3.3 Broaden-and-Build Theory..... 18

4. The Role of Negative and Positive Emotions in Gaining and Using Wisdom..... 21

5. The Current Study..... 22

 5.1 Hypotheses..... 22

6. Method..... 24

 6.1 Participants..... 24

 6.2 Data Collection..... 25

 6.3 Measures..... 25

 6.3.a Three-Dimensional Wisdom Scale (3D-WS)..... 25

 6.3.b Life Story Interview..... 25

 6.4 Coding..... 26

7. Results..... 27

 7.1 Hypotheses..... 27

 7.1.a Comparing the negative and positive emotion words discussed
in gaining and using wisdom..... 27

7.1.b	There will be a positive correlation between positive emotional words expressed in individuals' responses to the using wisdom question and 3D-WS.....	28
7.1.c	There will be a positive correlation between number of words expressing use of logic in individuals' response to the question on using wisdom and the cognitive component of 3D-WS.....	28
7.1.d	Gender will moderate how participants score on the sub-components of the 3D-WS in that women will score higher on the emotional component and men will score higher on the cognitive component.....	29
7.1.e	There will be a null correlation between age and the 3D-WS score.....	30
8.	Discussion.....	30
8.1	Implications for Research.....	31
8.2	Theoretical Implications.....	33
8.3	Implications for Applied Settings.....	34
8.4	Limitations and Future Directions.....	35
9.	Appendix 1. Three-Dimensional Wisdom Scale.....	37
10.	References.....	43

In Defense of Wise Emotions:

The Relation between Emotion and Wisdom in Autobiographical Memories

Wisdom and Emotions in Autobiographical Memories

Emotion and wisdom have been extensively researched, often independently, in their respective fields. Rarely, however, is the relation between wisdom and emotion explicitly discussed in the scientific literature or empirical studies. Bluck and Glück (2004) suggest that an implicit linkage between emotions and wisdom exists through the use of autobiographical memories, or personal recollections of situations that recur or occur over the long term. When participants were asked to recall times of using wisdom, individuals responded with narratives of transforming emotionally negative situations into emotionally positive situations (Bluck & Glück, 2004). This research suggests that there is a relation between emotions and wisdom, but it is debatable as to what magnitude or direction these concepts are linked.

Wisdom is defined in this study as the multidimensional construct of cognition, affect, and self-reflection that is associated with compassion, self-transcendence and action directed toward the common good (Ardelt & Oh, 2010; Takahashi & Overton, 2005). Emotion is defined in this study as a multicomponential sequence of perception, affect, and action occurring over a short period of time (Frijda, 1986; Gasper & Bramesfeld, 2006). The concepts of wisdom and emotion are linked to thinking, feeling, and behaving and interact in some way to produce these processes of perception, affect, and action. However, no studies have empirically explored the relation between emotion and wisdom.

The implicit linkage between emotion and wisdom has, however, been demonstrated and alluded to in numerous studies such as Pennebaker and Stone (2003), Freund and Baltes (1998), Le (2008), Baltes and Kunzmann (2003), and Ardel (2009), who all used emotion as a way of empirically measuring wisdom, but none of these researchers clarified the exact relationship between the gaining and using wisdom and the positive and negative emotions involved.

As wisdom benefits all individuals through increasing behaviors for the common good (Ardelt & Oh, 2010; Sternberg, 1998), it is important to understand how emotions motivate, inspire, or influence individuals' development (i.e. gaining) of wisdom and use of wisdom in their lives. Wisdom is also considered the height of personal growth, self-actualization, and the means for having a "good life;" thus knowing how emotions are related to wisdom would also allow for ideal individual human development (Scheibe, Kunzmann, & Baltes, 2009). Understanding the role of emotions in gaining and using wisdom has implications for the development of wisdom. When the relation between wisdom and emotion is known, more people can utilize this knowledge to alter their emotions in a way that creates wise and positive decisions.

Building off Bluck and Glück's (2004) research on autobiographical memories, the current study examined how wisdom and emotion are related. Research questions stemming from the little research conducted on the relation between these variables are: what is the role of emotions in adults' recollection of experiencing wisdom; specifically, what type of emotions (positive vs. negative) are more likely to be associated with individuals' reporting of an experience in which they gained wisdom, and do positive or negative emotions relate to gaining or using of wisdom differently? Relatedly, what role does the use of logic, rational thinking (cognition) play in gaining and using wisdom, and does gender and age influence the development of wisdom?

The following sections review the theory and research of wisdom and emotion separately, followed by a description of how these concepts are thought to be linked in the current literature. Subsequently, the current study is discussed in order to clearly operationalize the constructs of wisdom and emotions, as well as the theoretical and researched underpinnings of the link between gaining and using wisdom, and the influence of negative and positive emotions in personal narratives.

Development of Wisdom

The current study's definition of wisdom will be expounded upon in the proceeding paragraphs as well as a discussion on the development of wisdom. The two main conceptualizations of wisdom examined in the current study include Baltes and colleagues' Berlin Wisdom Model that emphasizes logic and Ardelt's model that incorporates emotional, reflective, and cognitive components (Baltes & Kunzmann, 2003; Baltes & Kunzmann, 2004; Ardelt & Oh, 2010; Ardelt, 2005). Other conceptualizations of wisdom include seeing through illusions (McKee, 1990) and Takahashi and Overton's (2005) and Sternberg's (1998) balance of multiple emotion-related and logic-related capacities. This study focuses on Ardelt's model due to its empirical validity and focus on emotion and logic components of wisdom. Possible age influences and gender differences in use of emotions and logic in the development of wisdom will then be examined. The words "development" and "gaining" in relation to wisdom are utilized interchangeably in the following paragraphs.

Definitions of Wisdom

Baltes' Berlin Wisdom Model best describes the Western view of wisdom as knowledge-based. This paradigm suggests that five criteria of knowledge collectively constitute "wisdom" (Baltes & Kunzmann, 2003; Baltes & Kunzmann, 2004; Scheibe et al., 2009). These five criteria are: factual knowledge, procedural knowledge, life-span contextualism, value relativism and tolerance, and knowledge of uncertainty (Scheibe et al., 2009, p. 173). Factual and procedural knowledge refer to knowing the "what" and "how" of life. Contextualism denotes the understanding of how diverse contexts of living change over an individual's lifespan. Value relativism is the understanding and tolerance of values which differ based on individual, social, or cultural influences. Knowledge of uncertainty refers to handling ambiguity and limits of personal knowledge.

The outcomes of wisdom for this model are ideals of “the good life” and “excellence in mind and virtue” (Baltes & Kunzmann, 2004, p. 292). While Baltes suggests that a wise person demonstrates high expertise in all five of these knowledge criteria, he also states that wise people are not perfect examples of “wisdom” (Baltes & Kunzmann, 2003; Baltes & Kunzmann, 2004; Scheibe et al., 2009). As such, the Berlin Wisdom Model contends that five knowledge criteria are needed to become wise and yet no one reaches the ideal, utopian state of wisdom (Baltes & Kunzmann, 2004).

Ardelt has often critiqued Baltes’ Berlin Wisdom Model for not integrating emotions and self-transcendent aspects of wisdom. Ardelt and Oh (2010) agree with Baltes that it is rare for individuals to reach a high level of wisdom and that wise persons strive for the common good of humanity. The differences between Western and Eastern definitions arose out of “society’s emphasis on having rather than being” (Ardelt & Oh, 2010, p. 88). In this way, Baltes and Kunzmann (2004) prioritize Western societies focus on the “having” of wisdom through “having” a certain type and amount of knowledge (Ardelt & Oh, 2010). Eastern societies focus on wisdom as a way of being through cognitive, reflective, emotional, compassionate, mindful, and intuitive practices (Ardelt & Oh, 2010; Takahashi & Overton, 2005). Ardelt believes that wisdom is a potential capacity for every person, which simply needs to be cultivated through mindfulness practices of gathering self-insight and reflection upon material learned; these practices allow one to shed self-interest and in a way, transcend self-subjectivity (Ardelt & Oh, 2010). McKee (1990) offers the idea of wisdom as the ability to “see through illusion” (p. 327). In this way, a wise person knows the limits of knowledge and sees a problem objectively instead of through subjective temptations (McKee, 1990). Yang (2001, as cited in Ardelt & Oh, 2010) found that knowledge, benevolence, compassion, openness, profundity, modesty, and unobtrusiveness were all linked to adult Taiwanese Chinese views of wisdom. Through these practices of “being wise,” decisions are created and behaviors are performed in terms of the common good.

Combing both the emotional component of Ardel's theory of wisdom and the logical component of Baltes and colleagues' theory, Takahashi and Overton (2005) propose to examine wisdom by integrating both components of the analytical mode (knowledge-based) and the synthetic mode (reflective- and emotionally-based). Sternberg's (1998) balance theory of wisdom also takes components from both cultural conceptions to create a more generalizable definition of wisdom. Sternberg states that wisdom is not about maximization of self-interest or other-interest to create a common good, but a balancing of intrapersonal, interpersonal, and extra-personal self-interests (p. 133). Labouvie-Vief (1990) and Csikzentmihalyi and Rathunde (1990) clarify this statement by proposing that wisdom includes an awareness of differing viewpoints. Sternberg suggests a wise person must also balance short- and long-term interests and adaptation, shaping, and selection of environments as well (p. 133). To be able to balance all these components, an individual must gain and use formal knowledge, experiential knowledge, creativity, social intelligence, and emotional intelligence (Sternberg, 1998). Wisdom is achieved through multiple cyclical processes of balancing these various components and choosing those best for the common good (Sternberg, 1998). Unfortunately, neither Takahashi and Overton's (2005) nor Sternberg's (1998) theories have been utilized in enough studies to be empirically valid.

The current study defines wisdom in accordance with Ardel's (Ardelt & Oh, 2010) explicit, scientific definition. However, respondents may hold their own implicit, lay theory of wisdom (Montgomery, Barber, & McKee, 2002). Montgomery et al. (2002) interviewed older American adults to understand "wisdom as lived" (p. 139). In describing events where they had acted in a wise manner, Montgomery and colleagues found that the participants described events where they utilized guidance through mentorship and ethical/moral stances, knowledgeable experience, and compassionate relationships. These responses reflect aspects of wisdom as knowledge, as conceptualized by Baltes and Kunzmann (2004), and wisdom through emotion and compassion, as conceptualized by Ardel and Oh (2010). Upon later self-reflection, some

participants realized that in some events they had unconsciously acted in a wise manner, which also coincides with Ardelt and Oh's conception of wisdom. These responses suggest that even though there are differences between explicit and implicit wisdom definitions there is also considerable overlap between concepts.

Development of Wisdom Through a Lifetime

Researchers have theorized two pathways in which wisdom develops – over time (i.e. accumulation of experience) and through meaning making of crisis situations (Ardelt, 2005; Baltes & Kunzmann, 2003; Freund & Baltes, 1998; Le, 2008). Little is known about the difference between the development of wisdom used in specific situations and a global use of wisdom; however, the latter is the ideal state of development (Richardson & Pasupathi, 2005). A global use of wisdom suggests a deeper integration of wise-practices into an individual's life; this is often viewed as a higher level of wisdom than individuals who are situation-limited in their use of wisdom.

Popular culture often believes that wisdom development is linked with age development. The current study examines wisdom in light of Baltes' (1987) explanation on life-span developmental psychology and research. This mind-frame suggests that wisdom can grow and decline throughout a lifetime and is not limited to growth and decline in older adulthood. While society often envisions wisdom as the "wise, old woman or man," the capacity to gain wisdom can begin in adolescence (Richardson & Pasupathi, 2005). Adolescence is a time period where gains in specific types of knowledge can lead to gains in wisdom in later life (Richardson & Pasupathi, 2005). Richardson and Pasupathi (2005) suggest several aspects of wisdom which are thought to increase in adolescence: the ability to think abstractly, ability to consider hypothetical situations, increased complexity of information processing strategies, ability to see multiple aspects of situations, self-reflective thinking, increased deductive reasoning, increased speed and automaticity of processing, and increased cognitive capacity (p. 142). Many of these increases in

cognitive ability during adolescence are linked to aspects of Sternberg's (1998) balance theory of wisdom and Baltes' Berlin Wisdom Model (Baltes & Kunzmann, 2004). Erikson's developmental model and Kohlberg's stages of moral reasoning also propose that adolescence is a starting point for gaining wisdom-related knowledge (as cited in Richardson & Pasupathi, 2005). Motivation to become wise and the use of wise actions might be seen to decrease or become stagnant in adolescence due to risk-taking behaviors and the precedence of identity formation (Richardson & Pasupathi, 2005). Pasupathi, Staudinger, and Baltes (2001) asked individuals 14 to 37 years to respond to hypothetical and ill-defined life situations. The researchers rated the individual's answers based on Baltes and Kunzmann's (2004) definition of wisdom. Pasupathi et al. found that wisdom-related knowledge increased in the adolescent sample, but found no age-based relationship for wisdom in the young adult to middle-aged part of the sample. This suggests that wisdom can develop in adolescence but growing older does not necessarily coincide with wisdom development.

As wisdom is considered to "develop" but has not been found to be age-linked, accumulation of life experiences could explain how an individual's wisdom increases. Ardelt (2008) and Le (2008) therefore surmised that wisdom arose due to crises, or hardships in life. Such negative situations would build over time, but are not age-linked, similarly describing the development of wisdom. Ardelt suggests that wisdom develops through the successful coping with hardships in life and acceptance that negative emotions are "a necessary complement" to positive emotions (p.14). Pascual-Leone (1990, 2000) agrees that negative life situations can lead to self-transcendence, a hallmark of wisdom. Ardelt assessed 180 older adults with the Three-Dimensional Wisdom Scale (3D-WS), including measurements for cognitive, affective, and reflective wisdom dimensions. Respondents were grouped as scoring relatively low on the three wisdom dimensions, relatively high, or in the median range. Certain respondents from each group were asked in an interview-style, how they coped with a particular unpleasant event. All

respondents had suffered from negative life events, but those who scored relatively high on the 3D-WS learned from, accepted, and/or made meaning from their unpleasant event through mental distancing and active coping (Ardelt, 2005). These abilities are more reflective of using cognition to cope than emotion. Those who scored relatively low on the 3D-WS avoided reflecting upon the situation and passively coped, avoiding reflection upon the cognitive or emotional aspects of the situation (Ardelt, 2005). These findings suggest that wiser individuals use different, perhaps more empowering, coping strategies than less-wise individuals. Successful coping through acceptance of and cognitive reflection upon negative life events can therefore be seen as a pathway for wisdom development. These studies are limited by their lack of examining the emotional components of wisdom.

The role of reminiscence may also be linked to the development of wisdom. When an individual reminisces, she or he recalls past, personal events. Butler (1963) believed that reminiscence was a natural, developmental process he term life review, occurring prior to death when an individual reassesses past events. During times of reminiscence, one utilizes capacities of self-transcendence and reflection. A subcategory of the life review process is the examination of autobiographical memories as conducted in the current study. Bluck and Glück (2004) suggest that wise individuals can look back upon a negative event and turn it into a positive experience cognitively through these autobiographical memories.

Bluck and Glück (2004) asked participants, aged 15 to 70 years, to discuss situations in which they had acted in a wise manner. In response, most individuals discussed difficult times in which they used personal resources to transform themselves or the situation into a positive outcome (Bluck & Glück, 2004). These participants recalled having learned a lesson from these negative events, which put a positive spin on how they remembered the situation. This finding suggests that autobiographical memory narratives of negative experiences can be cognitively restructured into positive experiences through wisdom. While the researchers suggested some

participants became emotional during their interview, emotions were not utilized other than to suggest that a situation discussed was positive or negative.

Le (2008) suggests that wisdom develops through both life crises and positive experiences, in divergent ways. This study also distinguishes possible distal and proximal mediating factors to the development of wisdom, such as culture, work, family, and politics. Le assessed stressful life experiences, positive experiences, transcendent wisdom, and practical wisdom in a group of European Americans ($M = 73$ years, $SD = 15$) and Vietnamese Americans ($M = 61$ years, $SD = 10$). Both groups were seen to suffer from macro-social events (i.e. the Vietnam War). Le found that older European American adults who had less conservative values of tradition and conformity and who were more academically successful were better able to form wisdom from the negative events in their lives. Vietnamese American adults displayed more values of conservatism and more signs of being overwhelmed by negative life events, which were negatively related to transcendent wisdom. On the other hand, positive situations were positively related to transcendent wisdom. This study suggests that both negative and positive life experiences are related to acquisition of wisdom. While this finding adds another facet to understanding how wisdom develops, the study is limited by the fact that there is no explicit connection discussed between the negative and positive emotions expressed in the coding for positive experiences and stressful experiences.

Gender as a Moderating Factor

Gender could be a moderating factor in the development and use of wisdom (Orwoll & Achenbaum, 1993). Potential differences may arise in how women and men utilize emotional capabilities or logical capabilities when gaining and using wisdom. Orwoll and Achenbaum (1993) stated that empirical studies have not found significant gender differences in using wisdom. Despite this, these researchers argue that individuals in our society are reared in gendered ways (Orwoll & Achenbaum, 1993). As such, gender often moderates the components

which make up wisdom due to gendered upbringings. Orwoll and Achenbaum (1993) suggest that gender would moderate how an individual would develop and express their wisdom, but not alter the level of wisdom an individual could attain. In other words, because emotions are more salient for women (Gilligan, 1982), emotions may play a more favored role when women utilize wisdom as compared to men. These researchers defined wisdom similarly to Ardel's conceptualization (Ardelt & Oh, 2010). Orwoll and Achenbaum suggest that in the emotional component of wisdom, women are more relational and empathetic than men; that men and women develop different cognitive strengths (also discussed in Ardel, 2009); and that women and men handle crises and opportunities differently. These theorizers then suggest that wisdom is the integration of male and female aspects. Such a statement implies that although the path to wisdom may differ for men and women, it is likely that wise individuals would be androgynous in their use of wisdom.

Smith and Baltes (1990) found no significant gender differences in wisdom in a sample of highly educated German adults (young (25-35 years); middle-aged (40-50 years); and older (60-81 years)). In a similar study, Kunzmann and Baltes (2003) also found no significant gender differences between mixed education level German adolescents (15-20 years), middle-aged adults (30-40 years), and older adults (60-70 years). Both studies utilized samples of half females and half males, although these studies are limited in generalizability to German-only populations and the Berlin Wisdom Model definition of wisdom. Takahashi and Overton (2002) studied American and Japanese adults in two groups: middle-aged (36 to 59 years) or older (65 years and older). Men and women were equally distributed in each group. Takahashi and Overton operationalized wisdom on analytic and synthetic dimensions (as discussed above) and found no significant difference in wisdom was found between genders (Takahashi & Overton, 2002). In contrast, Webster (2003) did find that women scored significantly higher than men (sample aged 22-78 years) on the Self-Assessed Wisdom scale.

Taking the above findings and Orwoll and Achenbaum's (1993) beliefs, Ardel (2009) studied gender differences in wisdom in a sample of Floridians. Ardel's (2009) conception of wisdom was based on Orwoll and Achenbaum's nine dimensions of wisdom and the idea that gender differences in upbringing could lead to gender differences in gaining wisdom but once wise, individuals integrate female and male characteristics. Undergraduates (aged in their 20s) and older adults (aged 52-87 years) were examined utilizing the Three-Dimensional Wisdom scale (3D-WS), Ardel (2009) found that among the older adults, men scored higher on the cognitive dimension of the 3D-WS than women and women scored higher on the affective dimension of the 3D-WS than men. No gender differences were found in the reflective dimension of the 3D-WS. There were no significant gender differences for individuals who scored in the top 25% on the 3D-WS and there were no significant gender differences overall combining all three of the dimensions together. This suggests that in less wise individuals, men performed better in cognitive aspects and women better in affective aspects of wisdom. Yet overall, individuals achieved similar levels of wisdom regardless of gender. Also, those who scored highest on the wisdom scale did not show gender differences, which could support Orwoll and Achenbaum's idea that wise people utilize wisdom in an androgynous manner. Clearly, further investigation on the influence of gender in the development and use of wisdom are needed.

Role of Emotions in Gaining and Using Wisdom

Arnold coined the term "perception of action sequence" to define emotion, indicating that individuals "perceive, appraise, emote, want, think, and then act" (Gasper & Bramesfeld, 2006, p. 1002). To Arnold (Gasper & Bramesfeld, 2006), Ben-Ze'ev (2000), and Frijda (2000) emotions shape each action in this sequence – but so too does wisdom. Conjecturing from Ardel and Oh (2010) and Baltes and Kunzmann (2004), wisdom changes this emotion sequence via self-transcendence and use of logic to create solutions to problems toward the common good. In addition, Sternberg (1998) and Gasper and Bramesfeld (2006) suggest that emotional intelligence

in the balance of appraisal, regulation, judgment, and reaction is a necessary component to wisdom. Emotional intelligence might facilitate a conscious awareness of one's emotions, which leads to wiser, more balanced decisions and solutions (Gasper & Bramesfeld, 2006). Even though Frijda (2000) and Ben-Ze'ev (2000) focus specifically on emotion and Ardel and Oh (2010) and Baltes and Kunzmann (2004) focus specifically on wisdom, their studies all implicitly point to the connection between emotion, cognition, and wisdom.

To fully understand the relationship between wisdom and emotion, emotions need to be explored in greater detail. Although emotions have been examined by multiple disciplines of thought for hundreds of years, there is still no one agreed upon, consensual definition. For instance, some researchers have defined emotions as feelings, such as joy, sadness, anger, disgust, and surprise (Frijda, 1986; Shaver, Wu, & Schwartz, 1992), while other researchers see emotions in more complex ways. This multiplicity of thought coupled with the personal, subjective nature of emotions, creates difficulty in studying emotions (Frijda, 2000). Another difficulty arises in comparing scientific definitions of emotions to layman's conceptualizations of emotions. The following sections discuss several of the major theoretical conceptualization of "emotion."

Emotions Defined

Frijda (2000) stated that emotions are a "multicomponential phenomena," reiterating the thought that an emotion is not a single entity which occurs or concludes in a void. Emotions are in fact, a process of components, or put in other terms, a cascade of occurrences. Emotions can be conceptualized as having four components: cognition, evaluation/motivation, feeling, and behavior (Ben-Ze'ev, 2000; Frijda, 1986). Most researchers would agree to some extent that all of these components are involved in the emotion process (Ben-Ze'ev, 2000; Denny et al., 2010; Fredrickson, 2006; Frijda, 1986; Gross, 1999). It is difficult, however, to tease these components apart when watching emotions in action, as some or all the components work together in a seamless process depending upon the individual and the emotion incurred (Frijda, 2000).

Frijda (2000) states that the cognitive component of emotion is that which deals with brain activation and mental processing. Functional magnetic resonance imaging (fMRI), positron emission tomography (PET), and surgical techniques have allowed researchers to examine which areas of the brain are activated when certain emotions occur (Denny et al., 2010). Often activated brain features are the limbic system (specifically the amygdala, insula, and striatum), and the medial orbitofrontal cortex (Cunningham & Zelazo, 2010; Denney et al., 2010; Frijda, 1986; Labouvie-Vief, 2009). Certain neurotransmitters, such as dopamine and glucocorticoids, have also been implicated in emotion activation (Cunningham & Zelazo, 2010). The brain also controls any autonomic reactions that often occur during the emotional process, i.e. heart rate and blood pressure changes (Frijda, 2000). Carstensen, Isaacowitz, and Charles (1999), Christianson (1992), and Labouvie-Vief, Grühn, and Mouras (2009) all discuss the role of emotion in the cognitive components of memory, attention arousal, and the distribution of attention across tasks. Fredrickson (2006) also describes how positive emotions can build positive cognitions. This biological component of emotions is crucial since all humans have similar biological processes, yet there are great individual differences with respect to creating, regulating, or reacting to emotions (Denny et al., 2010).

The evaluation component involves the separate events of emotion arousal, appraisal, and up- or down-regulation (Cunningham & Zelazo, 2010; Denny et al., 2010; Fredrickson, 2006; Frijda, 1986; Gross, 1999). This evaluation component is closely linked to the cognitive cascade processes occurring during emotions and these two components may or may not be differentiated in reality. Many theorists believe that emotions are created due to the evaluation, or “appraisal”, of stimuli (normally of a positive or negative value) and/or to the meaning of the stimuli (the connections of past, present, and future stimulus events) (for example, found in: Denny et al., 2010; Frijda, 1986; Gross, 2001; Labouvie-Vief et al., 2009). This arousal process activates the brain in either a conscious (deliberate evaluation) or an automatic, un-conscious, sub-conscious

(schematic evaluation) manner (Ben-Ze'ev, 2000; Frijda, 1986). Once the brain is activated, the emotion is often controlled by the individual, which is where the motivation component becomes involved, through regulation processes. If an individual wants to sustain or heighten an emotion, they can cognitively up-regulate that feeling. If an individual wants to decrease an emotion, they can down-regulate (i.e. through reappraisal or suppression of) that emotion (Gross, 2001).

Appraisal theorists suggest that individuals decide to regulate their emotions based on constant appraisals of the stimuli or meaning of the stimuli in relation to subjective goals, wants, and needs (Denney et al., 2010; Frijda, 1986; Lazarus, 1991).

Feelings are the conscious experience of an emotion, which often correspond to an emotion label in the language of the individual, i.e. in English-speaking countries, warm, happy feelings could correspond to the emotion of “love” (a part of the James-Lange Theory; as cited in Frijda, 1986). In general, most theorists suggest that the feeling of an emotion is more distinct than a “mood” and occurs in a short time frame, whereas moods can last for long time periods (Fredrickson, 2006; Frijda, 1986; Solomon & Stone, 2002). The terms feeling and affect are often intertwined in the literature and both are separated into two categories based on affective *qualia*, that of pleasure (positive) and that of pain (negative); this argument will be further pursued later (Frijda, 1986; Solomon & Stone, 2002). The feeling component, along with the motivation and evaluation of the arousal stimuli, are often a subjective experience of the individual. The term “feeling” connotes a general awareness on the individual’s part of the emotion. Johnstone and Scherer (2000) strengthen this idea based on perceptions studies finding that individuals can detect certain distinct emotions in another individual’s speech. However, this awareness is debated within the field. Feelings become complicated as often they are homogenous, in that there might not be a distinct difference between “happy” emotions versus “love” emotions for a certain individual, and often multiple feelings occur in tandem (Ben-Ze'ev, 2000). This argument suggests support for the idea that emotions form a continuum of processes, yet many researchers

subscribe to the James-Lange theory (and similar theories) and believe emotions are distinct entities (Frijda, 1986; Solomon & Stone, 2002).

The behavior component is tied into all the above components, as cognitive abilities are needed to generate a body movement; the individual needs to be motivated and evaluate this motivation to either create or suppress a behavior; and specific feelings are often coupled with specific sets of behaviors (Ben-Ze'ev, 2000; Frijda, 1986; Gasper & Bramesfeld, 2006). This behavior is often referred to action tendencies or action readiness, suggesting that distinct emotions correspond with distinct behaviors (Frijda, 2000). Some theorists question that perhaps certain behaviors arising from emotions do not simply display that emotion but are enacted to include (or exclude) others in the experience, to maintain a status quo, or as a coping mechanism (Frijda, 1986; Lazarus, 1991). These theorists suggest that individuals can mask their emotions to better fit in with social or group norms or transform their emotions in order to cope with negative situations. Individual personalities can also create a multitude of behavioral responses for the same emotion (Ben-Ze'ev, 2000). Social constructivism suggests that social norms and morals are often involved in the emotional behaviors expressed or suppressed by individuals (as cited in Frijda, 1986). Therefore, emotional behaviors could fluctuate dependent upon the adhered to cultural values and rules. As suggested above, some behaviors are autonomic reactions to the emotion that individuals might have little conscious control over while other behaviors are meant to display an emotion or illicit a social response.

Age Development of Emotions

These four components of emotions are further complicated by the development of age. Many researchers link the developmental stages of emotional processing (especially emotion regulation), with Piaget's developmental stages (as cited in Labouvie-Vief et al., 2009). This theoretical lens believes that emotions progress similarly to Piaget's development of sensorimotor skills, in that complexity of emotion expression and regulation develops as the human develops

from child to adolescent (Labouvie-Vief, 2009; Labouvie-Vief et al., 2009). Labouvie-Vief et al. (2009) posit that “control structures” within the brain grow through age development and reach a stage where emotional schemas are held as stable and coherent within the mental and behavioral processing of emotion. One major milestone achieved in adolescence, and carried through in middle adulthood, is that of processing both negative and positive emotions at the same time (Labouvie-Vief et al., 2009).

The argument then arises over whether this development of emotion regulation and expression stays stable, increases, or decreases from middle adulthood to late adulthood. In accordance with Piagetian theorizing, emotional schemas involved in emotion regulation should stay stable in older adulthood (as discussed in Labouvie-Vief et al., 2009). In contrast to this theory, social-emotional selectivity theory (SSC) posits that complexity of emotion regulation increases through late adulthood which leads to greater emotional well-being (Carstensen et al., 1999; Labouvie-Vief, 2009). Carstensen’s theory suggests that as individuals age from middle adulthood to later adulthood, they become aware of how little time they have left to live. As such, individuals in this stage of life focus more on emotion-oriented goals such as being “happy” (Carstensen et al., 1999). Kunzmann, Little, and Smith (2000) support this finding suggesting that older adults report higher levels of well-being and positive emotions. This increase in well-being in older adulthood is also suggested by Mroczek and Kolarz (1998). In accordance, Jain and Labouvie-Vief (2008) found that securely attached 60- to 89-year-old individuals displayed a bias towards words reflecting “joy” as opposed to “fear” and “anger” on an emotional Stoop test. Participants in the adolescent to middle adulthood stages of life, aged 18 to 29 years in the study, did not show such a bias (Jain & Labouvie-Vief, 2008).

While SSC is a popular and supported theory, other researchers believe that complexity of emotion regulation and expression declines through older adulthood (e.g. Cornelius & Caspi, 1986). Society at large also holds the view that emotion and related cognitive complexity

decrease through older adulthood. Labouvie-Vief (2009) and Labouvie-Vief et al. (2009) temper the debate of increase in emotion complexity with age versus the decrease in emotion complexity with dynamic-integration theory (DIT). DIT states that emotional complexity in older adulthood increases or decreases *dynamically* dependent on how many cognitive resources are available and the level of emotional activation during a specific emotion response (Labouvie-Vief, 2009; Labouvie-Vief et al., 2009). This theory acknowledges two forms of affective information processing that represent simple and complex emotion processing (Labouvie-Vief et al., 2009), and suggests that the use of conscious emotional regulation in the developmental level of older adulthood is dependent on optimal levels of resources and activation.

Labouvie-Vief et al. (2009) state that schematic processing in older adulthood occurs during times of sub-optimal and high levels of activation and low levels of resources, creating a U-shape function between the two variables and degree of complexity. High levels of emotion activation (such as created by negative emotions) and low levels of cognitive resources can therefore cause declines in behavioral output (Lindenberger, Marsiske, & Baltes, 2010). Labouvie-Vief and Medler (2002) studied individuals who exhibited two styles of emotion regulation. The participants were either categorized as high optimizers, who utilized schematic processing and minimized negative emotions, or high differentiators who utilized conscious processing and could tolerate high levels of emotions. The amount of individuals who exhibited high differentiation decreased with age, suggesting that in older age cognitive resources become limited and tolerance of high emotion activation decreases. Interestingly, high optimizers, the amount of which increased with old age, rated highly on “self-acceptance, a sense of mastery, and purpose in life” (Labouvie-Vief et al., 2009). Such ratings are often correlated with wisdom (e.g. Ardelt, 2005). In another study conducted by Labouvie-Vief and Medler, age did not affect those individuals who scored high on both differentiation and optimization, but did affect high differentiators to use more optimization techniques (as cited in Labouvie-Vief et al., 2009). These

findings suggest different subgroups of dynamic emotion processing techniques in older adulthood.

Broaden-and-Build Theory

The role of positive emotions might be integral to how people gain or use wisdom. Positive psychology integrates the above definitions of emotion with a functionalistic emotion viewpoint, focusing on the benefits of positive emotions. Fredrickson (2006) states that functional focusing on positive emotion can even lead to building positive resources, allowing individuals to create more flexible solutions to problems. In her broaden-and-build theory, utilizing positive emotions is the route to optimal human functioning (Fredrickson, 2006). While most theories of emotion rationality, irrationality, and functionality simply state that positive emotions mark positive moods; Fredrickson (2006) is suggesting that positive emotions create and sustain positive well-being.

The empirical support for the link between specific action tendencies and physiological, autonomic behaviors with specific emotions is clearer for negative emotions than it is for positive. This could in part be due to the fact that negative emotions have been more often the focus of study in emotion research as negative emotions are often linked to adverse effects. Fredrickson (2006) argues that the field focuses too much on stopping such adverse effects, instead of supporting the positive effects of positive emotions. From an evolutionary emotion perspective, not only did negative emotions keep an individual safe from danger through specific action-tendencies, but positive emotions prompted individuals to partake in a wide-range of activities that could be potentially beneficial, paralleling the positivity offset tendency (Diener & Diener, 1996). Fredrickson builds on this foundation and suggests that positive emotions, moods, and sensory pleasures all lead to “approach and continue” behaviors. However, the broaden-and-build theory states that positive emotions are unique in that they create larger thought-action schemas, which in turn, build enduring positive resources. Negative emotions were evolutionarily

adaptive as they activate relatively narrow thought-action tendencies which lead to a specific action behavior (i.e. fight or flight). In the broaden-and-build theory, Fredrickson and Cohn and Fredrickson (2009) suggest positive emotions activate the opposite process.

The theoretical components of the broaden-and-build theory have been well studied. The idea behind the “broaden” component is that positive emotions mostly do not occur in life-or-death situations. Positive emotions could therefore allow an individual more flexibility and creativity in their resulting action tendencies (Cohn & Fredrickson, 2009; Isen, 1999). Western society recognizes that children’s play often broadens knowledge and builds skills for later life (Fredrickson, 2006). Derryberry and Tucker (1994) also suggest that positive emotions increases attention, creating a more global focus. Fredrickson and Branigan (2005) found that after viewing positive emotion related film clips, individuals could create a longer list of problem-solving responses than those in the neutral film clip condition. These researchers also found that those in the negative-film clip condition created a shorter list of problem-solving actions than those in the neutral condition (Fredrickson & Branigan, 2005). These findings suggest that positive emotions facilitate a broader view of problem-solving actions and negative emotions facilitate a narrowed view of problem-solving behaviors.

The “build” component is based on the idea that if one repeatedly uses positive emotions, one is continually learning new, flexible ways of behaving (Fredrickson, 2006; Isen, 1999). From this broadening and building, an individual would then have a larger repertoire of beneficial, positive action tendencies to draw upon in a difficult situation, leading to greater individual well-being. Fredrickson, Cohn, Coffey, Pek, and Finkel (2008) found that even though emotions last for short periods of time, positive emotions can lead to lasting positive effects. After partaking in a 7 week loving-kindness meditation workshop, which promotes love, compassion, and contentment, participants underwent 9 weeks of daily loving-kindness meditation practice. Fredrickson et al. (2008) found that this meditation increased the participants’ levels of positive

emotions over time. These increased positive emotions led to increases in life satisfaction. These findings would suggest that increased positive emotions do possibly lead to increases in well-being.

Fredrickson (2006) suggests that the broadened thought-action tendencies created from positive emotions can create resiliency to negative situations. One avenue of resiliency is through the undo hypothesis, in that positive emotions can “undo” the adverse effects of negative emotions. Fredrickson and colleagues (Fredrickson & Levenson, 1998; Fredrickson, Mancusco, Branigan, & Tugade, 2000) asked participants to take part in a time-pressured speech preparation task. The participants were then randomly assigned to watch either positive emotion or neutral emotion film clips. Fredrickson and Levenson (1998) found that those individuals who watched the positive film clips de-stressed quicker than those participants who watched the neutral film clip. Tugade and Fredrickson (2007) suggest that if positive emotions were utilized more, they might lead to automatic action tendencies. In other words, in the face of adversity, individuals would draw upon this broadened range of action tendencies may be better cope-ers and/or problem-solvers.

The broaden-and-build theory therefore demonstrates that individuals, who induce more positive emotions in their daily lives, increase their knowledge bank of action tendencies, which leads to greater resiliency and well-being. The broaden-and-build theory does implicitly disagree with Solomon and Stone (2002) in that the theory suggests emotions are either inherently positive or negative (Cohn & Fredrickson, 2009; Fredrickson, 2006; Tugade & Fredrickson, 2007). On the other hand, the broaden-and-build theory acknowledges the complexity of emotions through the co-occurrence of positive emotions and the complication of individual and cultural factors on emotion (Cohn & Fredrickson, 2009).

Emotions are complicated and many contradicting theories abound about the emotion process. This study suggests that emotions are functional and that aging plays a major role in the

bias toward the processing of positive emotions. Positive emotions have then been shown to be able to create flexibility of behaviors and thoughts which induces high personal well-being and resiliency. As emotions relate to wisdom, the functionality, dynamic-growth, and contrast of positive and negative emotions may facilitate individual development of wisdom.

The Role of Negative and Positive Emotions in Gaining and Using Wisdom

Ardelt (2005) and Le (2008) suggest that wisdom develops from life crises (i.e. car accidents, wars, deaths, injuries, relationship dissolutions, etc.). However, simply experiencing a life crisis is not enough to spark wisdom development. Kunzmann and Baltes (2003) suggest that those who are wise accept the negative events in their lives and deal with negative emotion in a way that leads to coping and functionality (as opposed to dysfunctionality). Therefore, negative emotions (such as stress, anger, sadness) could spark self-reflection and insight into one's limitations and strengths which would then lead to the development of wisdom. On the contrary, Le (2008) found that individuals who were too burdened by the negative-emotion evoking situation could not be self-reflective, and thus were less developed in their wisdom than individuals who could be insightful about their negative life situations. As such, as individuals are on their way to gaining wisdom through self-reflection, they might express more negative emotions than positive.

Kunzmann and Baltes (2003) conclude that wise people should report fewer distressing events as they are able to cope with and/or accept negative emotions. In this way, when wise individuals discuss using their wisdom, they should discuss the situation in terms of positive emotions due to being able to inherently accept and cope with any negative emotions therein. Fredrickson (2006) would add that wise individuals have a broadened problem-solving repertoire, so that when these individuals encounter a negative situation, they are able to find a more positive, creative solution than less wise individuals. When individuals have this broadened mindset, they may be able to not rely on personal bias and be more empathetic towards others,

which would in turn broaden their problem-solving skill-set further. In this way, wise individuals should report positive emotions when using their wisdom.

The Current Study

This study attempts to address past limitations in wisdom and emotion research by asking: are more negative emotions experienced in gaining wisdom? Are more positive emotions expressed when using wisdom? Or is cognition more used than emotion in gaining and using wisdom? Also, how does gender and age influence the development of wisdom, particularly with respect to emotion and wisdom?

Hypotheses

The first hypothesis is that there will be a positive correlation between individuals' recall of gaining wisdom and reporting more negative emotions. This hypothesis also suggests that there will be a positive correlation between an individual's recall of using wisdom and reporting less negative emotions. As such, there should be more negative emotions expressed than positive emotions expressed when individuals report experiences in which they gained wisdom. On the other hand, individuals should discuss more positive emotions words than negative when reporting on experiences in which they used wisdom. Scheibe et al. (2009) discuss how life is filled with negative experiences of trauma, threats, and challenge through which wisdom develops. Ardel and Oh (2010) argue that wisdom could develop through successful coping with life's hardships if they are able to accept life's negativity. As hardships often coincide with negative emotions, it seems likely that the development of wisdom is linked with negative emotions.

Based on Fredrickson's (2006) broaden and build view on positive emotions, it seems likely that there should be a positive correlation between an individual's use of wisdom and that of individual's experience of positive emotions. Specifically, when individuals are in a state of positive emotions (e.g., joy, contentment), they are more likely to find creative and broadened

solutions to problems and/or negative situation. It could also be that wisdom facilitates individual experience of positive emotions. Ardel (2005) adds that wisdom facilitates meaning making and acceptance of ambiguous or difficult situations, which could lead the individual to exhibit more positive emotions.

The second hypothesis is that there will be a positive correlation between scores on the 3D-WS and number of positive emotion words expressed during individual's recall of using wisdom. According to Fredrickson (2006), positive emotions broaden an individual's repertoire for creative cognitive solutions and resilience tendencies. Wisdom is similarly linked with creativity, allowing for broad insights in decision-making (Sternberg, 1998). It is therefore possible, that when positive emotions are activated during moments of problem-solving, an individual is utilizing a stance of wisdom. As such, a person who uses more positive emotions when using personal wisdom might have attained a higher level of wisdom.

The third hypothesis is that there will be a positive correlation between using more logic-related words when recalling personal using of wisdom and scoring higher on the cognitive component of the 3D-WS. Baltes and Kunzmann's (2003; 2004) research suggests the link between a higher attainment of wisdom and higher score on logic and knowledge.

The fourth hypothesis is that gender will moderate how individuals score on the 3D-WS wisdom scale. In a sub-sample of the bottom 75% of scorers on the 3D-WS, males will score higher on knowledge-related wisdom scales and women will score higher on emotion-related wisdom scales of the 3D-WS. However, in a sub-sample of the top 25% of scorers on the 3D-WS, I hypothesize that there will be no gender differences on the 3D-WS subscales. Orwoll and Achenbaum (1993) suggested that through gendered upbringings, males will utilize more cognitive aspects of wisdom and women will utilize more affective aspects of wisdom. Ardel's (2009) findings on gender differences in the cognitive and affective realms, give partial support to this hypothesis. Ardel found that the top 25% of scorers on the 3D-WS did not have gender

differences but that the bottom 75% of scorers did have significant gender differences as hypothesized above.

The fifth hypothesis is that there will be no relation between the 3D-WS wisdom score and age, as demonstrated by null findings such as in Freund and Baltes (1998) and Richardson and Pasupathi (2005). This hypothesis is included to examine whether the study's sample is similar to samples of other wisdom studies which have not found a correlation between the increase in age and the increase in wisdom attainment or if the sample deviates from these findings.

Method

In this study, secondary data analysis was performed on data collected from the "Life Experiences and Life Knowledge" study (Le, 2006).

Participants

Life story interviews and subsequent questionnaires were completed by 122 participants, aged 39 to 96 years. The age range of the study had a mean age of 65.5 years and a standard deviation of 12.5 years. The study took place in a medium-sized city in the Western part of the United States. Participants were sampled through nonrandom, convenience sampling methods. Participants were recruited through flyers posted at local community organizations. Once involved, snowball sampling methods were utilized, in which participants were asked if they knew anyone else interested in participating in the study. The sample of the current study was 76.2% female and 23.8% male. The sample was overwhelmingly European American (91.8%) with other, underrepresented ethnicities (Hispanic, 4.1%; Asian American, 1.6%; other, 1.6%; African American, 0.8%). This study had a high occurrence of individuals with Master's or PhD Degrees (41%) while individuals completing high school and some college (28.7%) and individuals completing a Bachelor's Degree (29.5%) were similarly numbered.

Data Collection

Participants reported on demographic information and completed the 3D-WS and a life story interview. Demographic information and the 3D-WS were completed in an average of 30 minutes. Life story interviews were completed in an average of 60 to 90 minutes. Approximately 90% of the data was collected in the participant's homes, while the remaining 10% was collected at a lab at Colorado State University.

Measures

Three-dimensional wisdom scale (3D-WS). Ardelt's (2003) 3D-WS was used to assess wisdom. This self-report measured three components of wisdom: reflective, cognitive, and affective. Question stems of "How much do you agree or disagree" and "how much are the following statements true of you" were self-rated on a Likert scale from 1 (strongly agree/definitely true) to 5 (strongly disagree/not true). Questions on the reflective scale included, "Things often go wrong for my by no fault of my own" and "I try to look at everybody's side of a disagreement before I make a decision." Questions on the cognitive scale included, "Ignorance is bliss" and "A problem has little attraction for me if I don't think it has a solution." Questions on the affective scale included, "I am annoyed by unhappy people who just feel sorry for themselves" and "Sometimes I feel a real compassion for everyone." Some items were reversed coded. The 3D-WS measure rates high in reliability ($\alpha = .71$ to $.85$) and construct and content validity (Ardelt, 2003). This measure was chosen due to its empirical validation within the field (Taylor, Bates, & Webster, 2011; Ardelt, 2003).

Life story interview. McAdams and Bowman's (2001) standardized life-narrative interview was closely followed to complete the life story interviews. The current study focuses on two questions about specific, autobiographical memories of gaining and using wisdom from the life-narrative interview which relate respectively with Bluck and Glück's (2004) usage of

“developing” and “experiencing” wisdom. The following question was asked when inquiring about the participant’s gaining of wisdom:

Please describe a situation or event where you would say that you gained wisdom (your definition of whatever wisdom is). What was the event or situation? Who was involved? What did you do? Was there any particular strategy that you used? What were you thinking and feeling? In what ways did you gain wisdom?

The following question was asked when inquiring about the participant’s using of wisdom:

Please describe a situation or event where you would say that you used wisdom to solve a problem or difficult situation in your life. In what ways did you use or apply wisdom to solve the problem or issue? What were the result(s)?

Coding

The qualitative data from the life story interviews have previously been coded based on the emotion words code book developed for this study. The original researcher and a research assistant independently coded the number of times positive and negative emotion words were used in NVivo. Inter-rater reliability was above the established during coding and was 100 percent reliable for the broad categories of positive emotion words, negative emotion words, and logic words, established in 25 of the 122 cases. The researcher of this study examined three distinct types of positive emotion words which were not tested for inter-rater reliability. Based on this prior coding, three main areas of positive emotions (compassion, gratitude, happiness) were found. Negative emotion and logic words were also found; however, these two coding areas were less well defined within themselves but were seen to be distinct from “positive emotions.” The current study drew from the above information and coded both the responses to “gaining wisdom” and “using wisdom” from the life story interview for three categories of positive emotion words, one category of negative emotion words, and one category of logic words.

Table 1. Coding Scheme of Current Study.

Type of Coding	Category within Type	Examples of Coded Phrases
Positive Emotion	Compassion	I cared about...
	Gratitude	I was thankful for...
	Happiness	I was so happy about...
Negative Emotion	Angry/Upset/Stressed	The situation was so hard...
		It made me angry...
Logic	Logical Thinking	I knew about...
		I learned that...

Results

Hypotheses

Comparing the negative and positive emotion words discussed in gaining and using wisdom. A paired samples *t* test was performed to determine whether participants used more negative emotional words ($M = .80$, $SD = 1.20$) as compared to positive emotional words ($M = .25$, $SD = .75$) in their responses to the gaining wisdom question. The results indicated that there were more negative emotional words used/expressed in participants' responses to the gaining wisdom question than the total number of positive emotional words used/expressed, $t(121) = 4.17$, $p < .001$, $d = .38$. However, according to Cohen (1988), this effect size is smaller than typical; suggesting the strength of the relationship is small.

Paired samples *t* tests were performed to determine whether participants used more negative emotion words ($M = .80$, $SD = 1.20$) than the specific positive emotion words of compassion ($M = .12$, $SD = .54$), gratitude ($M = .03$, $SD = .18$), and happiness ($M = .10$, $SD = .33$) in response to the question about gaining wisdom. The results indicated that participants used more negative emotions words than each specific positive emotion words respectively, $t(121) = 5.61$, $p < .001$, $d = .50$ (compassion), $t(121) = 6.99$, $p < .001$, $d = .63$ (gratitude), $t(121) = 6.13$, $p < .001$, $d = .55$ (happiness). According to Cohen (1988), these effect sizes are typical.

A paired samples t test was performed to determine whether participants expressed more total positive emotion words wisdom ($M = .60$, $SD = 1.03$) than negative emotion words ($M = .26$, $SD = .71$) in response to the question about using wisdom. The results indicated that there were more total positive emotion words used when participants used wisdom than negative emotion words, $t(121) = -2.89$, $p < .01$, $d = .27$. However, according to Cohen (1988), this effect size is smaller than typical, suggesting minor relationship strength.

Paired samples t tests were performed to determine whether participants used more specific positive emotion words of compassion ($M = .34$, $SD = .71$), gratitude ($M = .06$, $SD = .27$), and happiness ($M = .20$, $SD = .44$) than negative emotion words ($M = .26$, $SD = .71$) in response to the using wisdom question. The results indicated that participants used more words of gratitude when describing using their wisdom than negative emotion words, $t(121) = 2.90$, $p < .01$, $d = .26$. However, according to Cohen (1988), this effect size is smaller than typical. The paired samples t tests comparing compassion and gratitude words when using wisdom compared to negative emotion words when using wisdom were non-significant $t(121) = -.91$, $p > .05$ and $t(121) = .82$, $p > .05$ respectively.

There will be a positive correlation between positive emotional words expressed in individuals' responses to the using wisdom question and 3D-WS. A Pearson Correlation was performed to determine whether there was an association between a participant's use of positive words when discussing using wisdom and her or his score on the 3D-WS. The results indicated there was no significant correlation between a participant's use of positive words when using wisdom and her or his score on the 3D-WS, $r(120) = .08$, $p > .05$. The r^2 indicates that less than 1% of the variance in 3D-WS scores can be predicted by use of positive emotion words when using wisdom.

There will be a positive correlation between number of words expressing use of logic in individuals' response to the question on using wisdom and the cognitive component of

3D-WS. A Pearson Correlation was performed to determine whether there was a positive association between a participant's use of logic words and his/her responses on the *gaining* wisdom question, and her or his score on the cognitive portion of the 3D-WS. The results indicated there was no significant correlation between a participant's use of logic words when gaining wisdom and her or his score on the cognitive portion of the 3D-WS, $r(120) = .04, p > .05$. The r^2 indicates that less than 1% of the variance in the cognitive portion of the 3D-WS scores can be predicted by use of logic words when gaining wisdom.

A Pearson Correlation was performed to determine whether there was an association between a participant's use of more logic words when discussing *using* wisdom and her or his score on the cognitive portion of the 3D-WS. The results indicated there was a significant correlation between a participant's use of logic words when using wisdom and her or his score on the cognitive portion of the 3D-WS, $r(120) = .17, p < .05$. The direction of the correlation was positive, indicating that participants who used more logic words when describing using wisdom score higher on the cognitive portion of the 3D-WS. The r^2 indicates that approximately 3% of the variance in the cognitive portion of the 3D-WS scores can be predicted by use of logic words when using wisdom.

Gender will moderate how participants score on the sub-components of the 3D-WS in that women will score higher on the emotional component and men will score higher on the cognitive component. A one-way ANOVA was performed to determine whether there was a gender difference among the top 25% of high scorers on 3D-WS, as well as within the three sub-components (affective, cognitive, reflective) of the 3D-WS. Results revealed no significant differences between women ($M = 4.11, SD = .23$) and men ($M = 4.04, SD = .22$) for the cognitive component of the 3D-WS, $F(1, 27) = .33, p > .05$. There was no significant differences between women ($M = 4.01, SD = .30$) and men ($M = 3.87, SD = .17$) for the affect component of the 3D-WS, $F(1, 27) = .86, p > .05$. There was no significant differences between women ($M = 4.26, SD$

= .25) and men ($M = 4.44$, $SD = .17$) for the reflective component of the 3D-WS, $F(1, 27) = 1.91$, $p > .05$. There was no significant differences between women ($M = 4.13$, $SD = .17$) and men ($M = 4.11$, $SD = .06$) for the total 3D-WS score, $F(1, 27) = .02$, $p > .05$.

A one-way ANOVA was performed to determine whether there were gender differences among the bottom 75% of scorers on the 3D-WS, as well as within the cognitive component, affect component, reflective components of 3D-WS. Results revealed no significant differences between women ($M = 3.52$, $SD = .45$) and men ($M = 3.50$, $SD = .60$) for the cognitive component of the 3D-WS, $F(1, 89) = .03$, $p > .05$. There was no significant differences between women ($M = 3.41$, $SD = .36$) and men ($M = 3.32$, $SD = .45$) for the affect component of the 3D-WS, $F(1, 89) = 1.17$, $p > .05$. There was no significant differences between women ($M = 3.75$, $SD = .41$) and men ($M = 3.76$, $SD = .44$) for the reflective component of the 3D-WS, $F(1, 89) = .01$, $p > .05$. There was no significant differences between women ($M = 3.56$, $SD = .26$) and men ($M = 3.53$, $SD = .36$) for the total 3D-WS score, $F(1, 89) = .29$, $p > .05$.

There will be a null correlation between age and the 3D-WS score. A Pearson Correlation was performed to determine whether there was an association between a participant's age and her or his score on the 3D-WS. The results indicated there was no significant correlation between a participant's age and her or his score on the 3D-WS, $r(120) = -.10$, $p > .05$.

Discussion

The most significant result of this study is that when individual's recalled gaining personal wisdom, they recalled more negative emotion words and when these same individuals recalled using their wisdom, they used more positive emotion words. The current study also found a positive correlation between the use of more logic words when discussing *using* wisdom and the participant's score on the cognitive portion of the 3D-WS. Gender, age, nor increased use of positive emotion words was found to affect the participant's score on the wisdom measure. The implications of these results are discussed below.

Implications for Research

More negative emotion words were used when describing gaining wisdom. The result of this first analysis revealed that more negative emotion words than total positive emotions words and more negative words than the specific positive emotions words of compassion, gratitude, and happiness were discussed when participants described a situation in which they gained wisdom. This finding suggests that individuals are more likely to provide a narrative that is imbued with negative emotions when they are describing a situation in which they think they have gained wisdom. Implicitly, this could suggest that the situation itself was viewed as negative or difficult, as the individuals discussed more negative emotions words. This finding is supported by previous research theorizing that individuals gain wisdom from coping with negative life events (Ardelt & Oh, 2010; Scheibe et al., 2009). Such a finding can possibly help individuals in the future to cope better with negative life events, if there is some component of knowing that the hard times in one's life can lead to a gain in personal wisdom. Although the negative emotion words in the narratives were not always clear, a mixture of anger, sadness, and frustration words were utilized. This finding bridges the gap in the literature by explicitly investigating the role of negative emotion-evoking events with respect to wisdom. Future interventions may want to facilitate emotional experiences in order to help individuals gain wisdom.

More positive emotion words were used when describing using wisdom. More total positive emotion words were discussed when participants described a situation in which they used wisdom, however unlike the previous analysis, a significant finding did not result from examining the specific positive emotions words of compassion, gratitude, and happiness. This finding suggests that the participants were discussing positive situations of using wisdom in general; however these situations did not call for an overwhelming use of compassion, gratitude, or happy words specifically. This finding is supported by the previous theorizing of Fredrickson (2006) and

Ardelt (2005). When these individuals drew upon their wisdom, the result led to greater well-being in the form of positive emotions.

In reaction to the second hypothesis, this study found no evidence for whether the more positive emotion words one uses correlates with a higher wisdom score on the 3D-WS.

Kunzmann and Baltes (2003) theorized that wiser individuals should be able to accept negative emotion-evoking situations and thus report these situations as more positive when they use their wisdom. Such an individual should also score high on the 3D-WS, indicating a higher level of wisdom development. Our study did not find that individuals who scored high on the 3D-WS expressed more positive emotion words when using wisdom.

There was a positive correlation between using logic words when recalling use of wisdom and scoring higher on the cognitive component of the 3D-WS. This finding is interesting in light of the null correlation between an individual discussing gaining wisdom and their score on the cognitive component of 3D-WS. This finding could suggest that if one is using more logic words when discussing a time when one used wisdom, that use of logic is somehow increased during the gaining of wisdom. If this were true, than one's cognitive level, or at least the ability to use logic, is highly necessary in the process of using wisdom. Another implication seems to be that the 3D-WS is sensitive to the frequency of logic words one uses when discussing using wisdom.

Gender did not moderate how participants scored on the 3D-WS. Unlike previous theories and research (Ardelt, 2009; Orwoll & Achenbaum, 1993), our sample did not show any significant difference between how women and men scored on the individual components of the 3D-WS (cognitive, affect, reflective) or on the total 3D-WS scores. There could be multiple reasons for this result to have occurred. First, perhaps there was not a large enough difference between the average score of the top 25% and the bottom 75% of scorers on the 3D-WS to find a significant moderation effect. The sample may not have had enough variability in scores on the

wisdom measure to find an effect. Ardelt's (2009) sample could have had more variability, so perhaps we should have examined the top 10% or 5% of scores in our sample to find a moderation effect of gender. Second, perhaps gender does not moderate how individuals gain and use wisdom. Perhaps socialization effects created gender differences in how Ardelt's (2009) sample gained their wisdom; as such, the current study's sample might have been socialized in a different way, reflecting no gender differences in gaining and using of wisdom. Or we may have needed a larger participant sample of men to show gender moderation effects.

This study found a null correlation between age and 3D-WS score. While one cannot make an implication based on a null finding, this result does suggest that our sample is similar to other studies on this topic (Freund & Baltes, 1998; Richardson & Pasupathi, 2005). Having similar sample dynamics suggests that this study's findings are as impactful as these previous studies.

Theoretical Implications

The current study has mixed results in terms of supporting the broaden-and-build theory. Fredrickson (2006) believed that as individuals encountered more positive situations in which to solve problems, they would have an increased problem-solving repertoire from which one could later draw from during a stressful situation. Intuitively, it would seem that as an individual's wisdom grows, one is also gathering an increased problem-solving repertoire, possibly through the broaden-and-build method. The results of this study do suggest that when individuals recall using their wisdom, they recall more positive-emotion evoking situations. This could suggest that these wise individuals are drawing from their vast problem-solving repertoire and employing creative solutions to problems that "work" and have lasting impressions. As such, these individuals then feel positive about themselves or the situation. However, the individuals that expressed the most positive emotions when recalling using their wisdom did not score any higher on the wisdom measure than individuals who expressed less positive emotions during this

interview. Based on hypotheses one and two, increased use of positive emotions does not necessarily make one more wise, but wise individuals do express positive emotions when recalling using their wisdom. Clearly, more research is needed to further understand how wisdom and the broaden-and-build theory are connected.

In terms of theories on aging and emotions, the data collected from this study cannot speak to dynamic-integration theory. However, the social-emotional selectivity theory of Carstensen and colleagues (1999) can be corroborated by the results of this study. This theory suggests that individuals' feelings of well-being and happiness increases from middle to later adulthood, as individuals switch their life-priorities to focus on being happier in life. This study does suggest that using wisdom is linked with feeling positive emotions, which could mean that as individuals keep aging and keep developing their wisdom, they will continually build up more positive-emotion evoking situations through their use of wisdom. While it is unknown whether the participants of this study were prioritizing well-being in their lives, they definitely exuded such positive emotions in their interviews. Examining the complex, engaging interplay between broaden-and-build theory, aging, and social-emotional selectivity theory could open more avenues of wisdom research in the future.

Implications for Applied Settings

As a marriage and family therapy Master's student, I always view research with an eye for the therapeutic application. This study can tell us much about how to help individuals who are struggling with negative situations in their lives, in that the current study gives hope to those individuals who can cope with these struggles that they will be developing their wisdom. As such, with wisdom comes applying wise solutions which create positive feelings in the future. During times of struggle, clients often lose their hope for the future and the results of this study give these individuals concrete information on what to look forward to after surviving and coping with negative life situations – the development of their personal wisdom!

Limitations and Future Directions

The major limitation of this study was that the life story interview was not executed to evoke emotion language. The life story interview asked participants about multiple domains of their lives and we only used two responses from the interview. One of the two interviewers sometimes skipped over one or both of the questions that we targeted or simply did not go deep enough with the participant to clarify their emotions. As such, we were not able to determine discrete negative emotions from the participants' answers and some participants did not mention any emotions when gaining and using their wisdom. A future step would be to create an interview that is specifically focused on the life situations where participants gained and used wisdom, which enables the participants to explain their emotions fully and allows them to label such situations as positive, negative, or neutral in their opinion.

Another limitation of the life story interview is that there was no inter-rater reliability of the coding established for specific negative emotion words and specific logic words in the life story interview responses. The responses that the participants gave were not detailed enough to examine discrete subcategories of negative emotion and logic words. A future direction would be to gain a more detailed narrative from the participants in order to have a more detailed coding schema to add credence to the coding structure and outcomes.

As with many studies, lack of generalizability of the sample and a small sample size hindered this study. Sampling across wider strata of the population would be necessary in a future study. Also necessary in the future would be to have a sample of individuals with more variable and higher 3D-WS scores. Our study had an average mean score of 3.7 (SD = 0.36); the highest score attainable for the 3D-WS is a 6. A higher average 3D-WS score would suggest a higher level of wisdom in the sample, which might provide a better basis for analysis. Individuals with more wisdom might be able to be more aware of the situations in which they gained and used

wisdom and the respective emotions of these situations. Also, the power of the statistical analyses were small, so with a larger sample size perhaps more analyses would have been significant.

The results of this study indicate that autobiographical narratives reveal an abundant amount of information on the role of emotions in gaining and using wisdom. The next step from using autobiographical memories to explore the relation of wisdom and emotion would be to determine causality – do negative life events cause people to gain wisdom and does using one's wisdom cause a live event to become positive? A longitudinal design, which tracks a group of individuals encountering the same negative life event (i.e. warfare, natural disaster, death of a child) and a control group would be needed to test this assumption. The advantage of such a design is that all the individuals would be encountering a similar level of negativity in the situation and the participants' emotions would be closely monitored at the time of the event and for months afterward. In our sample, it is difficult to tease apart the biases in recalling the emotions of a past event and what their actual emotions were at the time of the event.

Such future directions are necessary in the field of wisdom research in order to truly understand how an individual uses positive and negative emotions in gaining and using wisdom and to examine the positive effects of correctly utilizing negative and positive emotions during gaining and using wisdom may bring. Through such knowledge, all people can begin on their journey of self-actualization and working towards the common good of humanity.

Appendix 1. Three-Dimensional Wisdom Scale

Three-Dimensional Wisdom Scale (Ardelt, 2003)

This section asks you about your opinion and feelings. How strongly do you agree or disagree with the following statements?

[Note for investigators: *c* = *cognitive dimension*; *r* = *reflective dimension*; *a* = *affective dimension*;
rev = *reversed*

Delete those abbreviations and the above title before administering the test. Respondents should not know that they fill out a “wisdom” scale.

After data have been collected, reverse the scales for all items that are labeled with a “*rev*” and then compute the average of the 14 cognitive items to get the score for the cognitive dimension, the average of the 12 reflective items to get the score for the reflective dimension, and the average of the 13 affective items to get the score for the affective dimension. A simple overall wisdom score can be obtained by calculating the average of the three dimensions of wisdom, that is, the average of the three averages, NOT the average of all 39 items. Wisdom can also be treated as a latent variable with the cognitive, reflective, and affective dimensions of wisdom as its effect indicators.]

	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
1. In this complicated world of ours the only way we can know what’s going on is to rely on leaders or experts who can be trusted.	<i>c</i>				
2. I am annoyed by unhappy people who just feel sorry for themselves.	<i>a</i>				
3. Life is basically the same most of the time.	<i>c</i>				
4. People make too much of the feelings and sensitivity of	<i>a</i>				

animals.					
5. You can classify almost all people as either honest or crooked.	<i>c</i>				
6. I would feel much better if my present circumstances changed.	<i>r</i>				
7. There is only one right way to do anything.	<i>c</i>				
8. There are some people I know I would never like.	<i>a</i>				
9. It is better not to know too much about things that cannot be changed.	<i>c</i>				
10. Things often go wrong for me by no fault of my own.	<i>r</i>				
11. Ignorance is bliss.	<i>c</i>				
12. I can be comfortable with all kinds of people.	<i>a-rev</i>				
13. A person either knows the answer to a question or he/she doesn't.	<i>c</i>				
14. It's not really my problem if others are in trouble and need help.	<i>a</i>				
15. People are either good or bad.	<i>c</i>				

How much are the following statements true of yourself?

	Definitely true of myself (1)	Mostly true of myself (2)	About half-way true (3)	Rarely true of myself (4)	Not true of myself (5)
1. I try to look at everybody's side of a disagreement before I make a decision.	<i>r-rev</i>				
2. If I see people in need, I try to help them one way or another.	<i>a-rev</i>				
3. When I'm upset at someone, I usually try to "put myself in his or her shoes" for a while.	<i>r-rev</i>				
4. There are certain people whom I dislike so much that I am inwardly pleased when they are caught and punished for something they have done.	<i>a</i>				
5. I always try to look at all sides of a problem.	<i>r-rev</i>				
6. Sometimes I feel a real compassion for everyone.	<i>a-rev</i>				
7. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.	<i>c</i>				
8. When I look back on what has happened to me, I can't help feeling resentful.	<i>r</i>				

	Definitely true of myself (1)	Mostly true of myself (2)	About half-way true (3)	Rarely true of myself (4)	Not true of myself (5)
9. I often have not comforted another when he or she needed it.	<i>a</i>				
10. A problem has little attraction for me if I don't think it has a solution.	<i>c</i>				
11. I either get very angry or depressed if things go wrong.	<i>r</i>				
12. Sometimes I don't feel very sorry for other people when they are having problems.	<i>a</i>				
13. I often do not understand people's behavior.	<i>c</i>				
14. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.	<i>r</i>				
15. Sometimes when people are talking to me, I find myself wishing that they would leave.	<i>a</i>				
16. I prefer just to let things happen rather than try to understand why they turned out that way.	<i>c</i>				

	Definitely true of myself (1)	Mostly true of myself (2)	About half-way true (3)	Rarely true of myself (4)	Not true of myself (5)
17. When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.	<i>r-rev</i>				
18. I don't like to get involved in listening to another person's troubles.	<i>a</i>				
19. I am hesitant about making important decisions after thinking about them.	<i>c</i>				
20. Before criticizing somebody, I try to imagine how I would feel if I were in their place.	<i>r-rev</i>				
21. I'm easily irritated by people who argue with me.	<i>a</i>				
22. When I look back on what's happened to me, I feel cheated.	<i>r</i>				
23. Simply knowing the answer rather than understanding the reasons for the answer to a problem is fine with me.	<i>c</i>				
24. I sometimes find it difficult to see things from another person's point of view.	<i>r</i>				

References

- Ardelt, M. (2003). Empirical assessment of a three-dimensional wisdom scale. *Research on Aging, 25*, 275-324.
- Ardelt, M. (2005). How wise people cope with crises and obstacles in life. *ReVision, 28*, 7-19.
- Ardelt, M. (2009). How similar are wise men and women? A comparison across two age cohorts. *Research in Human Development, 6*, 9-26.
- Ardelt, M., & Oh, H. (2010). Wisdom: Definition, assessment, and relation to successful cognitive and emotional aging. In C. A. Depp & D. V. Jeste (Eds.), *Successful cognitive and emotional aging* (pp. 87-113). Arlington, VA: American Psychiatric Publishing, Inc.
- Baltes, P. B. (1987). Theoretical propositions of life-span development psychology: On the dynamics between growth and decline. *Developmental Psychology, 23*, 611-626.
- Baltes, M. M., & Carstensen, L. L. (1996). The process of successful aging. *Aging and Society, 16*, 397-422.
- Baltes, P. B., & Kunzmann, U. (2003). Wisdom. *The Psychologist, 16*, 131-133.
- Baltes, P. B., & Kunzmann, U. (2004). The two faces of wisdom: Wisdom as a general theory of knowledge and judgment about excellence in mind and virtue vs. wisdom as everyday realization in people and products. *Human Development, 47*, 290-299.
- Ben-Ze'ev, A. (2000). *The subtlety of emotions*. Cambridge, MA: MIT Press.
- Bluck, S., & Glück, J. (2004). Making things better and learning a lesson: Experiencing wisdom across the lifespan. *Journal of Personality, 72*, 543-572.
- Butler, R. N. (1963). The life review: An interpretation of reminiscence in the aged. *Psychiatry, 26*, 65-75.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54*, 165-181.
- Christianson, S.-A. (1992). *The handbook of emotion and memory: Research and theory*.

Hillsdale, England: Lawrence Erlbaum Associates, Inc.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Cohn, M. A., & Fredrickson, B. L. (2009) Positive emotions. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed.) (pp. 13-24). New York, NY: Oxford University Press.
- Cornelius, S. W., & Caspi, A. (1986). Self-perceptions of intellectual control and aging. *Educational Gerontology, 12*, 345-357.
- Csikszentmihali, M., & Rathunde, K. (1990). The psychology of wisdom: an evolutionary interpretation. In R. J. Sternberg (Ed.), *Wisdom: Its nature, origins, and development* (pp. 25-51). New York, NY: Cambridge University Press.
- Cunningham, W. A., & Zelazo, P. D. (2010). The development of iterative reprocessing: Implications for affect and its regulation. In P. D. Zelazo, M. Chandler, & E. Crone (Eds.), *Developmental social cognitive neuroscience* (pp. 81-98). New York, NY: Psychology Press.
- Denny, B. T., Silvers, J. A., & Ochsner, K. N. (2010). How we heal what we don't want to feel: The functional neural architecture of emotion regulation. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment* (pp. 59-87). New York, NY: Guilford Press.
- Derryberry, D., & Tucker, D. M. (1994). Motivating the focus of attention. In P. M. Neidenthal & S. Kitayama (Eds.), *The heart's eye: Emotional influences in perception and attention* (pp. 167-196). San Diego, CA: Academic.
- Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science, 7*, 181-185.
- Ekman, P. (Ed.). (1982). *Emotion in the human face* (2nd ed.). New York, NY: Cambridge University Press.

- Ekman, P. (1994). Strong evidence for universals in facial expressions: A reply to Russell's mistaken critique. *Psychological Bulletin*, *115*, 268-287.
- Fredrickson, B. L. (2006). The broaden-and-build theory of positive emotions. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), *A life worth living: Contributions to positive psychology* (pp. 85-103). New York, NY: Oxford University Press.
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion*, *19*, 313-332.
- Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, *95*, 1045-1062.
- Fredrickson, B. L., & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition and Emotion*, *12*, 191-220.
- Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. (2000). The undoing effect of positive emotions. *Motivation and Emotion*, *24*, 237-258.
- Freund, A. M., & Baltes, P. B. (1998). Selection, optimization, and compensation as strategies of life management: Correlations with subjective indicators of successful aging. *Psychology and Aging*, *13*, 531-543.
- Frijda, N. H. (2000). Emotions. In K. Pawlik & M. R. Rosenzweig (Eds.), *International handbook of psychology* (pp. 207-222). Thousand Oaks, CA: Sage Publications Ltd.
- Gaspar, K., & Bramesfeld, K. D. (2006). Imparting wisdom: Magda Arnold's contribution to research on emotion and motivation. *Cognition and Emotion: Special Issue: Magda B. Arnold's Contributions to Emotion Research and Theory*, *20*, 1001-1026.
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.

- Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and emotion*, *13*, 551-573.
- Gross, J. J. (2001). Emotion regulation in adulthood: Timing is everything. *Current Directions in Psychological Science*, *10*, 214-219.
- Haselton, M. G., & Ketelaar, T. (2006). Irrational emotions or emotional wisdom? The evolutionary psychology of affect and social behavior. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 21-39). New York, NY: Psychology Press.
- Isen, A. M. (1999). Positive affect. In T. Dalgleish & M. Power (Eds.), *Handbook of cognition and emotion*. Ithaca, NY: John Wiley & Sons Ltd.
- Jain, E., & Labouvie-Vief, G. (2008). *Compensatory effects of emotion avoidance in adult development*. Manuscript submitted for publication.
- Johnstone, T., & Scherer, K. R. (2000). Vocal communication of emotion. In M. Lewis & J.M. Haviland (Eds.), *Handbook of emotions* (2nd ed.). New York, NY: Guilford.
- Ketelaar, T., & Au, W. T. (2003). The effects of guilty feelings on the behavior of uncooperative individuals in repeated social bargaining games: An affect-as-information interpretation of the role of emotion in social interaction. *Cognition and Emotion*, *17*, 429-453.
- Kunzmann, U., & Baltes, B. (2003). Wisdom-related knowledge: Affective, motivational, and interpersonal correlates. *Personality and Social Psychology Bulletin*, *29*, 1104-1119.
- Kunzmann, U., Little, T. D., & Smith J. (2000). Is age-related stability of subjective well-being a paradox? Cross-sectional and longitudinal evidence from the Berlin Aging Study. *Psychology and Aging*, *15*, 511-526.
- Labouvie-Vief, G. (1990). Wisdom as integrated thought: Historical and developmental perspectives. In R. J. Sternberg (Ed.), *Wisdom: Its nature, origins, and development* (pp. 52-83). New York: NY: Cambridge University Press.

- Labouvie-Vief, G. (2009). Dynamic integration theory: Emotion, cognition, and equilibrium in later life. In V. L. Bengtson, D. Gans, N. M. Pulney, & M. Silverstein (Eds.), *Handbook of theories of aging* (2nd ed.) (pp. 277-293). New York, NY: Springer Publishing Co.
- Labouvie-Vief, G., Grünh, D., & Mouras, H. (2009). Dynamic emotion-cognition interactions in adult development: Arousal, stress, and the processing of affect. In H. B. Bosworth & C. Hertzog (Eds.), *Aging and cognition: Research methodologies and empirical advances* (pp. 181-196). Washington, DC: American Psychological Association.
- Labouvie-Vief, G., & Medler, M. (2002). Affect optimization and affect complexity: Modes and styles of regulation in adulthood. *Psychology and Aging, 17*, 571-587.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York, NY: Oxford University Press.
- Le, T. N. (2006). [Life experiences and life knowledge]. Unpublished raw data.
- Le, T. N. (2008). Cultural values, life experiences, and wisdom. *The International Journal of Aging & Human Development, 66*, 259-281.
- Lindenberger, U., Marsiske, M., & Baltes, P. B. (2000). Memorizing while walking: Increase in dual-task costs from young adulthood to old age. *Psychology and Aging, 15*, 417-436.
- McAdams, D. P., & Bowman, P. J. (2001). Narrating life's turning points: Redemption and contamination. In D. P. McAdams, R. Josselson, & A. Lieblich (Eds.), *Turns in the road: Narrative studies of lives in transition* (pp. 3-34). Washington, DC: American Psychological Association.
- McKee, P. (1990). Philosophy and wisdom. *Teaching Philosophy, 13*, 325-330.
- Montgomery, A., Barber, C., & McKee, P. (2002). A phenomenological study of wisdom in later life. *International Journal of Aging and Human Development, 54*, 139-157.
- Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology, 75*, 1333-1349.

- Orwoll, L., & Achenbaum, W. A. (1993). Gender and the development of wisdom. *Human Development, 36*, 274-296.
- Pascual-Leone, J. (1990). Reflections on life-span intelligence, consciousness, and ego development. In C. N. Alexander & E. J. Langer (Eds.), *Higher stages of human development* (pp. 258-285). Oxford, England: Oxford University Press.
- Pascual-Leone, J. (2000). Mental attention, consciousness, and the progressive emergence of wisdom. *Journal of Adult Development, 7*, 241-253.
- Pennebaker, J. W., & Stone, L. D. (2003). Words of wisdom: Language use over the life span. *Journal of Personality and Social Psychology, 85*, 291-301.
- Richardson, M. J. & Pasupathi, M. (2005). Young and growing wiser: Wisdom during adolescence and young adulthood. In R. J. Sternberg, & J. Jordan (Eds.), *A handbook of wisdom: Psychological perspectives* (pp. 139-159). York, NY: Cambridge University Press.
- Rimé, B., Finkenauer, C., Luminet, O., Zech, E., & Philippot, P. (1997). Social sharing of emotions: New evidence and new questions. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology*. Chichester, England: Wiley.
- Scheibe, S., Kunzmann, U., & Baltes, P. B. (2009). New territories of positive life-span development: Wisdom and life longings. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed.) (pp. 171-183). New York, NY: Oxford University Press.
- Shaver, P., Wu, S., & Schwartz, J. C. (1992). Cross-cultural similarities and differences in emotion and its representation: A prototype approach. In M. Clark (Ed.), *Review of personality and social psychology* (pp. 175-212). Beverly Hills: Sage.
- Smith, J., & Baltes, P. B. (1990). Wisdom-related knowledge: Age/cohort differences in response to life-planning problems. *Developmental Psychology, 26*, 494-505.

- Solomon, R. C., & Stone, L. D. (2002). On 'positive' and 'negative' emotions. *Journal for the Theory of Social Behaviour*, 32, 417-435.
- Sternberg, R. J. (1998) A balance theory of wisdom. *Review of General Psychology*, 2, 347-365.
- Takahashi, M., & Overton, W. F. (2002). Wisdom: A culturally inclusive developmental perspective. *International Journal of Behavioral Development*, 26, 269-277.
- Takahashi, M., & Overton, W. F. (2005). Cultural foundations of wisdom: An integrated developmental approach. In R. J. Sternberg & J. Jordan (Eds.), *A handbook of wisdom: Psychological perspectives* (pp. 32-60). New York, NY: Cambridge University Press.
- Taylor, M., Bates, G., & Webster J. D. (2011). Comparing the psychometric properties of two measures of wisdom: Predicting forgiveness and psychological well-being with the self-assessed wisdom scale (SAWS) and the three-dimensional wisdom scale (3D-WS). *Experimental Aging Research*, 37, 129-141.
- Tugade, M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional arousal. *Journal of Personality and Social Psychology*, 86, 320-333.
- Tugade, M. M., & Fredrickson, B. L. (2007). Journal Regulation of positive emotions: Emotion regulation strategies that promote resilience. *Journal of Happiness Studies*, 8, 311-333.
- Webster, J. D. (2003). An exploratory analysis of a self-assessed wisdom scale. *Journal of Adult Development*, 10, 13-22.