

THE INFLUENCE OF NOSTALGIA  
IN THE DOMAINS OF MONEY AND HEALTH

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## ABSTRACT

While nostalgia is a prominent theme in marketing, very little is known about how feeling nostalgic influences consumers' attitudes, motivations, and behaviors. Much research on nostalgia in the consumer domain has been somewhat limited to conceptualizing nostalgia as a characteristic of products (e.g., Holbrook and Schindler 1989, 1994; Schindler and Holbrook 2003), and has studied why consumers favor nostalgic, relative to neutral, products. Recent research on nostalgia revolves around nostalgia-evoked aspects of well-being, namely social support and meaning in life (e.g. Juhl et al. 2010; Wildschult et al. 2006; Zhou et al. 2008). Much of this recent research has shown the restorative and buffering functions of nostalgia.

The purpose of this dissertation was to examine if and how nostalgia influences consumer attitudes, behaviors, and motivations in the realms of money and health. To do so, I made links among nostalgia, well-being, and lay perceptions of what constitutes a good life. I extended prior findings by demonstrating the influence of nostalgia across the domains of money and health, two areas that are not directly linked to the aspects of well-being elicited by nostalgia. Furthermore, my research was not concerned with the restorative or buffering function of nostalgia, rather, I primarily focused on how nostalgia influences attitudes, behaviors, and cognitions across two domains that are of utmost importance to people's lives (Bowling 1995).

Past research and preliminary findings from this dissertation have shown that when people are reminded of what constitutes a good life, they find money relatively less desirable (King and Napa 1989), and health relatively more desirable (chapter 1 pretest).

Following this logic, I formulated two hypotheses, which I tested separately in two different essays. In essay #1, “Nostalgia Weakens the Desire for Money,” I tested the hypothesis that those in a nostalgic, relative to neutral, state would find money less desirable. Findings supported my prediction; across five experiments I found that nostalgia participants indicated less desire for money. In essay #2, “Nostalgia Increases Receptiveness to Self-Threatening Health Information,” I tested the hypothesis that those in a nostalgic, relative to neutral, state would be more receptive to self-threatening health information. Findings were inconclusive; in two studies nostalgia increased receptiveness to self-threatening health information, in one study nostalgia decreased receptiveness to self-threatening health information.

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# CHAPTER I

## INTRODUCTION

Nostalgia is commonplace in marketing – in 2012 alone nostalgia was cited as a top trend in products such as toys (Dickler 2012), food (Faulder 2012), and even Oscar winning movies (Cieply and Barnes 2012). Nostalgic advertisements were also pervasive this past year. For example, Visa’s sepia toned Olympic 2012 commercials asked consumers to relive memories of past great Olympic victories, such as Nadia Comaneci’s 1976 perfect score, and Michael Phelps’ more recent 2008 victories. While nostalgia seems to increasingly show itself as a prominent theme in marketing, very little is known about how feeling nostalgic influences consumers’ attitudes, motivations, and behaviors.

Much research on nostalgia in the consumer domain has been somewhat limited to conceptualizing nostalgia as a characteristic of products (e.g., Holbrook and Schindler 1989, 1994; Schindler and Holbrook 2003), and has studied why consumers favor nostalgic, relative to neutral, products. My dissertation looks beyond the nostalgic product. In my research I examined nostalgia in a broader sense, as an experienced emotion that has implications far beyond the way marketers package and promote products. Specifically, I examined how nostalgia influences consumer attitudes, behaviors, and motivations in the realms of money and health.

This introductory chapter will provide the basis for my dissertation by accomplishing the following goals. The first section of this chapter provides conceptualizations and definitions of nostalgia. The second section provides methods used to measure and manipulate the different conceptualizations of nostalgia. The third

section discusses the current state of relevant nostalgia research. The fourth and final section provides the theoretic frameworks that set the basis for my hypotheses in the realms of money and health.

## NOSTALGIA: DEFINITIONS AND CONCEPTUALIZATIONS

### Definition

Swiss physician Jhoannes Hofer first used the term “nostalgia” (1688/1934) to describe an aversive medical condition (Holak and Havlena 1992; Sedikides, Wildschut, and Baden 2004) The word nostalgia is derived from two Greek roots: *nostos*, meaning to return and *algos*, meaning suffering. Up until the 20<sup>th</sup> century, nostalgia was considered a psychosomatic disorder often linked to homesickness (Wildschut et al. 2010).

Rather than a psychosomatic disorder, nostalgia is now generally thought of as a common emotion that is experienced by people across different ages and cultures (Boym 2001; Wildschult et al. 2006; Zhou et al. 2008). Accordingly, present definitions of nostalgia and homesickness have diverged (Davis 1979; Wildschut et al. 2010). In *The New Oxford Dictionary of English* (1998), nostalgia is defined as “a sentimental longing for the past,” while homesick is defined as “experiencing a longing for one’s home during a period of absence from it.”

There have been two main conceptualizations of nostalgia in the literature: 1) as a preference (e.g., Holbrook 1993; Holbrook and Schindler 1989; Loveland, Smeesters, and Mandel 2010), or 2) cognitively laden mixed emotion (e.g., Batcho 1995;

Castelnuovo-Tedesco 1980; Havlena and Holak 1991; Mills and Colman 1994; Stern 1992). I will provide a brief overview of each conceptualization below.

### Conceptualization I: Nostalgia as a Preference

The first conceptualization considers nostalgia as a preference for things from the past (Holbrook and Schindler 1989, 1994; Loveland, Smeesters, and Mandel 2010; Schindler and Holbrook 2003). For example, Holbrook (1993, p.104) defined nostalgia as:

“a preference (general liking, positive attitude, or favourable affect) towards objects (people, places, or things) that were more common (popular, fashionable, or widely circulated) when one was younger (in early adulthood, in adolescence, in childhood, or even before birth).”

Simply put, nostalgia can be thought as a liking for the items from the past, which can include past relationships, experiences, and belongings. These items do not need to be personally experienced to be considered nostalgic. Research stemming from this conceptualization has been primarily concerned with the antecedents of nostalgic preferences, rather than how the emotional experience of nostalgia influences people.

### Conceptualization II: Nostalgia as an Emotion

The second conceptualization describes nostalgia as a mixed emotion with cognitive components (Batcho 1998; Castelnuovo-Tedesco 1980; Davis 1979; Havlena and Holak 1991; Holak and Havlena 1998; Mills and Colman 1994; Peters 1986; Sedikides, Wildschut, and Baden 2004; Stern 1992; Wildschut et al. 2006). The longing

component of nostalgia suggests that the past is most likely idealized or more desirable than the present (Wildschut et al 2006). Generally the experience of nostalgia includes positive affect, such as happiness, tenderness, and love, accompanied by negative affect, such as sadness, longing, or loss (Batcho 2007; Holak and Havlena 1998; Wildschut et al. 2006). This body of work has suggested nostalgia's positive affect is generated by happy, warm memories from the past, while its negative components are elicited by the realization that that this past is cannot be reproduced or relived.

### *The Emotional Composition of Nostalgia*

While many scholars agree that nostalgia is a mixed emotion they differ as to whether the emotion is primarily negative or positive. For example, Peters (1986) describes nostalgia as a painful, negative experience, whereas others (e.g., Holak and Havlena 1992; Kaplan 1987; Sedikides, Wildschut, and Baden, 2004, Wildschut et al. 2006) have described nostalgia as a primarily positive emotion “tinged with bittersweet elements.”

Other scholars who conceptualize nostalgia as a primarily positive emotion have suggested that nostalgia serves to increase well-being through increased perceptions of meaning in life (Routledge et al. 2008, 2011, 2012; Sedikides et al. 2004; Wildschut et al. 2006), self-continuity (Davis 1979; Iyer and Jetten 2011; Wildschut et al. 2006), social support (Zhou et al. 2008, 2012), and positive self-regard (Wildschut et al. 2006). Despite the variations in content and emotional composition of nostalgia, scholars who adhere to this second conceptualization generally define nostalgia as a longing for a past that cannot be revisited or reconstructed.

## Personal Versus Historical, Cultural, or Societal Nostalgia

Scholars also diverge with regards to whether a nostalgic memory is personally experienced (Batcho 2007; Stern 1992). Some scholars, (Havlena and Holak 1991; Holbrook 1993, 1994; Holbrook and Schindler 1989; Loveland et al. 2010) have conceptualized nostalgia as a liking for any past, whether it is personally experienced or not. According to this conceptualization, baby boomers could be nostalgic for the roaring 20s even though they were born after this time period. Thus, according to these scholars, it is possible for people to experience nostalgia for a long gone historical, cultural, or societal time period, which they did not experience firsthand.

However, other scholars insist that one must experience the past firsthand to feel nostalgia (Davis 1979; Sedikides et al. 2004). According to this conceptualization, baby boomers could not be nostalgic for the roaring 20s since they did not experience this period firsthand.

My work adheres to the second conceptualization of nostalgia, as a cognitively laden mixed emotion and defines it as a wistful longing for a personally experienced past. In particular, this research investigated how nostalgia influences consumer behavior in the domains of money and health through increasing well-being, namely meaning in life. Thus, in contrast to much nostalgia research in the consumer domain, I focused on how the positive consequences of feeling nostalgia influence consumer behaviors and motivations. Before delving into my overarching hypotheses in these two domains, I will provide relevant methodologies used to measure and manipulate nostalgia, and relevant

nostalgia findings. Thus, the next parts of this introductory chapter provide an overview of how nostalgia has been measured, manipulated, and studied.

## NOSTALGIA: MEASUREMENT AND MANIPULATIONS

### Nostalgia as a Preference: Measurement and Manipulations

Research conceptualizing nostalgia as a preference has either investigated the conditions that may lead consumers to choose, or prefer nostalgic, relative to neutral, products (e.g., Loveland, et al. 2010), or what individual differences are correlated with preferences for nostalgic products (e.g., Holbrook and Schindler 1989, 1994; Schindler and Holbrook 2003). For instance, it appears that men show a higher preference for nostalgic products than do women (Schindler and Holbrook 2003) and that people are most nostalgic for items from their early twenties (Holbrook and Schindler 1989).

One main contribution from research conceptualizing nostalgia as preference is the notion that some people differ in their general propensity to feel nostalgic, an individual difference referred to as nostalgia proneness (Batcho 1995; Holbrook 1993, 1994). This research has demonstrated that people higher, relative to lower, in nostalgia proneness, prefer products from the past. Two prominent instruments used to measure nostalgia proneness are Batcho's (1995) Nostalgia Inventory and Holbrook's Attitude Toward the Past Scale (1993).

Batcho's (1995) Nostalgia Inventory is an eighteen-item scale that measures preferences for the past on a 5-point scale (1 = *not at all*; 5 = *very much so*). This scale asks participants to indicate how much they miss items from the past. Sample items

include “things I did,” “my childhood toys,” and “the way people were.” Holbrook’s twenty-item Attitude Toward the Past Scale asks participants to indicate their agreement with items such as “They don’t make ‘em like they used to” and “Yesterday, all my troubles seemed so far away,” on a 9-point scale (1 = *strong disagreement*, 9 = *strong agreement*). Subsequent research by Batcho (2007) has demonstrated that Holbrook’s scale tends to capture cultural or societal nostalgia, while Batcho’s scale tends to capture personal nostalgia.

One other prominent instrument used in the nostalgia literature is the Southampton Nostalgia Scale (SNS; Routledge et al. 2008), which measures nostalgia proneness using a 5-item, 7-point scale, with lower scores reflecting less nostalgia proneness. This scale asks participants how frequently they engage in nostalgia, which is defined using the Oxford Dictionary’s “sentimental longing for a personally experienced past”. Sample items include “Generally speaking, how often do you bring to mind nostalgic experiences?”

Research conceptualizing nostalgia as a preference has demonstrated when the need to belong is activated people prefer nostalgic, relative to contemporary, products (Loveland et al. 2010). In this prior research nostalgic products were products initially popular during participants’ younger years, whereas contemporary products were ones that were currently popular. It appears that when people are sensitive to belongingness they are drawn to nostalgic, relative to contemporary, items because nostalgic items elicit more thoughts of social support (Batcho 2007; Wildschut et al. 2006; Zhou et al. 2008).

Nostalgia as an Emotion: Measurement and Manipulations

When conceptualized as a cognitively laden emotion, nostalgia has been both measured and manipulated. Generally, nostalgia has been measured to determine what conditions trigger feelings of nostalgia (Routledge et al. 2008; Wildschut et al. 2006). This research has used both standardized scales such as Batcho's (1995) Nostalgia Inventory and the Southampton Nostalgia Scale (2008), as well as items simply asking participants how nostalgic they feel at the moment (Zhou et al. 2012) to measure feelings of nostalgia.

Prominent nostalgia manipulations include autobiographical reports (e.g., Routledge et al., 2008; Vess et al., 2012; Wildschut et al. 2006; Zhou, et al. 2012), music (Barrett et al., 2010; Juhl et al. 2011; Routledge 2011), and advertisement perusal tasks (Zhou et al. 2012). For example, when nostalgia is manipulated using an autobiographical narrative, participants are given a definition of nostalgia and asked to think and write about a nostalgic event from their own lives (Wildschut et al. 2006). Control conditions for this task have generally asked participants to think of an ordinary life event from their own past. Recently, different control conditions have been introduced for this task, in addition to asking participants to think about an ordinary life event, Routledge and colleagues (2011) have asked participants to think of a positive past event or favorable future event. Music manipulations evoking nostalgia have asked participants to read the lyrics or listen to songs from their own personally experienced past (Juhl et al. 2010; Routledge et al. 2012). When manipulated through advertisements, nostalgia is evoked through advertising copy asking participants to reflect on their past (Zhou et al. 2012).

These measurements and manipulations of nostalgia have been key in expanding knowledge of how nostalgia influences attitudes and behaviors. In the next

section I will provide an overview of this prior research, with a focus on research that conceptualizes nostalgia as a cognitively laden emotion.

## CURRENT NOSTALGIA RESEARCH

Until a decade ago there was a dearth of research conceptualizing nostalgia as a cognitively laden emotion. Thus, much of the early nostalgia research conceptualized it as a preference for the past (Holbrook and Schindler 1989, 1994; Schindler and Holbrook 2003). Extant research that did conceptualize nostalgia as a cognitively laden mixed emotion was often theoretical (e.g. Davis 1979) or case study based (e.g., Peters 1986).

The early 2000s gave way to a surge of research conceptualizing nostalgia as a cognitively laden emotion, spearheaded by Sedikides and colleagues (Juhl et al. 2010; Routledge et al., 2008, 2011, 2012; Sedikides et al. 2004; Wildschut et al. 2006, 2010; Zhou et al. 2008, 2012). These scholars have focused on unraveling nostalgia's content, antecedents, and functions. This research seeks to answer the three following questions: 1) what is the content of nostalgic memories? 2) what triggers nostalgia?; and 3) what function does nostalgia play in people's lives?

### Nostalgia: Content

Research addressing the content of nostalgia has examined the subject matter of nostalgic memories (Wildschut et al. 2006). Results revealed that descriptions of nostalgic events and experiences contained mainly positive sequences or events.

However, nostalgic narratives also contained negative events that progressed into positive

or victorious ones (e.g., I had a hard time, but it taught me a practical life lesson). This content analysis of nostalgic narratives also found that the self was primarily perceived as the protagonist, generally surrounded by close, significant others. Other nostalgic narratives that did not include close others included nostalgia for special occasions, (e.g., birthdays, vacations, graduations) or settings (e.g., landscapes, sunsets).

### Nostalgia: Antecedents

The second focus of nostalgia research seeks to answer what conditions lead people to experience nostalgia. This research has primarily addressed this question empirically through self-reports. For example, Wildschut et al. (2006) asked participants to give a detailed description about circumstances that led to nostalgic feelings. The content of these descriptions revealed that nostalgia can be triggered by negative affective states, including sadness and loneliness. Nostalgia can also be triggered by sensory inputs, including smells, music, and tastes. Social interactions, particularly ones that involved reminiscing about the past, also triggered nostalgia.

Nostalgic reverie often contains thoughts of significant others and meaningful events (Stern 1992; Wildschult et al. 2006), which increases feelings of social support and meaning in life. Given these findings, much recent research on nostalgia has examined its ability to restore these two aspects of well-being (Juhl et al. 2010; Routledge et al. 2008, 2011; 2012; van Tilburg et al. 2012; Zhou et al. 2008). This restorative quality of nostalgia has been tested by examining contexts where nostalgia is activated when people experience a decrease in social support and meaning in life.

For example, building on the finding that nostalgic thoughts include close significant others (Wildschut et al. 2006), Zhou and colleagues (2008) have found that the feeling of loneliness, or a lack of social support, activates feelings of nostalgia. Drawing from research that demonstrates nostalgia increases a sense of meaningfulness in life (Wildschut et al. 2006), researchers (van Tilburg et al. 2012) have found that boredom, which causes a momentary dip in perceptions of meaning in life, increases feelings of nostalgia.

In sum, there are several antecedents to feeling nostalgic. Some antecedents are sensory, such as music and smells. Other antecedents are psychological, which can be interpersonal (e.g., reminiscing with others) or intrapersonal (e.g., boredom). Psychological antecedents can be either positive or negative in nature. The triggers of nostalgia lend insight to the idea that nostalgia may serve as a reserve of well-being that can be tapped not only when people are reminded of personally experienced past events, but also when they feel deficits in well-being. Further exploration of the latter idea will be explained in the consequences section below.

### **Nostalgia: Consequences**

The consequences of nostalgia appear, for the most part, to have a positive impact on psychological functioning (see Iyer and Jetten 2010 for an exception). Generally, research has viewed nostalgia as a reserve of well-being, demonstrating that thoughts of nostalgia can bolster both intrapersonal (e.g., self-esteem) and interpersonal (e.g., social connectedness) positive inner processes (Sedikides et al. 2004; Wildschult et al. 2006).

In general, extensions of this research have centered on further exploring the social connectedness and meaning in life aspects of nostalgia. Accordingly, I will describe the current state of nostalgia and social support, and nostalgia and meaning in life research below.

## Nostalgia and Social Support

Nostalgic thoughts are filled with thoughts of close, significant others (Batcho 2007; Wildschut et al. 2006; Zhou et al. 2008), therefore, feelings of nostalgia increase perceptions of social support. Currently, research has explored the social aspect of nostalgia by demonstrating situations where nostalgia fulfills the need for belongingness (Loveland et al. 2010; Zhou et al. 2008), and increases positive, socially relevant, attitudes and behaviors (Turner et al. 2010; Wildschut et al. 2010; Zhou et al. 2012). I will provide an overview of relevant studies below.

Nostalgia's ability to satiate the need to belong through increased feelings of social support has been shown across two sets of experiments. Loveland and colleagues (2010) have demonstrated that when the need to belong is heightened participants preferred nostalgic, compared to contemporary, products. Loveland and colleagues showed this effect when one feels the need for more belongingness, as well as when one is reminded of valued groups and relationships. Related research by Zhou and colleagues (2008) has demonstrated that feelings of loneliness, a state where one lacks social connectedness, spontaneously evoked feelings of nostalgia. Furthermore, this spontaneously evoked nostalgia increased perceptions of social support, which subsequently decreased feelings of loneliness. In sum, extant research (Loveland et al.

2010; Zhou et al. 2008) has demonstrated that feelings of nostalgia satiate the need to belong.

Research has demonstrated that nostalgia-evoked perceptions of social connectedness may be most beneficial for people who have a secure attachment style (Wildschut et al. 2010). Specifically, Wildschut and colleagues have demonstrated that people who tend to respond to distress using interpersonally avoidant strategies (high-avoidance individuals) feel less socially connected after recalling a nostalgic event, relative to people who do not tend to use avoidant strategies (low-avoidance individuals). Furthermore, recalling a nostalgic event lead low-avoidance, relative to high-avoidance, individuals to perceive they were more competent at providing emotional support to others.

Nostalgia also influences how people approach and interact with one another. For instance, feelings of nostalgia can increase people's positive attitudes towards an otherwise unfavorable outgroup (Turner et al. 2010). Turner and colleagues (2010) demonstrated that average-weight participants who recalled a nostalgic experience with an overweight individual reported more positive attitudes towards an overweight outgroup member. It appears that recalling this type of nostalgic experience increased perceptions of outgroup trust and inclusion of the self with the outgroup, and decreased intergroup anxiety.

Research by Zhou and colleagues (2012) tested the hypothesis that nostalgia-evoked social connectedness increases prosocial intentions and behaviors. Specifically, this research found that people in a nostalgic, relative to neutral, state were willing to donate more time and more money to a charitable cause. Zhou and colleagues reasoned

that nostalgia bolsters social bonds with the charity beneficiaries, which increases the amount of empathy felt towards them. This research demonstrated that an increased sense of empathy led to greater charitable donations.

Taken together, past research shows that nostalgia-evoked social support promotes social connection in different ways. First, nostalgia can satisfy the need to belong when one is alone, simply by conjuring up thoughts of significant others (Zhou et al. 2008). Second, nostalgia increases the sense that one is competent at providing emotional support (Wildschut et al. 2010), which can bolster interpersonal relationships with significant others. Third, nostalgia promotes positive interactions towards outgroup members, even ones that belong to culturally marginalized groups (Turner et al. 2010; Zhou et al. 2012).

In conclusion, when people feel nostalgic, their perceptions of social connectedness rise, which can promote positive, prosocial interactions with others. Conversely, when people lack social connection, or when their need to belong is heightened, nostalgia restores perceptions of social connectedness.

### Nostalgia and Meaning in Life

The proposition that the experience of nostalgia is related to meaning in life was initially proposed by Sedikides, Wildschut, and Baden (2004), and later empirically demonstrated by Wildschut and colleagues (2006). This past research suggested that nostalgia imbues life with meaning because nostalgic thoughts often contain close others at momentous, significant events. Subsequent research built from this foundation has not only demonstrated the relation between nostalgia and a sense of meaning in life, but also

showed that nostalgia serves as a response to and buffer against different threats to meaningfulness (Juhl et al. 2008; Routledge et al. 2008, 2011; 2012; van Tilburg et al. 2012).

Most notably, research by Routledge and colleagues (Juhl et al. 2010; Routledge et al. 2008, 2011, 2012), has shown that those who were high, relative to low, in trait nostalgia, or who received a nostalgia, relative to neutral, induction reported higher scores on a meaning in life scale. For instance, Routledge and colleagues (2011) have demonstrated that music-evoked nostalgia was significantly and positively correlated with a sense of meaning in life. In another set of studies, Routledge and colleagues (2012) demonstrated that participants who were filled with nostalgic thoughts indicated less desire to search for meaning in life compared to those who were filled with desirable future or positive past thoughts. In sum, this research has demonstrated that nostalgia increases a sense of meaning in life and also decreases the search for it (Routledge et al. 2011, 2012).

Nostalgia-imbued meaning in life also appears to buffer people from threats to meaningfulness. One stream of research demonstrating nostalgia's ability to increase a sense of meaning in life has centered on Terror Management Theory (TMT, Greenberg, Pyszczynski, and Solomon 1986). According to TMT, people are motivated to assuage the threat of their own mortality by imbuing their lives with culturally and socially based sources of meaning. For example, Greenberg and colleagues (2008) have demonstrated that participants who were reminded of their death, relative to those reminded of an unpleasant experience, had more negative evaluations of an essay that criticized their university. Greenberg and colleagues reasoned that the negative evaluations were a way

for participants to uphold their university identity and increase a sense of meaning in their lives.

Juhl and colleagues (2010) have examined how a nostalgia-evoked meaning in life affects responses to existential threats. In one study, Juhl and colleagues had student participants complete the SNS nostalgia proneness scale (Routledge et al. 2008) then reflect on their own death. Next, using the same procedure from Greenberg and colleagues (2008), students were asked to read and evaluate an essay that criticized their university. Juhl and colleagues (2010) found that participants who were higher in nostalgia proneness evaluated the essay as less negatively than participants low in nostalgia proneness. In one other study, Juhl and colleagues found that participants who were higher in nostalgia proneness felt less anxiety about death after being reminded about their mortality. Across both studies, Juhl and colleagues found that the propensity to engage in nostalgic thoughts, as measured by the nostalgia proneness scale, seemed to buffer and assuage death-related anxiety through increased perceptions of meaning in life.

This effect has been replicated when nostalgia is manipulated rather than measured (Routledge et al. 2008; 2011, 2012). For instance, Routledge and colleagues (2012) presented participants with an ambiguous or confusing piece of art, which past research has demonstrated decreases a sense of meaningfulness (Proulx, Heine, and Vohs 2010). After viewing this piece of art participants were asked to recall either a nostalgic or ordinary life event. Routledge and colleagues found that participants who recalled a nostalgic event reported their lives were more meaningful than those who thought about a positive experience.

Other research has demonstrated that nostalgia is evoked when people experience momentary dips in their perceptions of meaning in life. Routledge and colleagues (2011) have demonstrated that participants reported greater feelings of state nostalgia after reading a self-threatening essay relative to participants who read a non-threatening one. van Tilburg and colleagues (2011) have shown that boredom, which decreases a sense of meaning in life, spontaneously evokes nostalgia. Furthermore, this research demonstrated that these evoked feelings of nostalgia increased thoughts of meaningfulness, which counteracted feelings of boredom.

Stemming from the idea that nostalgia increases a sense of meaning in life through thoughts of close significant others at momentous events (Sedikides et al. 2004; Wildschut et al. 2006), research by Routledge and colleagues (2011) has examined one underlying mechanism between the nostalgia and meaning in life relationship. In one experiment, Routledge and colleagues (2011) found that feelings of nostalgia were positively related to a sense of meaning in life. In another experiment, they found participants who recalled and listened to a nostalgic song indicated higher perceptions of meaning in life, compared to those who recalled and listened to a non-nostalgic song. Further investigation revealed that in both studies the relationship between nostalgia and meaning in life was mediated by increased perceptions of social. Thus, this research provides some evidence that nostalgia evoked meaning in life is driven by increased perceptions of social support.

In sum, accumulating evidence points to nostalgia as a reserve of meaning in life. When people are high in trait or state nostalgia they feel that their lives are more meaningful than they would so otherwise. This nostalgia-evoked sense of meaning in life

buffers people from threats that can potentially decrease a sense of meaningfulness. This prior research has also demonstrated this relationship in the reverse direction: momentary dips in meaning lead to an increase in nostalgia.

## THEORETICAL FRAMEWORK

The primary goal of this dissertation was to extend findings on the relationship between nostalgia and well-being to the domains of money and health. I predicted that nostalgia would decrease the motivation for money and increase the receptiveness to potentially self-threatening health information.

My hypotheses were rooted in literature that examined lay conceptualizations of a good life. In particular, King and Napa (1998) have investigated what components constituted having a good life, which was defined as a life that is desirable and morally good. They found that participants reported meaning in life as a key component of a good life and money as not. In a pretest for my dissertation I replicated the finding that money is a less important component of a good life compared to other components, such as happiness. I also found health as a relatively important component of having a good life (see Appendix).

Nostalgia evokes aspects of well-being that are relatively important to having a good life, such as meaning in life. I reasoned that nostalgia-evoked well-being reminds people what makes life good, which orients them towards goals consistent with having a good life. Specifically, I hypothesized that nostalgia leads people to value components

key to having a good life, such as health, more and value components relatively less important to having a good life, such as money, less.

The primary goal of this dissertation was to test the hypotheses that nostalgia 1) decreases the desire for money and 2) increases the receptiveness to self-threatening health information. A secondary goal of this work was to demonstrate the process underlying the effect of nostalgia on money and on health. I reasoned that a nostalgia-evoked sense of well-being (e.g., social support, meaning in life) drives the effect of nostalgia on the valuation of money and health.

There is accumulating evidence for social support and meaning in life as two important ways of understanding the relationship between nostalgia and well-being (Juhl et al 2010; Loveland et al. 2010; Routledge et al 2008; 2011, 2012; Wildschult et al 2006; Zhou et al. 2008, 2012). Therefore, in my work I focused on nostalgia-evoked social support and meaning in life as potential mediators for my effects.

My dissertation extends prior research by demonstrating nostalgia's influence reaches far beyond the way products are packaged and promoted, and aimed to show that nostalgia's function is not only limited to buffering or restoring the aspects of well-being it elicits. The overarching goal of this dissertation was to demonstrate that nostalgia could influence motivations in the seemingly unrelated, yet important, domains of health and money. Chapter 2 of this dissertation tested the hypothesis that nostalgia decreases the desire for money. Chapter 3 tested the hypothesis that nostalgia increases receptiveness to self-threatening health information. Chapter 4 provided summary and conclusions for both money and health streams of research.

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## CHAPTER II

### ESSAY #1: NOSTALGIA WEAKENS THE DESIRE FOR MONEY

Nostalgia is often used to elicit donations to political and charitable organizations or sell products. The 2012 United States presidential election saw both Democratic and Republican parties turn to nostalgia on the campaign trail (Cook 2012). This past holiday season, Tots for Toys “Dear Santa” campaign asked adults to recall their favorite toy from childhood and gave them an opportunity to thank Santa for it, in hopes to spur thoughts of nostalgia. In the consumer realm, both nostalgic products and promotions are prominent; in fact nostalgia has been cited as a top trend in 2012 and 2013 (Dawn and Blake 2013; Dickler 2012). For example, this past January 2013, Internet Explorer launched the “Child of the 90’s” campaign, which asked consumers to think back to a simpler time while showcasing toys and products from the 1990s. Of interest is why nostalgia – a reflection on one’s sentimental past – is connected to selling and soliciting. One reason for nostalgia’s prominence in these settings may be due to its ability to weaken people’s desire for money.

When people are nostalgic they often think of significant, momentous events, such as birthdays, graduations, and holidays, where they are surrounded by friends and family. Therefore, nostalgic reverie increases the sense that one’s life is meaningful (Juhl et al. 2010; Routledge et al. 2008; 2011; 2012), which I define as the sense that one’s life has purpose and is significant (Baumeister 1991; Frankl 1985), and also increases perceptions of social support (Loveland et al. 2010; Zhou et al. 2008; 2012). Both meaning in life and social support are markers of well-being (Ryff 1989), and the pursuit

of meaning and belongingness are fundamental human motivations (Baumeister 1991; Baumeister and Leary 1995; Frankl 1963; Williams 2009). Furthermore, research has demonstrated that the perception that one's life has meaning and relationships with friends and family are important components of the folk concept of a good life (King and Napa 1989; chapter 1 pretest).

The desire to obtain and have money is also a prominent motivation in society (e.g., Simmel 1978). On the surface, it appears that people may believe that having money also contributes to a good life. For example, a survey of adults aged 25-47 years old revealed that being free from financial strain was related to lay conceptualization of a good life (MetLife Mature Market Institute 2009). Past work has also shown a positive correlation between having money and life satisfaction (Diener and Seligman 2004; Johnson and Kruger 2006). While people may think having money is an important part of their lives, when they are specifically asked to think about what constitutes a good life, money is deemed as less important than other components such as meaning in life (King and Napa 1989).

The relationship between nostalgia and well-being sets the basis for my hypothesis that nostalgia decreases the desire for money, which I defined as the desire to obtain and hold onto money. In this work I reasoned that a nostalgia-imbued sense of well-being increases the valuation of things relatively important to having a good life and decreases the valuation of those that are not (e.g., money). In this chapter I predicted that nostalgia decreases the valuation of money.

Research on parenting also suggests that well-being, namely perceptions of meaning in life and social support, may offset the desire for money. In particular,

Kushlev, Ashton-James, and Dunn (2012) have demonstrated that parents who were reminded of money reported lower scores on a meaning in life scale than those who were not. Kushlev and colleagues explained that reminders of money seem to highlight self-sufficiency, whereas reminders of parenting highlight social support; therefore, money and parenting lead to competing motivations (also see Vohs, Mead, and Goode 2006). Thus, some research suggests that money and having a good life go hand in hand, while other research suggests that the two are unrelated or even opposing. My research draws from and builds upon the latter body of work (King and Napa 1989; Kushlev et al. 2012) work by testing the hypothesis that when people are imbued with a sense of well-being, their motivation for money wanes. I tested this hypothesis, which I will refer to as the nostalgia-money hypothesis, across five experiments.

## Overview of Empirical Studies

Experiment 1 tested the hypothesis that nostalgia decreases the desire for money using willingness to pay as the operationalization of desire for money. Experiment 2 used a behavioral economics game (Guth, Schmittberger, and Schwarze 1982) and asked participants to part with either time or money. Experiment 3 tested the hypothesis by simply asking participants to indicate the importance of money. Experiment 4 used a perceptual task to test desire for money. Experiment 5 used a face valid measure of desire for money, by directly asking participants how much they valued money. Across all studies, the hypothesis was the same: nostalgia, relative to control, participants would desire money less. That is, I predicted that nostalgia participants would be willing to pay more for products (experiment 1); give away more money, but not more time (experiment

2); indicate that money is not as important (experiment 3); draw smaller coins (experiment 4); and report less value of money (experiment 5).

## EXPERIMENT 1: WILLINGNESS TO PAY

Experiment 1 was the initial test of the hypothesis that nostalgia decreases the desire for money. In this experiment desire for money was operationalized using willingness to pay for a variety of products. The logic is that the less people desire money the more of it they are willing to part with in exchange for goods and services. Participants were assigned to view a nostalgia or future-oriented advertisement then indicated their willingness to pay for 24 products. The prediction is that those who perused the nostalgic advertisement would be willing to pay more for products compared to those who viewed the future-oriented advertisement.

### Method

#### *Participants and design.*

Seventy students (38 females,  $M_{\text{age}} = 21.58$  years,  $SD = 1.24$ ) at the University of Minnesota participated in the study in exchange for partial course credit. This experiment used a 2-cell design, with nostalgia versus future-oriented conditions as predictors of willingness to pay.

Participants entered the lab under the guise of an advertising and products study. First, participants were asked to evaluate two advertisements, the second of which contained the nostalgia manipulation. Participants were told the advertisements were part of a Category Information Brief (CIB; Dahl, Sengupta, and Vohs 2009) packet, which

was part of a larger catalogue used by sales brokers to show potential retailers. The second advertisement used Kodak branding and displayed a picture of a family (see figures 1a and 1b). Half of the participants received copy that read “*Remember special occasions with others from your past... Take a moment to cherish your childhood memories.*” The other half received copy that read “*A special occasion with others...Think about making new memories starting today and well into your future.*” Future-oriented manipulations have been used in other nostalgia research (Routledge et al. 2012; Zhou et al. 2012) as control conditions. There is also evidence that thinking about the future and thinking about the past activates similar cognitive processes in the brain (Addis, Wong, and Schacter 2007; Berntsen and Bohn 2010; Bohn and Berntsen 2010). As part of the CIB evaluation, participants perused each advertisement for 30 seconds then rated the advertisement on three attributes (1 = *not at all*, 9 = *extremely*,  $\alpha = .86$ ).

FIGURE 1

EXPERIMENT 1: WILLINGNESS TO PAY STIMULI



Figure 1a: Nostalgic Advertisement

Figure 1b: Control Advertisement

A pretest confirmed the nostalgia manipulation. To ensure the advertisement manipulation induced nostalgia, forty-six participants (25 females) were assigned to the nostalgia or future-oriented advertisement evaluation task. After viewing the nostalgia or future-oriented advertisement, participants were asked their agreement with the following three items: “Right now, I am feeling quite nostalgic,” “Right now, I am having nostalgic feelings,” and “I feel nostalgic at the moment” (1 = *strongly disagree*, 7 = *strongly agree*; Wildschut et al. 2006). These items were formed to create an index ( $\alpha = .97$ ). An independent samples t-test revealed that those in the nostalgia condition experienced more nostalgia than those in the future-oriented condition advertisement ( $M_{\text{nostalgia}} = 4.24$ ,  $SD = 1.70$  vs.  $M_{\text{control}} = 3.15$ ,  $SD = 1.65$ ;  $t(44) = 4.82$ ,  $p < .05$ ).

Next participants completed the willingness to pay task. Participants were given a booklet with twenty-four different products and asked to indicate their willingness to pay for each product. The products ranged from high-end (e.g., Mercedes Benz, wide screen tv) to low-end (e.g., umbrella, t-shirt) products, durables (e.g., house, stereo) and non-durables (e.g., cookies, orange juice). Different products were used to demonstrate the generalized effect of nostalgia on money and not on specific categories or types of products. Last, participants completed a demographics form and were debriefed.

## Results

### *Advertisement ratings.*

As expected, there were no differences between the nostalgia and future-oriented advertisement ratings ( $t < .05$ , NS).

### *Willingness to pay.*

The prediction was that participants who evaluated the nostalgic advertisement would indicate higher willingness to pay for products compared to those who had evaluated the future-oriented advertisement. Products varied greatly in average stated price, from \$1.67 for a liter of Coke to \$ 292, 671.43 for a house. Thus, I first standardized all the willingness to pay scores. These scores were subjected to a 2 (advertisement: nostalgic vs. future-oriented) x 24 (product type) mixed ANOVA, with advertisement type as a between subjects factor and product type as a within subjects factor predicting willingness to pay. As expected, those in the nostalgia condition were willing to pay more for products compared to those in the control condition ( $M_{\text{nostalgia}} = .10$ ,  $SD = 0.38$  vs.  $M_{\text{control}} = -.11$ ,  $SD = 0.39$ ;  $F(1, 67) = 4.87$ ,  $p < .05$ ). There was no effect of type of product predicting willingness to pay ( $F < .03$ , NS) or an interaction effect of product type and advertisement condition ( $F < 1.10$ , NS).

### Discussion

Experiment 1 was the first test of the hypothesis that nostalgia reduces the desire for money. Participants who viewed an advertisement prompting them to recall nostalgic memories indicated they would pay more for a variety of products relative to participants who viewed an advertisement prompting them to make new memories.

Yet, some alternative explanations for the result exist. First, it is plausible that feeling nostalgic increased the valuation of products, which was reflected in the higher willingness to pay scores. In addition, it is possible that those in the nostalgia condition valued a variety of resources less, not just money. Experiment 2 addressed these alternative explanations.

## EXPERIMENT 2: DICTATOR GAME

Experiment 2 tested the robustness of the nostalgia-money effect by using new manipulations and measures in the behavioral domain. Participants were asked to either write about a personally nostalgic event or an ordinary past life event. Next, participants played a behavioral economics game called the dictator game (Guth et al. 1982). This is a one shot, two-player game in which one player, the proposer, is given an endowment of a resource, which is usually money, to the other player, the responder. The proposer must decide how much of the resource, if any, to give to the responder, who is usually an anonymous other. One reason proposers give away more of a certain resource is that they care about it relatively less than others. In this experiment participants were assigned to play the game with either time or money. Both time and money are valued resources that people treat differently (Leclerc, Schmitt, and Dube 1995, Liu and Aaker 2008); therefore adding a time condition allows me to test the specificity of the nostalgia–money effect. The prediction is that those in the money condition nostalgia participants would keep less money than control participants. In the time condition, the prediction is that there would be no differences between nostalgia and control participants regarding the amount of time kept. Since the amount of resource (time or money) kept for oneself was the dependent measure, for the purposes of the experiment all participants were assigned the role of proposer.

### Method

#### *Participants and design.*

One hundred and twenty nine students (64 females;  $M_{\text{age}} = 24.37$ ,  $SD = 8.66$ ) at the University of Minnesota completed the experiment for partial course credit or a chance to earn up to \$4.75. This experiment used a 2 (autobiographical event: nostalgia vs. control) x 2 (resource type: time vs. money) between subjects design with nostalgia and control conditions predicting amount of money or time kept for oneself.

Participants came into the lab and were told that they would participate in two unrelated tasks, one recalling an autobiographical memory, and the other pilot testing a new game. The autobiographical memory task contained the manipulations. In the nostalgia condition participants were given the definition of nostalgia from *The New Oxford Dictionary of English* (1998; p. 1266): “a sentimental longing for a personally experienced past” and instructed to write about a nostalgic event. In the control condition participants were asked to recall an ordinary life event from their past and write about it. All participants wrote for three minutes and thirty seconds.

A pretest confirmed that those who wrote about a nostalgic event felt more nostalgic than those who wrote about an ordinary life event. Thirty participants (13 females) were randomly assigned to write either about a nostalgic event or an ordinary life event from their past for three minutes and thirty seconds. Next participants indicated their agreement with the following three items “Right now, I am feeling quite nostalgic,” “Right now, I am having nostalgic feelings,” and “I feel nostalgic at the moment” (1 = *strongly disagree*, 7 = *strongly agree*; Wildschut et al. 2006). These items were averaged to form a nostalgia index ( $\alpha = .98$ ). In confirmation of the manipulation, those who wrote about a nostalgic event indicated they felt more nostalgic than those writing about an ordinary life event ( $M_{\text{nostalgia}} = 5.33$ ,  $SD = 1.28$  vs.  $M_{\text{control}} = 4.23$ ,  $SD = 1.55$ ;  $t(28) =$

4.82,  $p < .05$ )

Next participants were told they would pilot test a new game, which was the dictator game. Participants were told they were playing the game with an anonymous student down the hallway. The experimenter explained that in this two-player game one person is assigned the role of proposer and the other the responder. Participants were told the proposer receives an endowment of money or time (depending on condition) and decides how much to keep for the self and how much to give to the responder. Next the experimenter asked the participants to pick a slip of paper out of a hat, which would determine the role in the game. In fact, all slips of paper said “proposer.” The proposers were instructed to allocate 19 units of their resource to the receiver down the hall. Half of the participants were assigned to play the game with money (money resource condition), the other half with time (time resource condition).

In the money resource condition, participants were given an envelope containing \$4.75 in fake money. This money was divided in \$0.25 increments, representing 19 units of money. In a private room, participants decided how much to keep for themselves and how much (if any) to allocate to the responder. The amount allocated to the responder was left in the envelope.

In the time resource condition, participants were given an envelope with 19 pieces of paper, each representing 30 seconds (for a total of 9 minutes and 30 seconds to allocate). This amount of time represented the amount of time that one could leave the experiment early and could be divided in 30-second increments, representing 19 units of time. Participants expected the experimental session to last thirty minutes long, and up until this time about 10 minutes had elapsed. In a private room, participants decided how

much time to keep to the self and how much to give (if any) to the responder. The amount allocated to the responder was left in the envelope.

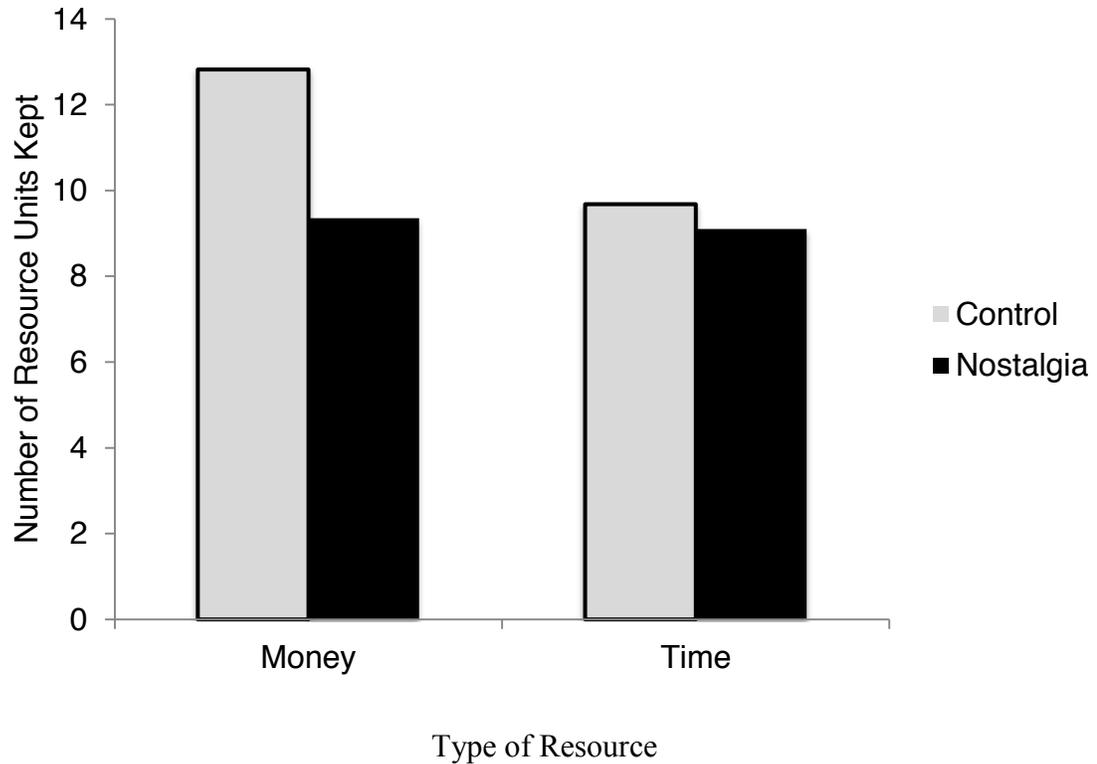
After the participants allocated their resource the experimenter debriefed them. Those in the money resource condition were paid the amount of money they kept for the self, or a minimum payout of \$2.50.

## Results

Experiment 2 tested the prediction that in the money condition nostalgia participants would keep fewer units of money than control participants. In addition, experiment 2 tested the prediction that in the time condition there would be no differences between nostalgia and control participants with regards to the number of time units kept. A 2 (autobiographical event: nostalgia vs. ordinary past life) x 2 (resource type: money vs. time) between subjects ANOVA confirmed this prediction: there was a significant interaction between nostalgia condition and type of resource ( $F(3,125) = 4.03, p < .05$ ; figure 2). In the money dictator game, participants who recalled a nostalgic event kept fewer units of money than those in the control condition. ( $M_{\text{nostalgia}} = 9.35, SD = 4.95$  vs.  $M_{\text{control}} = 12.82, SD = 4.79$ ;  $t(81) = 2.19, p < .05$ ). In the time dictator game there were no differences between conditions with regard to number of units kept ( $M_{\text{nostalgia}} = 9.9, SD = 3.39$  vs.  $M_{\text{control}} = 9.68, SD = 4.31$ ;  $t < 1, \text{NS}$ ).

FIGURE 2

EXPERIMENT 2: DICTATOR GAME



Discussion

Experiment 2 replicated the effect by using new manipulations and measures. Rather than having participants peruse a nostalgic versus control advertisement (experiment 1), participants were asked to either write about a personally nostalgic event or an ordinary past life event. Experiment 2 used a different measure of desire for money, instead of asking participants to indicate their willingness to pay for different products (experiment 1), experiment 2 asked participants to part with a valued resource: time or money. Not only did these variations in methods demonstrate the robustness of the effect, it also ruled out alternative explanations from experiment 1. If the results in experiment 1

were due to an increased valuation of products, then this effect would not be replicated in a context outside the product domain. Furthermore, the demonstration that nostalgia participants parted with more money than control participants, but not more time than control participants, shows the specificity of the effect.

While experiment 2 provided further evidence for the prediction that nostalgia decreases the desire for money and addressed the possible alternative explanations, there other alternative explanations for the nostalgia-money effect remain. For instance, those in a nostalgic state may have perceived that the economic value of money was currently less than it was in the past, or that reflecting on nostalgic events elicited certain feelings that lead people to value money less. Experiment 3 addressed these possible explanations in the attitudinal domain.

### EXPERIMENT 3: IMPORTANCE OF MONEY

Experiments 1 and 2 provided evidence that those in a nostalgic state were willing to pay more for products and gave away more money, but not more time, compared to those in a neutral state. Experiment 3 further tested the robustness of the effect by simply asking participants the importance of money. The logic behind this is that those who desire money would indicate it is more important than those who do not. In addition, experiment 3 aimed to address alternative explanations for the effect. It could be that those who were in a nostalgic state perceived that money does not have as much economic value as it did in the past, which would have inflated their willingness to pay for products (experiment 1) and increased the amount of money given to an anonymous

other (experiment 2). It may also be that feeling nostalgic made people more relaxed, which could increase their valuation of products (Pham, Gorn, and, Hung, 2011). Accordingly, this suggests that nostalgia participants would have valued products more than control participants, which may have led to greater willingness to pay scores in experiment 1. In addition, those in a nostalgic state may have felt more pleasant, cooperative, distracted, and less confrontational, which would lead them to part with more money in experiment 2. Specifically, if nostalgia, relative to control, participants felt more pleasant, cooperative, and less confrontational they may have behaved more prosocially in the interpersonal context of experiment 2. If those in the nostalgia condition felt more distracted than those in the control condition, this may have led them to desire valued resources less, resulting in higher willingness to pay in experiment 1 and more money given away in experiment 2. However, for the valued resource alternative explanation to be true, those in the nostalgia condition should have parted with both more time and money in experiment 2. To be sure, these emotions were measured in the current experiment.

## Method

### *Participants and design.*

Eighty-three participants (58 females,  $M_{\text{age}} = 35.53$  years,  $SD = 12.76$ ) were recruited online using Amazon mechanical Turk in exchange for \$1. This experiment used 2-cell between subjects design with nostalgia and control conditions predicting the importance of money.

Under the guise of a life events study participants completed the same manipulations as in experiment 2, with half of the participants randomly assigned to

recall and write about a nostalgic event or an ordinary life event. Next participants completed the dependent measures.

#### *Money importance.*

Desire for money was measured by asking participants their agreement with the following item, “Money is important to me” (1 = *strongly disagree*, 7 = *strongly agree*).

#### *Economic value of money.*

To test the alternative explanation that those in the nostalgia condition perceived the economic value of money as less than it was in the past participants were asked their agreement with the following three statements, “Things were less expensive than they are now,” “Items seem more expensive to buy now than in the past,” and “It takes more money now to buy the same amount of goods and services than in the past,” (1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .77$ ).

#### *Emotions and distraction.*

To test the alternative explanations that those in the nostalgia condition experienced certain feelings or were distracted, both of which may have decreased the desire for money participants were asked to indicate how unpleasant-pleasant, hard-soft, not distracted-distracted, and not confrontational-confrontational they felt at the present moment 100-point slider scale. In addition, participants were asked to indicate how relaxed and cooperative they currently felt on a 7-point scale (1 = *definitely do not feel*, 7 = *definitely feel*). In addition, as a manipulation check participants were asked to indicate how nostalgic they currently felt on a 7-point scale (1 = *definitely do not feel*, 7 = *definitely feel*).

## Results

### *Manipulation check.*

In confirmation of the nostalgia manipulation, those who wrote about a nostalgic event indicated higher feelings of nostalgia compared to those who wrote about an ordinary life event ( $M_{\text{nostalgia}} = 5.16, SD = 1.61$  vs.  $M_{\text{control}} = 4.18, SD = 1.88$ ;  $t(81) = 4.18, p < .05$ ).

### *Money importance.*

An independent samples t-test confirmed the prediction that those in the nostalgia condition indicated money was less important compared to those in the control condition ( $M_{\text{nostalgia}} = 4.63, SD = 1.72$  vs.  $M_{\text{control}} = 5.30, SD = 1.22$ ;  $t(81) = 2.04, p < .05$ ).

### *Economic value of money.*

The three items measuring the economic value of money were averaged to create a composite index of the economic value of money. To address the alternative explanation that the nostalgia-money effect was due to nostalgia participants perceiving money as currently less valuable than it was in the past than did control participants, an independent samples t-test was conducted. As expected, this t-test revealed no differences between the two conditions ( $M_{\text{nostalgia}} = 4.42, SD = .71$  vs.  $M_{\text{control}} = 4.67, SD = .49$ ;  $t < 1.50, NS$ ).

### *Emotions and distraction.*

Independent samples t-tests revealed no differences between condition with regards to the degree participants currently felt relaxed, cooperative, felt soft versus hard, confrontational, pleasant, or distracted ( $t < 1, NS$ ).

## Discussion

Experiment 3 provided further evidence that those in a nostalgic state desired money less than they would otherwise. Specifically, participants who recalled and wrote about a nostalgic event indicated money was less important than those who recalled and wrote about an ordinary life event. Furthermore, experiment 3 addressed the alternative explanations that those in a nostalgic state may have experienced feelings that increased willingness to part with their money or perceptions that money had less economic value.

While experiment 3 tested specific feelings possibly leading participants to desire money less, it did not address more generalized affective components as possible alternative explanations for the nostalgia-money effect. Research on nostalgia has shown that nostalgia contains both positive and negative affective states (Hepper et al. 2012; Stephan et al. 2012; Wildschut et al. 2006). Prior research has demonstrated that a surge in positive or negative affect leads people to spend their money more impulsively (Gardner and Rook 1988; Rook 1987; Rook and Gardner 1993). Therefore, it is possible that positive, negative, or mixed affective states could explain the nostalgia-money effect.

In my work I posited that a nostalgia-evoked spike in well-being decreases the motivation for money. Recent research on nostalgia has demonstrated both social support and meaning in life as important aspects of nostalgia-evoked well-being (Juhl et al. 2010; Routledge et al. 2008, 2011; 2012; van Tilburg et al. 2012; Zhou et al. 2008). Experiment 4 tested both as possible mediators for the nostalgia-money effect and addressed alternative explanations using a perceptual task to measure desire for money.

## EXPERIMENT 4: COIN SIZES

The aim of experiment 4 was twofold. First, experiment 4 aimed to replicate the nostalgia-money hypothesis in the perceptual realm by asking participants to draw the sizes of coins (Bruner and Goodman 1947). Past research has used coin size to infer desire for money: the larger people draw coins, the more desire they have for it (Dubois, Rucker, and Galinsky 2010; Zhou et al. 2009). Accordingly, I predicted that nostalgia participants would draw coins smaller compared to control participants. Testing the prediction in the perceptual realm provides further evidence for the robustness of the effect: experiment 1 tested the effect in the cognitive realm, experiment 2 in the interpersonal realm, and experiment 3 in the attitudinal realm.

Second, experiment 4 aimed to provide evidence for the nostalgia-money effect by measuring indicators of meaning in life and social support, and addressed positive and negative affect as alternative explanations. Past work by Sedikides and colleagues (Sedikides et al. 2004; Wildschult et al. 2006), has suggested that the one way nostalgia contributes to an increase in well-being is through the content of nostalgic memories. This prior work has shown that nostalgic memories often contain thoughts of the self surrounded by close, significant others at culturally momentous events. Sedikides and colleagues explained that the reminders of the self surrounded by others increases a sense of social support and the recollection of the self at culturally significant events increases a sense of meaning in life. Building upon this past research, the current experiment coded the content of participants' autobiographical narratives for indicators of social support and meaning in life.

## Method

### *Participants and design.*

Fifty-six undergraduates (24 females;  $M_{\text{age}} = 21.15$ ,  $SD = 1.33$ ) at the University of Minnesota participated in exchange for extra course credit. One participant did not complete the experiment, leaving 55 participants with usable data. This experiment used a 2-cell design, with nostalgia and control conditions predicting the sizes of coins.

Participants were told they would complete a few short, unrelated studies, the first of which was a life events study. Half of the participants were assigned to complete the nostalgia event task from experiment 2 and 3, which asked participants to write about a nostalgic event from their past. The other half of the participants were assigned to the control condition and asked to recall their path home from high school (Vohs and Heatherton 2001). Pretests revealed that University of Minnesota students were often nostalgic for their high school years. Therefore, asking participants to write about their high school years provided a stronger test of the effect, as both nostalgia and control participants thought about the same approximate time in the past. Furthermore, two raters blind to condition coded for time of the autobiographical narratives (0 = *before high school*, 1 = *high school*, 2 = *after high school*). Six of the narratives contained no indication of time and were not coded. An independent samples t-test revealed no significant differences in temporal distance across nostalgia and control conditions ( $F < .54$ , NS).

A pretest confirmed the effectiveness of the manipulation. Twenty-nine participants (23 females) were randomly assigned to write either about a nostalgic event or their path home from high school for three minutes and thirty seconds. Next

participants completed their agreement with the following three items “Right now, I am feeling quite nostalgic,” “Right now, I am having nostalgic feelings,” and “I feel nostalgic at the moment” (1 = *strongly disagree*, 7 = *strongly agree*; Wildschut et al. 2006). These items were averaged to form a nostalgia index ( $\alpha = .69$ ). In confirmation of the effectiveness of the manipulation, participants who wrote about a nostalgic event indicated feeling more nostalgic than those writing about their path home ( $M_{\text{nostalgia}} = 6.49, SD = .71$  vs.  $M_{\text{control}} = 3.15, SD = 1.65$ ;  $t(27) = 4.82, p < .05$ ).

### *Measures*

#### *Coin size.*

Next, participants were asked to draw, from memory, the sizes of fifty-cent and dollar coins.

#### *Affect, meaning in life, and social support.*

Participant narratives were used to test meaning in life and social support as possible mediators of the nostalgia-money effect, and rule out positive and negative affect as alternative explanations. Two raters, blind to condition coded the narratives for indicators of meaning in life. Specifically, these two raters coded for the number of times momentous events and having meaning in life was mentioned. For example, “...an event that stands out in my mind is attending the basketball high school state championship in 12th grade,” was coded as a momentous event. These criteria were based on the State Function of Nostalgia Scale meaning in life subscale (Hepper et al. 2012; Routledge et al. 2011). Raters also coded the participant narratives for indicators of social support by coding for mention of others (0 = no other people mentioned, 1 = at least one other

person mentioned). For example, both “My best friend and I,” and “I remember the summer when my father and mother took me to Disneyland,” were coded as 1. While these indicators of meaning in life and social support do not directly measure these two aspects of well-being but rather the content of the nostalgic memories, they do lend insight into the possible processes underlying the effect of nostalgia (Sedikides et al. 2004; Wildschult et al. 2006). Raters also coded for mention of positive (e.g., happiness, good mood) and negative affect (e.g., sadness, pain). Interrater reliability was high ( $\kappa$ s = .83 - .93).

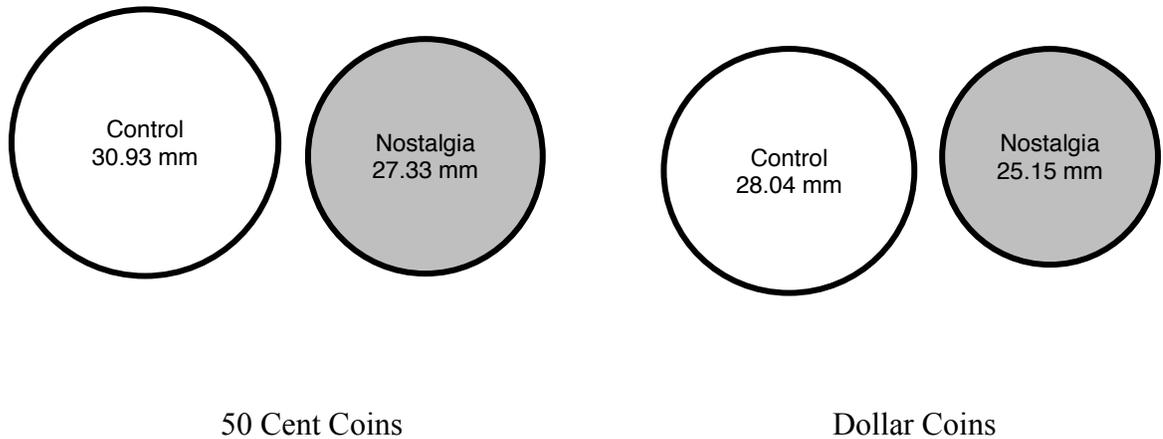
## Results

### *Coin size.*

To test the prediction that nostalgia, relative to control, participants would draw coins smaller I first measured coins at the widest part of the diameter (Zhou et al. 2009). Next, a 2 (autobiographical event: nostalgic vs. ordinary) x 2 (coin type: fifty-cent vs. dollar) mixed ANOVA was conducted with nostalgia condition as the between subjects factor and coin type as the within subjects factor predicting coin size. Results revealed that those in the nostalgia condition drew coins smaller than those in the control condition ( $M_{\text{nostalgia}} = 26.24\text{mm}$ ,  $SD = 5.81$  vs.  $M_{\text{control}} = 29.34\text{mm}$ ,  $SD = 4.05$ ;  $F(1,53) = 5.25$ ,  $p < .05$ ; figure 3). Unsurprisingly, there was a significant difference of type of coin on coin size, with participants drawing the fifty-cent coin larger than the dollar coin, reflecting the true sizes of the coins ( $M_{\text{fifty-cent}} = 29.20\text{mm}$ ,  $SD = 7.68$  vs.  $M_{\text{dollar}} = 26.64\text{mm}$ ,  $SD = 5.81$ ;  $F(1,53) = 4.23$ ,  $p < .05$ ). The nostalgia condition and coin type interaction was nonsignificant ( $F < 1$ , NS).

FIGURE 3

EXPERIMENT 4: SIZE OF COINS



Note: coins are drawn to scale.

*Narrative coding.*

As predicted, participants who recalled and wrote about a nostalgic event mentioned momentous events and having a sense of purpose in their lives more times than those who wrote about an ordinary life event ( $M_{nostalgia} = .29$ ,  $SD = .46$  vs.  $M_{control} = 0$ ,  $SD = 0$ ). Nostalgia participants also mentioned happiness more times than control participants ( $M_{nostalgia} = .19$ ,  $SD = .32$  vs.  $M_{control} = 0$ ,  $SD = 0$ ). In fact, those in the control condition did not mention momentous events, having purpose in life, or happiness at all. Thus, one-sample t-tests were conducted using the nostalgia sample only, using zero as the test value. These t-tests revealed a significant effect for nostalgia condition on number of times that indicators of meaning in life were mentioned ( $t(26) = 3.50$ ,  $p < .01$ ) and a

marginal effect of nostalgia condition on number of times that happiness was mentioned ( $t(26) = 2.00, p < .10$ ).

Those in the nostalgia condition mentioned others more often than those in the control condition ( $M_{\text{nostalgia}} = .78, SD = .42$  vs.  $M_{\text{control}} = .03, SD = .18, t(53) = 8.93, p < .01$ ). There was a marginal effect of nostalgia on sadness, with participants in the nostalgia condition mentioning sadness more than those in the control condition ( $M_{\text{nostalgia}} = .22, SD = .51$  vs.  $M_{\text{control}} = .03, SD = .13; t(53) = 2.09, p < .10$ ).

### Mediation Analysis

In order to demonstrate mediation I first created an index using the standardized coin sizes as the dependent measure (Baron and Kenny 1986). To test if the nostalgia-money effect was mediated by meaning in life I then demonstrated that nostalgia predicted both meaning in life ( $\beta = .29, p < .01$ ) and coin size ( $\beta = -.32, p < .05$ ). Next I demonstrated that meaning in life and coin size were related ( $\beta = -.52, p < .05$ ). When both meaning in life and nostalgia were included as predictors of coin size, the effect of nostalgia was reduced (to  $\beta = -.17, p = .26$ ). INDIRECT bootstrapping procedures from Preacher and Hayes (2008) demonstrated that the 95% bias-corrected confidence intervals for the size of the indirect effect excluded zero (-3.5585 to -.5154 using 5000 bootstraps), confirming a significant indirect effect. While nostalgia condition was significantly related to mention of others ( $\beta = .75, p < .01$ ) and happiness ( $\beta = .21, p < .05$ ), these factors were unrelated to coin size.

### Discussion

Experiment 4 demonstrated the nostalgia-money effect in the perceptual domain using an indirect measure, namely coin size. Furthermore, experiment 4 demonstrated

that meaning in life mediated the nostalgia-money effect. While those in the nostalgia condition mentioned indicators of social support, positive affect, and negative affect compared to control participants, these factors did not mediate the effect.

The scores used to test for mediation and address alternative explanations were provided by two raters that coded autobiographical narratives. While informative regarding the content of nostalgic compared to ordinary experiences, a stronger mediation test is to measure participants' momentary feelings of meaning in life, social support, and affect. Thus, one goal of experiment 5 was to replicate experiment 4 using standardized scales measuring meaning in life, social support, and affect. Furthermore, experiment 5 tested the remaining nostalgia-evoked components of well-being (i.e., positive self-regard and self-continuity) as potential mediators using standardized scales. Experiment 5 tested the nostalgia-money effect and potential mediators using a face valid measure of desire for money by asking participants to indicate how much they valued money.

## EXPERIMENT 5: NOSTALGIA AND VALUE OF MONEY

Experiment 5 builds upon the findings from experiments 1 through 4 by demonstrating the nostalgia-money effect using perhaps the most direct measure of desire for money. Experiment 5 simply asked participants to indicate how much they valued and desired money using a 6-item scale. Furthermore, experiment 5 provided more definitive evidence that meaning in life mediates the nostalgia-money effect, and addressed positive and negative affect, social support, positive self-regard, and self-continuity as possible mediators using standardized scales.

## Method

### *Participants and design.*

One hundred participants were recruited on Amazon Mechanical Turk in exchange for \$1 (54 females;  $M_{\text{age}} = 35.53$  years,  $SD = 12.81$ ). This study used a 2-cell design with nostalgia and control conditions predicting value of money.

Participants were recruited under the guise of a life events study and were assigned to the manipulation used in experiments 2 and 3. Thus, half of the participants were randomly assigned to write about a nostalgic event or an ordinary life event. After completing the manipulation participants completed the dependent measures.

### *Money value.*

A six-item value of money scale was created to measure desire for money. Specifically, they were asked to rate their agreement (1 = *strongly disagree*, 7 = *strongly agree*) with the following items: “There is more to life than money (reversed scored),” “People who chase money often chase away happiness (reverse scored),” “The best things in life are free (reversed scored),” “Frankly speaking, having money is something that I value,” “To get the most of life, people need money,” and “Frankly speaking, having money isn't all that important to me (reversed scored)” ( $\alpha = .74$ ).

### *Meaning in life.*

To measure meaning in life participants completed Steger and colleagues' (2006) four-item Meaning in Life Questionnaire's Presence of Meaning subscale ( $\alpha = .92$ ). Sample items include, “I know my life's purpose” and “My life has a clear sense of purpose.”

### *Social support.*

Social support was measured by asking participants to indicate the degree to which they felt: “connected to loved ones,” “protected,” “loved,” and “I can trust others,” ( $\alpha = .94$ ). These four-items have been used in prior research to measure nostalgia-evoked social support (Wildschult et al. 2006).

*Affect.*

To measure positive and negative affect participants indicated how much they currently experienced six positive and six negative emotions (1 = *strongly disagree*, 7 = *strongly agree*; Martin et al., 1997) used in previous nostalgia research (Stephan et al. 2012; Wildschut et al. 2010). The positive adjectives were: happy, active, ecstatic, calm, relaxed, and general good mood ( $\alpha = .76$ ). The negative items were: upset, sad, disturbed, tired, sluggish, and unhappy ( $\alpha = .95$ ). These measures were used to address the alternative explanations that a surge of positive affect, negative affect, or combination of both leads to a decreased desire for money.

*Positive self-regard and self-continuity.*

Positive self-regard and self-continuity were measured using scales from prior research on nostalgia (Wildschult et al. 2006). To measure perceptions of positive self-regard, participants were asked to indicate the degree to which they felt: “good about myself,” “I like myself better,” “I value myself more,” and “I have many qualities” ( $\alpha = .94$ ). Self-continuity was measured by asking participants to indicate the degree to which they felt: “connected with my past,” “connected with who I was in the past,” “there is continuity in my life,” and “important aspects of my personality remain the same across time” ( $\alpha = .90$ ).

## Results

### *Money value.*

As predicted, an independent samples t-test revealed that nostalgia participants indicated they valued money less than those in the control condition ( $M_{\text{nostalgia}} = 2.52$ ,  $SD = 1.02$  vs.  $M_{\text{control}} = 3.03$ ,  $SD = 1.01$ ;  $t(98) = 2.24$ ,  $p < .05$ ).

### *Meaning in life.*

An independent samples t-test confirmed that nostalgia participants expressed a greater sense of meaning in life compared to control participants ( $M_{\text{nostalgia}} = 5.32$ ,  $SD = 1.19$  vs.  $M_{\text{control}} = 4.75$ ,  $SD = 1.48$ ;  $t(98) = 2.00$ ,  $p < .05$ ).

### *Social support.*

An independent samples t-test confirmed that nostalgia participants expressed a greater degree of social support compared to control participants ( $M_{\text{nostalgia}} = 5.25$ ,  $SD = 1.35$  vs.  $M_{\text{control}} = 4.30$ ,  $SD = 1.66$ ;  $t(98) = 3.00$ ,  $p < .01$ ).

### *Affect.*

Nostalgia participants indicated significantly higher scores on the positive affect scale compared to control participants ( $M_{\text{nostalgia}} = 5.56$ ,  $SD = 1.13$  vs.  $M_{\text{control}} = 4.47$ ,  $SD = 1.52$ ;  $t(98) = 3.76$ ,  $p < .01$ ), and marginally higher scores on the negative affect scales ( $M_{\text{nostalgia}} = 2.35$ ,  $SD = 1.54$  vs.  $M_{\text{control}} = 1.78$ ,  $SD = 1.24$ ;  $t(98) = 1.89$ ,  $p < .10$ ). These results are consistent with past research that has demonstrated that nostalgia contains both positive and negative components (Stephan et al. 2012; Wildschut et al. 2006; Zhou et al. 2012).

### *Positive self-regard and self-continuity.*

An independent samples t-test confirmed that nostalgia participants expressed a greater degree of positive self-regard compared to control participants ( $M_{\text{nostalgia}} = 5.61$ ,  $SD = 1.07$  vs.  $M_{\text{control}} = 4.60$ ,  $SD = 1.67$ ;  $t(98) = 3.33$ ,  $p < .01$ ). A separate independent samples t-test confirmed that nostalgia participants expressed a greater degree of self-continuity compared to control participants ( $M_{\text{nostalgia}} = 5.81$ ,  $SD = 1.09$  vs.  $M_{\text{control}} = 4.39$ ,  $SD = 1.76$ ;  $t(98) = 4.46$ ,  $p < .01$ ).

### Mediation Analysis

I first demonstrated that nostalgia predicted both meaning in life ( $\beta = .57$ ,  $p < .05$ ) the proposed mediator, and value of money ( $\beta = -.50$ ,  $p < .05$ ). Next, I demonstrated that meaning in life and value of money were related ( $\beta = -.17$ ,  $p < .05$ ). When both meaning in life and nostalgia were included as predictors of coin size, the effect of nostalgia was reduced (to  $\beta = -.40$ ,  $p = .08$ ). INDIRECT bootstrapping procedures from Preacher and Hayes (2008) demonstrated that the 95% bias-corrected confidence intervals for the size of the indirect effect excluded zero (.0055 to .2946 using 5000 bootstraps), confirming a significant indirect effect. While condition predicted social support, positive affect, positive self-regard, and self-continuity, these components of well-being did not mediate the effect of nostalgia on value of money.

### Discussion

Experiment 5 builds upon experiment 4 by providing process evidence for meaning in life as the mediator of the nostalgia-money effect. While experiment 4 used data from the autobiographical content of participant responses to assess meaning in life, social support, and affect, the coding may not have been necessarily representative of participants' current states, but rather reflective of the nostalgic event. Experiment 5 used

momentary meaning in life, social support, and affect measures. Momentary positive self-regard and self-continuity measures were also included to address these two other potential mediators for the nostalgia-money effect. Results revealed evidence for only meaning in life as the underlying mechanism for the nostalgia-money effect. Furthermore, experiment 5 also tested the nostalgia-money effect using a more face-valid measure of desire for money, namely, asking participants how much they valued and desired money.

## GENERAL DISCUSSION

The present research tested the hypothesis that nostalgia decreases the motivation for money. This work makes connections among research on nostalgia, well-being, the symbolic meaning of money, and lay conceptions of a good life. Research on nostalgia has demonstrated that nostalgic reflections imbue life with a sense of well-being (Wildschult et al. 2006). Research on lay conceptualizations of a good life has demonstrated that money is a relatively less important component of what makes life good compared to meaning in life and happiness. I reasoned that when people feel nostalgic, they are reminded of what makes life good, which increases the value of things relatively important to having a good life and decreases the value of things that are not. Accordingly, in this chapter I predicted that nostalgia decreases the desire for money. Results revealed that nostalgia decreases the desire for money through a nostalgia-evoked sense of meaning in life.

Five experiments demonstrated the money-nostalgia effect across different domains using a variety of manipulations and measures. In some cases nostalgia was manipulated through an advertisement perusal task (experiment 1), and in others it was manipulated using written autobiographical accounts (experiments 2-5). Measures of desire for money included cognitive (willingness to pay for desired products; experiment 1), behavioral (dictator game; experiment 2), perceptual (coin size; experiment 4), and valuation (experiments 3 and 5). Process evidence was collected using content analysis of autobiographical narratives (experiment 4) and standardized scales (experiment 5). The hypotheses were tested across interpersonal (experiment 2), intrapersonal (experiments 1, 3, 5), and intrapsychic (experiment 4) domains. Thus, the experiments provide evidence that the nostalgia-money effect is reliable and robust.

The variety of manipulations used in the current research suggests that nostalgia is a strong, easily elicited emotion. While some of the manipulations of nostalgia were heavy handed, asking participants to write about a specific personal nostalgic event for 3 minutes and 30 seconds, one was much less so, asking participants to peruse an advertisement for only 30 seconds that contained a picture of a generic family and text that directed them to think about their past memories. Pretests revealed the effectiveness across the variations of nostalgia inductions. Furthermore, the present research demonstrated that the effect of nostalgia does not wane rapidly. Specifically, in the dictator game, the experimenter explained the dictator game, made sure participants understood the task, and asked them to choose their role from a hat *after* the nostalgia manipulation. When participants played the actual dictator game, several minutes had

passed since they had completed the nostalgia manipulation, yet the effects of nostalgia still lingered and influenced a decision making task using real money.

These findings demonstrate the power of nostalgia – this warm, seemingly homely emotion has the power to offset the desire for money, one of the most influential motivators in society (Lea and Webley 2006). These findings extend past research on nostalgia which primarily examined its influence in areas directly related to the aspects of well-being it elicits (e.g., Loveland et al. 2010) and meaning in life (e.g., Juhl et al. 2010). For example, Loveland and colleagues investigated how a nostalgia-imbued sense of social support satiates the need to belong, a need that is directly sated by an increase of social support. Juhl and colleagues demonstrated that when meaning in life was decreased through self-threats, subsequently induced feelings of nostalgia restored a sense of meaning in life. In both streams of research, nostalgia fulfilled a basic human need (both the need to belong and meaning in life are fundamental human needs; Williams 2009), and in both cases nostalgia served a restorative or buffering function. In my research extends past work on nostalgia by demonstrating that nostalgia does not only serve a restorative function, it can also orient people towards away from motivations and goals. Specifically, I demonstrated that nostalgia decreased the motivation for money.

## Implications

The implications for the money-nostalgia effect are far-reaching for marketers, as well as for policy makers, and charitable and political organizations. For marketers, findings from experiment 1 suggest that feeling nostalgic leads consumers to part with more money when purchasing items than otherwise. However, these same findings can be detrimental for the consumer, especially for those who are prone to nostalgia, such as the

elderly (Holbrook and Schindler 1994). These findings may also provide one reason why the elderly are particularly at risk for financial scams (Repa 2013), as an increased propensity for nostalgia may result in a weaker hold on their money.

That is not to say that nostalgia has solely pecuniary implications for marketers; in fact, the benefits of nostalgia can be used for the overall good of the population as well. In times of recession, when consumers are reluctant to part with their money, feelings of nostalgia could be used to help stimulate a dwindling economy.

The finding that those in a nostalgic state gave away more money to an anonymous other has implications for charitable giving, where people donate money to those they do not know. Nostalgia can also be used by political organizations to elicit money from donors. In fact, nostalgia is often used in political campaigns, and was a prominent theme on the 2012 Democratic and Republican campaign trails (Cook 2012). The use of nostalgia by marketers and charitable and political organizations is prominent, and this research suggests one reason why: nostalgia weakens people's grasp on their money.

### Limitations and Future Research

The results of these five experiments provided evidence that nostalgia weakens the desire for money across different domains, operationalizations of desire for money, and manipulations of nostalgia. These experiments found that nostalgia decreases the desire for money through an increased sense of meaning in life. Research stemming from this finding could investigate systematic differences in willingness to pay across different types of products. In the current research, I was concerned with establishing the more generalized effect of nostalgia on willingness to pay across all different types of products,

but future research on the interaction between types of products and nostalgia on desire for money is warranted.

This research relied on the assumption that in general, people think money is a relatively unimportant component of a good life (King and Napa 1989). However, it is possible that some people believe that having money is an essential component of a good life. Therefore, for these individuals, feeling nostalgic could *increase* their desire for money. In that context, I would predict the nostalgia-money effect demonstrated in this research to flip – that nostalgia would heighten the desire for money.

The findings from experiments 3 and 5 demonstrated that people in a nostalgic state perceived money as less important and did not value having money as much compared to people in neutral conditions. In the context of financial risk-taking, these results may suggest that on the one hand, those in a nostalgic state may take greater financial risks because they fear losing money less than those in a neutral state. However, on the other hand, those in a nostalgic state may take more modest financial risks because the greater financial gains promised by risky investments are relatively unattractive to them. Further empirical research is warranted to understand the effects of nostalgia on financial risk-taking.

In this research I did not examine if nostalgia for different stages in life influences the desire for money differently. Past research has demonstrated that people are most nostalgic for music from their teenage years and early adulthood, compared to music from their more mature years (Holbrook and Schindler 1989). Future research could examine differences between childhood nostalgia versus early adulthood nostalgia on the desire for money. Also of interest is whether nostalgia for products, rather than for events

or people, leads people to care more or less about money. I predict that nostalgia for products may increase people's desire for money since their meaning in life in this context may be connected to material possessions.

## CONCLUSION

Nostalgia imbues life with meaning, and the perception that life is meaningful has the power to influence attitudes, cognitions, and behaviors towards money. The results from these 5 experiments have implications far beyond product and promotions; these results can have bearing on well-being, political and charitable donations, and financial spending. Chapter 3 further investigates the influence of nostalgia on attitudes surrounding not money, but health. Specifically, in the next chapter I investigated the relationships between and among nostalgia, receptiveness to health information, and motivation to engage in healthful behaviors.

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CHAPTER III  
ESSAY #2: NOSTALGIA INCREASES RECEPTIVENESS TO  
SELF-THREATENING HEALTH-INFORMATION

Increasingly, consumers are exposed to media conveying information about national health risks, such as texting and driving, drug use, and unprotected sex. In 2012, AT&T launched its “It Can Wait” campaign, which featured stories from the friends and family of loved ones who died in car accidents from texting and driving. For many people this information is potentially threatening as texting and driving is common amongst drivers. In fact, a recent Washington Post article (Tsukayama 2013) reported that 43% of teenage drivers and 46 % of adult drivers text while driving. The risk of death due to texting and driving may not only be perceived as relevant, but also as threatening to people who text and drive. It is well established that people often respond to self-threatening health information in a defensive manner (Kunda 1987; Lieberman and Chaiken 1992; Sherman and Cohen 2003; Taylor and Brown 1988), often rendering these communications ineffective.

One reason for the decrease in effectiveness of self-relevant health messages is the tendency for people to be self-enhancing. Specifically, people often perceive themselves as special and better-off than the average person, that is, they have a *self-positivity bias* (see Taylor and Brown 1988 for review). In the domain of health, this self-positivity bias poses a particular challenge for policy makers and social marketers: when people think they are special, they tend to discount efforts encouraging awareness of important national health issues and perceive themselves as less susceptible to self-

relevant health risks (Kunda 1987; Lieberman and Chaiken 1992; Sherman and Cohen 2003; Taylor and Brown 1988; Weinstein 1980).

In this chapter, I reasoned that nostalgia can mitigate the self-positivity bias, which in turn, can increase the receptiveness to self-threatening health information. If this hypothesis holds true, this research can help policy makers and social marketers create more effective health messages. I build on the findings from the nostalgia and money chapter, which demonstrated the nostalgia-money effect was mediated by meaning in life. I hypothesized that a nostalgia-imbued sense of meaning in life orients people towards health goals. In this research I define self-threatening health information as self-relevant information that creates awareness and caution regarding the potential risks of engaging in unhealthful behaviors. Receptiveness to self-threatening information is defined in this chapter as attitudes, behavioral intentions, and motivations related to curbing unhealthful behaviors highlighted in self-threatening health communications. I measure receptiveness to self-threatening information through risk perceptions (e.g., Keller, Lipkus, and Rimer 2003; Raghurir and Menon 1998), healthful behavioral intentions (e.g., Block and Keller 1995), and message credibility (e.g., Sherman, Nelson, and Steele 2000).

## THEORETICAL FRAMEWORK

### The Self-Positivity Bias

The self-positivity bias is the tendency for people to be self-enhancing and unrealistically optimistic and has been well established in the literature (see Taylor and Brown 1987 for review). For example, Weinstein (1980) has found that people tend to

think they are more likely than their peers to experience positive events (e.g., having a gifted child). The self-positivity bias also leads people to believe they are less likely than their peers to experience negative events (e.g., having trouble finding a job). Thus, when confronted with negative information, the self-positivity bias may lead people to perceive that they are special and that this information is irrelevant.

It has been posited that unrealistic optimism may help maintain psychological well-being; it buffers threats to self-esteem by isolating or ignoring negative self-information. However, there are instances the self-positivity bias may hinder the processing of important self-relevant health information that people perceive as threatening. Work by Raghunathan and Trope (2002) has suggested that when people are confronted with potentially self-threatening information they are oriented towards the short-term self-preservation goal of feeling good about themselves and avoiding negative mood, instead of towards long-term health goals. For example, when confronted with information linking smoking and lung cancer, smokers would be more motivated towards the short-term goal of preserving a positive self by ignoring this information in order to avoid negative feelings such as shame or guilt, rather than the long-term goal of having a healthful life. This self-positivity bias makes it challenging for social marketers and public policy makers to communicate the negative consequences of unhealthy behaviors.

Efforts to increase the effectiveness of health communications have examined the effect of motivational (Raghubir and Menon 1998; Chandran and Menon 2004; Weinstien and Lachendro 1982), affective (Agrawal, Menon, and Aaker 2007; Duhachek, Agrawal, and Han 2012; Keller 1999; Keller, Lipkus, and Rimer 2003), cognitive (Block

and Keller 1995; Raghurir and Menon 1998, Maheswaran and Meyers-Levy 1990), and contextual factors (Chandran and Menon 2004; Raghurir and Menon 1996). In this dissertation I proposed that nostalgia influences health communications through an increased sense of well-being, namely.

The primary goal of this chapter was to establish that nostalgia has a positive influence on health attitudes and behaviors. A secondary goal of this chapter was to test and discuss which nostalgia-evoked aspects of well-being (e.g., meaning in life, social support) account for this effect. Drawing from the results of the nostalgia and money chapter, I proposed that nostalgia increases receptiveness to self-threatening health information through an increased sense of meaning in life.

I chose to test nostalgia's influence on negatively framed health messages because many of the health messages communicated by policy makers highlight the negative consequences of engaging in risky behaviors. To test my main hypothesis and address alternative explanations, I drew upon work examining the relationship among context (message framing), affect (mood and discrete emotions), and health communication. An overview of relevant findings is provided in the next section.

### Contextual Factor: Message Framing

Information can be presented using either positive or negative framing. Positive framing emphasizes benefits gained while negative framing emphasizes benefits lost (Kahneman and Tversky 1979). In the domain of health, an example of a positively framed message is, "Eating fresh fruits and vegetables provides you with many essential

nutrients your body needs,” while an example of negatively framed message is “Eating unhealthily deprives you of many essential nutrients your body needs.”

In general, research on message framing has found that negative framing is more effective than positive framing, even when the two frames convey the same information (Baumeister et al. 2001; Rothman and Salovey 1997). People generally perceive negatively framed information as more informative than the positively information (Fiske 1980). However, the effectiveness of positive versus negative framing can also interact with contextual, motivational, and affective factors. For example, Maheswaran and Meyers-Levy (1990) have found that when people are motivated to process information, negative message framing is more effective than positive message framing. Maheswaran and Meyers-Levy also found when people are not motivated to process information, that positive message framing is more effective than negative framing.

Drawing on Maheswaran and Meyers-Levy’s research (1990), Block and Keller (1996) examined the influence of self-efficacy and framing on behavioral intentions. In this research they found that when the relationship between following health recommendations and the health desired outcome is likely (high efficacy), positively and negatively framed messages have the same effect on healthful behavioral intentions. However, when it is not clear if following health recommendations lead to the desired health outcome (low efficacy), negatively framed messages are more effective. According to this research, low efficacy health messages increase motivation to process, which increases the persuasiveness of negatively framed messages.

**Contextual Factor: Affect and Emotions**

The effect of framing on the persuasiveness of health information is also influenced by affective factors. For example, research by Keller, Lipkus, and Rimer (2003) examined the relationship between framing, affect, and persuasiveness of health messages. This research found that people in a positive mood were more persuaded by negatively framed messages relative to positively framed ones. For those in a negative mood, however, they found that positively framed messages were more persuasive than negatively framed ones. Keller and colleagues explained that those in a positive, relative to negative, mood pay more attention to losses because they are more preoccupied with maintaining their positive affective state (Isen, Nygren, and Ashby 1988), while those in a negative mood pay greater attention to positively framed messages in hope of repairing their negative mood. This past research suggests that affect serves a mood maintenance function (e.g., Isen 1984; Manucia, Bauman, and Cialdini 1984) when people are confronted with negatively framed information.

Agrawal, Menon, and Aaker (2007) proposed an alternative reason why the experience of positive emotions increases attention to negatively framed messages than positively framed ones. Specifically, their research found evidence for the *mood as resource theory* (Aspinwall 1998; Raghunathan and Trope 2002). This theory explains that positive affective states act as a buffer to the potential detrimental effects that stem from thinking about self-relevant health risks. In addition, positive affective states increase orientation towards long-term health goals (Trope and Poerantz 1998) rather than short term self-preservation goals. However, when people are in a negative mood they are oriented towards short-term preservation goals over long-term health ones in order to improve their mood. In essence, this theory explains that positive affect can be

thought of as a resource; when this resource is abundant (e.g., when people experience positive affect), people trade some of their positive affect for potentially threatening information. Accordingly, previous work has demonstrated that people in a positive mood are more receptive to self-threatening information compared to people in a negative mood.

I build on the base of research investigating framing, self-positivity, and affect by testing how nostalgia, a cognitively laden mixed emotion, influences the receptiveness to health information. I hypothesized that self-threatening health messages are more effective when people are in a nostalgic, relative to neutral, state. I refer to the influence of nostalgia on receptiveness to self-threatening messages as the nostalgia-health effect. There are four possible ways in which nostalgia may influence the effectiveness of self-threatening health information, each of which are described below.

## NOSTALGIA MITIGATES THE SELF-POSITIVITY BIAS

There are at least four possible ways that nostalgia can mitigate the self-positivity bias. The first three ways support a buffering hypothesis, and the last way supports a goal salience hypothesis. The first buffering hypothesis centers on the finding that nostalgia is considered a primarily positive emotion. According to the mood as resource theory, the positive affective component of nostalgia should buffer self-threats relayed in negative self-relevant health communications. Therefore, it is possible that people experiencing nostalgia, relative to those in a neutral state, would be more motivated to achieve the

long-term goal of health instead of the short-term goal of preserving self-esteem and positive affect, which should increase the effectiveness of health communications.

The second and third buffering hypotheses are built upon the finding nostalgia increases positive self-regard and self-esteem. Past research (e.g. Wildschult et al. 2006) including my own findings in chapter 2, has demonstrated that nostalgia increases positive self-regard and self-esteem. The second buffering hypothesis is built upon the finding that nostalgia increases positive self-regard (Baden et al. 2004). Given that one of the goals of the self-positivity bias is preserving self-esteem, a surge of self-esteem may buffer threats to the self, leading to less defensive reactions and more openness to self-relevant health messages. In line with this logic is past research that has demonstrated that self-esteem serves as a buffer against negative feedback (Brown 2010). Therefore, a nostalgia-imbued surge in self-esteem may make people more open to potentially negative messages than they would be otherwise.

The third buffering hypothesis builds upon the idea that nostalgia increases self-esteem. Therefore, nostalgia can be self-affirming. Self-affirmation theory (Steele 1988) explains that the goal of maintaining self-integrity and self-worth is global, and when people feel threatened in one domain they draw upon other domains of worth and integrity, which leads them to feel self-affirmed and assuages the threat. Therefore, it is possible that when nostalgia participants feel self-affirmed in one domain (e.g., self-esteem), negative self-relevant information from another domain, namely health, should be more threatening and persuasive. Thus, instead of reacting to a potential threat in a defensive manner, those who are self-affirmed tend to approach potentially self-threatening information with an open mind.

The fourth hypothesis stems from the theory and findings from the nostalgia and money chapter. Specifically, the fourth hypothesis predicted that a nostalgia-imbued sense of meaning in life leads people to focus on what constitutes a good life, one component of which is health. Thus, in the face of self-threatening health communications, those in a nostalgic state should be more persuaded than those in a neutral state, since health is perceived as important, or salient. This is the main hypothesis I tested in this paper, however, across my experiments I tested the alternative hypotheses as well. I predicted that nostalgia increases the effectiveness of self-relevant health information through an increased sense of meaning in life, rather than through positive affect or self-esteem. While nostalgia does increase positive affect, it also increases negative affect; therefore, I predicted that those in a nostalgic state would not follow the same pattern as past research on positive emotions since it is not a purely positive emotion. Furthermore, an increase in self-esteem (buffering hypothesis 3), could exacerbate the self-positivity bias and lead people to perceive that they are even *less* susceptible to health risks communicated in health messages.

### Overview of Studies

I tested the hypothesis that nostalgia increases effectiveness to health information across three studies. Study 1 aimed to establish a positive relationship between nostalgia and effectiveness of self-threatening health information. In this study, nostalgia was measured using a state nostalgia scale and effectiveness of health information was measured by intentions to follow healthful behaviors recommended in a self-threatening health news clip. Study 2 attempted to show that nostalgia increases health-related goals by testing the effect of nostalgia on motivation to curb personally unhealthy behaviors.

Study 3 tested the hypothesis that nostalgia increases receptiveness to health messages by asking participants to indicate behavioral intentions and attitudes towards self-threatening health messages. This last study also aimed to provide process evidence for the nostalgia-health effect.

## STUDY 1: CELL PHONES AND CANCER

The purpose of study 1 was to establish a positive relationship between nostalgia and receptiveness to potentially self-threatening health information. In this study, participants watched a self-relevant health message from a CNN clip that reported the risk of cancer from cellular phone usage and suggested ways to decrease this risk. Next, participants were asked their intentions to follow healthful behaviors suggested in the news clip and completed a state nostalgia scale. The logic is that if nostalgia increases receptiveness to self-threatening health information, then as state nostalgia increases so should intentions to engage in recommended behaviors suggested by the CNN news clip.

### Method

#### *Participants and design.*

Seventy-five participants were recruited on Amazon Mechanical Turk to participate in a ten-minute online survey in exchange for \$1 (45 females,  $M_{\text{age}} = 35.09$  years,  $SD = 12.03$ ). This correlational study measured state nostalgia and receptiveness to a potentially self-threatening health message.

Under the guise of a news event study, participants watched a May 31, 2011 news clip reporting that the World Health Organization had found evidence that linked cell

phone radiation and cancer (<http://www.cnn.com/2011/HEALTH/05/31/who.cell.phones/index.html>). This news clip was chosen for the two following reasons. First, for many people this information is potentially threatening, as cell phone usage is prevalent in society. As of June 2011, the number of active cell phones exceeded the number of people who lived in the United States (CTIA 2011). Second, the news segment suggested four possible behaviors that could decrease the risk of cancer from cell phone usage. Specifically, these four behaviors were: 1) using cell phones at a safe distance from one's head; 2) using a cordless headset, such as a Bluetooth; 3) using a cell phone earpiece or headset; and 4) using the speakerphone function when speaking on the phone. After watching the clip participants completed the dependent measures. Receptiveness to health information was analyzed using two scales measuring message importance and behavioral intentions. These measures are discussed in further detail below.

#### *Message importance.*

The first scale included 4-items measuring the degree to which participants personally thought it was important for people to engage in the four healthful behaviors suggested by the news clip (e.g., "How important do YOU think it is for people to use a cell phone earpiece or headset in order to avoid cancer?"; 1 = *To No Extent At All*; 7 = *To A Very Great Extent*,  $\alpha = .99$ ).

#### *Behavioral intentions.*

The second scale included 4-items measuring the degree to which participants thought they would actually engage in the four healthful behaviors suggested by the news clip (e.g., "To what extent do you think that you, personally, will ACTUALLY use your

cell phone at a safe distance from your head in order to avoid cancer?"; 1 = *To No Extent At All*; 7 = *To A Very Great Extent*,  $\alpha = .97$ ).

### *State nostalgia.*

Next, participants indicated how nostalgic they felt at the moment. Participants were asked to indicate how much they agreed with the following three items, "Right now, I am feeling quite nostalgic," "Right now, I am having nostalgic feelings," and "I feel nostalgic at the moment" (Wildschut et al. 2006; 1 = *strongly disagree*, 7 = *strongly agree*,  $\alpha = .96$ ).

## Results

The three nostalgia items were averaged to create a nostalgia index, the four message importance items were averaged into a message importance index, and the four behavioral intention items were averaged into a behavioral intention index. Bivariate correlations showed that the nostalgia index was positively correlated with both message importance ( $r(73) = .22, p = .05$ ) and health behavioral intention indices ( $r(73) = .23, p < .05$ ).

## Discussion

This first study demonstrated a positive correlation between nostalgia and receptiveness to threatening health information. Specifically, as predicted, as nostalgia increased so did the reported importance of the health message and intentions to follow the behaviors recommended in the health report. While study 1 revealed a positive relationship between nostalgia and receptiveness to health messages, it did not demonstrate causality for this relationship. Furthermore, nostalgia was measured after asking participants their attitudes towards suggestions made by the news clip. Thus, it is

possible that answering the questions may have influenced how nostalgic participants felt.

Study 2 addressed these issues by manipulating nostalgia prior to measuring behavioral intentions. Furthermore, study 2 tested the hypothesis that nostalgia increases health intentions, by addressing a broad array of personally potentially threatening health behaviors and asking participants to report intentions to curb these behaviors.

## STUDY 2: MOST HEALTH-THREATENING BEHAVIOR

The objective of study 2 was to test whether nostalgia promotes healthful behaviors by manipulating nostalgia and measuring subsequent motivation to curb personally relevant health-threatening behaviors. In this study, participants were asked to select their most health-threatening behavior they engaged in at least twice a month from a set twelve behaviors then either write about a personally nostalgic event or an ordinary past life event. Following the writing task, participants were asked their intentions to curb the threatening behavior they reported at the beginning of the study. If nostalgia increases the receptiveness to self-threatening health, then those in a nostalgic, relative to neutral, state should be report greater behavioral intentions to curb their health-threatening behavior.

### Method

#### *Participants and design.*

Seventy-three students at the University of Minnesota completed the study in exchange for course credit (45 males,  $M_{\text{age}} = 20.00$ ,  $SD = 2.01$ ). Participants were

randomly assigned to one of two conditions (autobiographical event: nostalgia vs. ordinary life event) predicting the motivation to curb unhealthy behaviors using a single factor, two-level between subjects design.

Participants were told the study session consisted of two unrelated studies: the first investigating health behaviors and the second examining life events. Participants came into the laboratory and were presented with a set of twelve health-threatening behaviors (e.g., biking without a helmet, eating greasy food, drinking too much alcohol) and instructed to indicate which was the most health-threatening behavior they engaged in at least twice a month. Participants also had the option to report a behavior that was not included in the list, but none choose this option. Next, participants indicated how often they engaged in this behavior (several times a day, several times a week, once a week, once a month).

Participants then completed the nostalgia manipulation. Half of the participants were randomly assigned to the nostalgia condition and half were randomly assigned to the control condition. In the nostalgia condition participants were given the definition of nostalgia and asked to write about a personally nostalgic event. In the control condition participants were asked to write about an ordinary life event. All participants wrote for three minutes and thirty seconds. As a manipulation check, participants next indicated how nostalgic they felt using the same three items from the study 1 (e.g., Wildschut et al. 2006; “I feel nostalgic at the moment”; 1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .77$ ). Following the manipulation check, participants filled out the main dependent variables.

*Motivation to curb unhealthful behaviors.*

Participants were presented with the health-threatening behavior they chose at the start of the study and asked how motivated they were to change this behavior by indicating their agreement with the following five statements: “If there was an easy way, I would change this behavior,” “Even if it was difficult, I would change this behavior,” “I feel motivated to change this behavior,” “I will put in the effort to change this behavior,” and “I am motivated to change this behavior” (1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .97$ ). Participants then completed a demographics form and were debriefed.

## Results

### *Manipulation check.*

The three nostalgia items were averaged into a single index of nostalgic feelings. As intended, participants who wrote about a nostalgic event reported feeling more nostalgia than those who wrote about an ordinary life event ( $M_{\text{nostalgia}} = 5.42$ ,  $SD = 1.40$  vs.  $M_{\text{control}} = 4.15$ ,  $SD = 1.28$ ;  $t(71) = 2.00$ ,  $p < .05$ ).

### *Motivation to curb unhealthful behaviors.*

The five motivation items were averaged into a single index of health motivation. An independent samples t-test with nostalgia condition predicting motivation revealed that nostalgia participants indicated they were more motivated to curb their threatening behavior compared to control participants ( $M_{\text{nostalgia}} = 4.73$ ,  $SD = 1.72$  vs.  $M_{\text{control}} = 3.91$ ,  $SD = 1.74$ ;  $t(71) = 4.06$ ,  $p < .01$ ).

Note that most of the participants ( $N = 29$ ) chose drinking too much as their threatening behavior. For the participants reporting drinking too much as their damaging behavior, nostalgia marginally predicted motivation to curb behavior. Nostalgia

participants were more motivated to curb their behavior than control participants ( $M_{\text{nostalgia}} = 4.72$ ,  $SD = 1.89$  vs.  $M_{\text{control}} = 3.09$ ,  $SD = 1.47$ ;  $t(27) = 1.89$ ,  $p = .07$ ).

I also examined if severity of the damaging behavior interacted with nostalgia. Two coders, blind to condition, were given the list of the twelve damaging behaviors and judged their severity ( $\alpha = 1.00$ ). I used these coding to separate the behaviors into high or low severity categories. A between subjects ANOVA with nostalgia condition and severity of behavior predicting motivation to curb behavior revealed a nonsignificant interaction between nostalgia and severity of behavior ( $F(1, 69) < .40$ , NS). Results also revealed a significant effect of severity on motivation to curb damaging behavior, with those who reported a behavior lesser, relative to higher, in severity indicating greater intentions to curb it ( $M_{\text{low}} = 5.04$ ,  $SD = 1.62$  vs.  $M_{\text{high}} = 3.94$ ,  $SD = 1.74$ ;  $F(1, 69) = 6.13$ ,  $p < .02$ ). The effect of nostalgia was nonsignificant but in the predicted direction ( $M_{\text{nostalgia}} = 4.73$ ,  $SD = 1.72$  vs.  $M_{\text{control}} = 3.92$ ,  $SD = 1.74$ ;  $F(1, 69) = 2.35$ ,  $p = .13$ ).

## Discussion

Study 2 built upon study 1 by providing evidence for the causality of the relationship between nostalgia and the receptiveness of self-threatening health information. The primary purpose of study 2 was to demonstrate that nostalgia increases the motivation towards healthful goals by manipulating nostalgia and measuring intentions to curb health-threatening behaviors. Study 2 found that participants who recalled a nostalgic, relative to ordinary life, event reported greater intentions to curb their most health-threatening behavior. These results are consistent with the hypothesis that nostalgia increases receptiveness to health information.

The next step in this work was to test and establish process evidence for the nostalgia-health effect. Given the results from the money and nostalgia chapter, I predicted that meaning in life drives the nostalgia-health effect. Study 3 tests this underlying process using new messages, measures, and manipulations. Specifically, in study 3 participants measured the effectiveness of messages reporting a link between energy drink consumption and heart disease. Study 3 also aimed to provide process evidence for meaning in life and tested social support, positive affect, positive self-regard, and self-affirmation as alternative mediators. In addition, the alternative positive affect explanation was also tested using a positive affect-eliciting control condition (Hepper et al. 2012).

### STUDY 3: ENERGY DRINKS AND HEART DISEASE

The aim of study 3 was twofold. First, study 3 tested the hypothesis that nostalgia increases the receptiveness to self-threatening information using new health messages, manipulations, and measures. The messages used in study 3 were a short news article and news video communicating the risk of heart disease from energy drink (e.g., Red Bull, 5-Hour Energy) consumption. The manipulations in study 3 instructed participants to listen to personally nostalgic or positive affect-eliciting music. The measures used in study 3 asked participants to indicate personal risk, attitudes towards energy drink consumption, and message credibility. If nostalgia increases receptiveness to self-threatening health information, then those who listened to nostalgic, relative to control, music should indicate they are at greater risk of getting heart disease from energy drink consumption.

Furthermore, those in the nostalgia, relative to control, condition, should also indicate greater attitudes towards moderation of energy drinks and indicate that the health messages they received in the study were more credible.

Second, study 3 was designed to test for meaning in life as the mediator for nostalgia-health effect and address the possible alternative mediators. To address the self-affirmation alternative explanation, study 3 asked participants how vulnerable they thought they were to getting heart disease from energy drink consumption. Past research has demonstrated that when people feel self-affirmed in one domain of their lives (e.g., social support), they expressed feeling more vulnerable to threats in another domain in their lives (e.g., health; Klein, Harris, Ferrer, and Zajac, 2011). If nostalgia participants felt more self-affirmed than control participants, they should report greater vulnerability to the threat of heart disease from energy drink consumption.

Study 3 addressed the positive affect alternative explanation in two ways. First, positive affect was manipulated. In study 3 control participants were asked to listen a song that elicited positive affect. Past nostalgia research has used control conditions that elicited positive affect to address concerns that nostalgia's effects are due to surges in positive affect (e.g., Hepper et al. 2012). Second, positive affect was measured using a positive affect scale that has been used in past nostalgia research (Wildschult et al. 2006). Nostalgia also increases a sense of well-being through increasing perceptions of social support, self-continuity, and positive self-regard (Sedikides et al. 2004; Wildschult et al. 2006). It is possible that these nostalgia-evoked components of well-being may mediate the nostalgia-health effect and these components were also tested in study 3 as potential mediators.

## Method

### *Participants and design.*

Ninety-three undergraduates (21 females;  $M_{\text{age}} = 20.65$ ,  $SD = 1.54$ ) at the University of Minnesota participated in exchange for extra course credit. This experiment used a single factor, 2-cell design, with nostalgia and control conditions predicting receptiveness to health information.

Participants came into the lab and were told that they would participate in two unrelated tasks, a health information task and a music evaluation task. Participants began the health information task first, which involved reading a short news article and watching a short video clip about the risk of heart disease from energy drinks. They were also told to pay special attention to the article and video clip because they would be asked specific questions about the health information provided at a later point in the study.

All participants read a short news article excerpt supposedly from NBC.com reporting that energy drinks contained carnitine, a compound that thickens the walls of arteries and may lead to heart disease, heart attack, and death. Next, participants watched a short video from NBCUniversal.com highlighting a case of heart disease leading to heart attack from drinking 5-Hour Energy. In this news clip an athletic, forty-one year old man suffered a heart attack apparently related to the consumption of two 5-Hour Energy drinks everyday for the past five years. The video explains that the heart attack was due to thickening of the arteries from a compound found in the energy drink. The news article and video were chosen for three reasons. First, energy drink consumption is common among college-aged students; therefore the health message would be personally relevant

and self-threatening (Sifferlin 2013). Second, college students are a key target demographic for energy drink companies (Johnson 2013). Third, despite increasing health concerns linking energy drinks and heart disease, the consumption and popularity of energy drinks are on the rise for this demographic (Johnson 2013).

Next, participants completed the music section, which contained the manipulations. In the nostalgia condition, participants were given the definition of nostalgia from *The New Oxford Dictionary of English* (1998; p. 1266): “a sentimental longing for a personally experienced past,” and were instructed to choose the most personally nostalgic song from a list of the top 20 songs from 2007. The song selection was based on past research by Holbrook and Schindler (1989), which demonstrated that people are most nostalgic for their teenage years. The sample population consisted of college-aged students, who were in their early twenties; therefore, songs from 2007 were most likely songs they had listened to during their teenage years.

In the control condition, participants listened to “Maculele” by Nazare Pereira, which is a song similar to ones used in past research to elicit positive feelings (e.g., Schmeichel and Vohs 2009). This song was chosen to address the alternative explanation that the positive affect elicited by the experience of nostalgia was the underlying process for the relationship between nostalgia and receptiveness to health information, rather than something distinct about nostalgia itself. Some past research has demonstrated that those in a positive, relative to negative, state are more persuaded by self-threatening health messages (Keller, Lipkus, and Rimer 2003). This past research has suggested that people in a good mood have a heightened sensitivity to negative information since they do not want to foul their positive affective state (Isen, Nygren, and Ashby 1988).

Other past research has demonstrated that positive mood can act as a buffer to the possible detrimental effects of self-threatening information, which increases self-threatening message effectiveness (Raghunathan and Trope 2002). Thus, using a song that elicited positive affect in the control condition allowed me to test the differential effects of nostalgia on receptiveness to self-threatening information. All participants listened to their song selection for two minutes and thirty seconds. Then, as a manipulation check, participants were asked to indicate how nostalgic the song they listened to was on a visual analogue scale (0 = *not nostalgic at all*; 100 = *extremely nostalgic*). Next, participants completed the main dependent measures and process measures below.

#### *Energy drink moderation.*

Intentions to curb energy drink consumption were measured by asking participants to indicate their agreement with the following statement “I should moderate my consumption of energy drink,” (1=*strongly disagree*; 7=*strongly agree*).

#### *Risk.*

To measure the degree to which participants felt they were at risk of heart disease from energy drink consumption, participants were asked to indicate the probability they could get heart disease from energy drink consumption (0 = *Will definitely not get heart disease*; 100 = *Will definitely get heart disease*). A similar measure has been used in the past to measure participants perceived risk of health threats (Agarwal, Menon, and Aaker 2007). In addition, participants were also asked the extent to which consuming energy drinks on a regular basis would put them at risk of heart disease (1 = *To no extent at all*; 7 = *To a very great extent*).

### *Vulnerability.*

To address the self-affirmation alternative explanation, participants indicated the extent to which they were vulnerable to heart disease from consuming energy drinks regularly (1 = *To no extent at all*; 7 = *To a very great extent*).

### *Message evaluation.*

To measure credibility of the energy drink health messages participants indicated their agreement with the following six statements: “This *news article* makes a strong case for the risks of energy drinks”; “The *news article* is convincing in conveying its point about the risks of energy drinks”; “This *video clip* makes a strong case for the risks of energy drinks”; “The *video clip* is convincing in conveying its point about the risks of energy drinks”; “NBC is a reliable source for news”; “The information NBC presents is credible” (1 = *To no extent at all*; 7 = *To a very great extent*,  $\alpha = .77$ ).

### *Nostalgia-evoked aspects of well-being.*

To demonstrate process evidence and rule out alternative mediators, participants completed several items that measured six nostalgia-evoked aspects of well-being, including the proposed mediator, meaning in life (Hepper et al. 2012).

To measure perceptions of social connectedness, participants indicated the degree to which the song they had heard made them feel: “connected to loved ones,” “protected,” “loved,” and “I can trust others” ( $\alpha = .94$ ). Positive affect was measured by the degree to which the song made participants feel “happy,” “in a good mood,” “active,” “calm,” “ecstatic,” and “relaxed” ( $\alpha = .67$ ). To measure negative affect, participants indicated the degree to which the song made them feel “unhappy,” “sad,” “disturbed,” “upset,” “tired,” and “sluggish” ( $\alpha = .90$ ). Positive self-regard was measured by asking

participants to indicate the degree to which the song made them feel: “good about myself,” “I like myself better,” “I value myself more,” and “I have many qualities” ( $\alpha = .94$ ). Self-continuity was measured by asking participants to indicate the degree to which the song made them feel: “connected with my past,” “connected with who I was in the past,” “there is continuity in my life,” and “important aspects of my personality remain the same across time” ( $\alpha = .93$ ). To measure meaning in life, participants indicated how the song made them feel: “life is meaningful,” “life has purpose,” “there is greater purpose to life,” and “life is worth living” ( $\alpha = .97$ ).

*Covariate: Frequency of energy drink consumption.*

To test if frequency of energy drink consumption influenced receptiveness to self-threatening information, participants were asked to indicate whether they consumed energy drinks and how often they consumed them (0 = *I don't drink them at all*; 8 = *More than twice a day*).

## Results

*Manipulation check.*

As a confirmation of the manipulation, an independent samples t-test with nostalgia versus neutral music as predictors revealed that participants who listened to the nostalgic song felt more nostalgia than those who listened to the neutral song ( $M_{\text{nostalgia}} = 69.40$ ,  $SD = 24.62$  vs.  $M_{\text{control}} = 39.07$ ,  $SD = 26.39$ ;  $t(91) = 5.67$ ,  $p < .01$ ). Given that I was interested in consumer responsiveness to self-relevant, threatening messages, I excluded data from participants who did not consume energy drinks, leaving sixty-six participants (12 females;  $M_{\text{age}} = 20.68$ ,  $SD = 1.56$ ).

*Covariate: Frequency of energy drink consumption.*

Analyses for responsiveness to self-threatening health messages were conducted using frequency of energy drink consumption as a covariate. ANCOVAs revealed frequency of energy drink consumption was a nonsignificant covariate influencing the main dependent variables. Thus, all responsiveness to health message dependent variables and process measures were analyzed without this covariate.

#### *Energy drink moderation.*

An independent samples t-test revealed nostalgia as a significant predictor of attitudes towards moderating energy drink consumption ( $t(64) = 2.06, p < .05$ ). Specifically, those in the nostalgia condition expressed they should moderate their energy drink consumption *less* than those in the control condition ( $M_{\text{nostalgia}} = 5.10, SD = 1.64$  vs.  $M_{\text{control}} = 5.77, SD = .94$ ).

#### *Risk.*

An independent samples t-test with nostalgia predicting risk, revealed a nonsignificant effect of the nostalgia condition on probability of getting heart disease from energy drink consumption ( $M_{\text{nostalgia}} = 4.71, SD = 1.49$  vs.  $M_{\text{control}} = 5.14, SD = 1.24$ ;  $t(64) = 1.29, p = .20$ ).

#### *Vulnerability.*

An independent samples t-test revealed no differences between nostalgia and control conditions on feelings of vulnerability to heart disease from energy drink consumption ( $M_{\text{nostalgia}} = 4.61, SD = 1.50$  vs.  $M_{\text{control}} = 4.77, SD = 1.53$ ;  $t(64) = .43, p = .71$ ), ruling out self-affirmation as a possible alternative explanation for any effects of nostalgia condition on the dependent variables.

#### *Message evaluation.*

The six message evaluation items were aggregated to form a single index of message credibility. An independent samples t-test revealed a nonsignificant effect of nostalgia condition on probability of getting heart disease from energy drink consumption ( $M_{\text{nostalgia}} = 4.64$ ,  $SD = 1.12$  vs.  $M_{\text{control}} = 5.09$ ,  $SD = 1.22$ ;  $t(64) = 1.56$ ,  $p = .15$ ).

*Nostalgia-evoked aspects of well-being.*

Items within each subscale of well-being were averaged to create six composite items: meaning in life, social connectedness, positive affect, negative affect, self-continuity, and positive self-regard. Independent samples t-test were used to test the effect of nostalgia condition on each of the composite items. Independent samples t-tests revealed that those who listened to nostalgic, relative to control, music reported greater perceptions of self-continuity ( $M_{\text{nostalgia}} = 5.00$ ,  $SD = 1.34$  vs.  $M_{\text{control}} = 3.39$ ,  $SD = 1.65$ ;  $t(64) = 4.34$ ,  $p < .01$ ). There was a marginal effect of condition on negative affect ( $M_{\text{nostalgia}} = 2.28$ ,  $SD = 1.06$  vs.  $M_{\text{control}} = 1.84$ ,  $SD = .92$ ;  $t(64) = 1.93$ ,  $p = .08$ ), with those in the nostalgia condition reporting more negative affect than those in the control condition.

Results also showed that those who listened to nostalgic, relative to control, music reported marginally *less* positive affect ( $M_{\text{nostalgia}} = 4.57$ ,  $SD = .75$  vs.  $M_{\text{control}} = 4.97$ ,  $SD = .93$ ;  $t(64) = 1.93$ ,  $p < .06$ ). This is not necessarily surprising, as the song used in the control condition was chosen to elicit positive affect. The effect of nostalgia was nonsignificant on positive self-regard ( $M_{\text{nostalgia}} = 4.43$ ,  $SD = 1.13$  vs.  $M_{\text{control}} = 4.26$ ,  $SD = 1.39$ ;  $t(64) = .53$ ,  $p = .61$ ) and meaning in life ( $M_{\text{nostalgia}} = 4.68$ ,  $SD = 1.59$  vs.  $M_{\text{control}} = 4.16$ ,  $SD = 1.79$ ;  $t(64) = 1.24$ ,  $p = .22$ ), thus ruling both positive self-regard and meaning in life as possible mediators.

### *Mediation analysis.*

None of the main dependent variables regarding energy drink consumption and heart disease were mediated by any of the aspects of well-being elicited by nostalgia (i.e., social support, positive affect, negative affect, positive self-regard, meaning in life).

### Discussion

The first goal of this study was to replicate the nostalgia-health effect using new messages, manipulations, and measures. By doing so, study 3 built upon studies 1 and 2. Study 1 found a positive relationship between state nostalgia and effectiveness of self-threatening health information, however, nostalgia was measured rather than manipulated. Thus, study 1 lacked the causality of the nostalgia-health information relationship. Study 2 manipulated nostalgia, finding that nostalgia condition predicted intentions to curb self-threatening behavior. While this finding provided support for nostalgia increasing the salience of health related goals, it did not provide process evidence for meaning in life, nor did it address alternative explanations. To address these issues, study 3 manipulated nostalgia then measured attitudes towards a self-threatening health message.

I predicted that participants who listened to a nostalgic, relative to positive affect-eliciting, song would indicate greater intentions to moderate their energy drink consumption. However, the results were *opposite* of the predicted direction. Specifically, this study revealed that after receiving information about the risk of heart disease from energy drink consumption, those in the nostalgia condition thought that they should moderate their consumption *less* than those who listened to a positive song. The other measures of receptiveness to health information included in this study were risk

perceptions and message credibility. While nostalgia was a nonsignificant predictor of these measures, across all measures control participants reported higher scores, which implies greater receptiveness to self-threatening health information, compared to nostalgia participants.

The second goal of this study was to address the alternative explanations of positive affect and self-affirmation. Study 3 used a song that elicited positive affect in the control condition to address the first alternative explanation, that those in the nostalgia condition felt greater positive affect, (Agrawal, Menon, and Aaker 2007; Raghunathan and Trope 2002), would have increased receptiveness to health information in studies 1 and 2. Results suggest that indeed, nostalgia operates differentially from positive affect in the domain of self-threatening information. However, contrary to my prediction, I found those in a positive state were *more* receptive than those in a nostalgic state.

To address the self-affirmation alternative explanation, study 3 measured feelings of vulnerability. Klein and colleagues (2011) have demonstrated that when people feel self-affirmed in one domain, they report they are more vulnerable to self-threats from an unrelated domain than if they would so otherwise. If those in the nostalgia condition felt more self-affirmed than those in the control condition, then they should also have expressed greater feelings of vulnerability. Study 3 did not find this relationship and ruled out the self-affirmation explanation. To address the possible explanation that those in the nostalgia condition perceived greater positive self-regard, participants were asked to complete a positive self-regard scale. Results revealed no significant differences between control and nostalgia groups and ruled out this alternative explanation.

One possible explanation for the surprising pattern of results found in study 3 is that the control condition song elicited more positive affect, which resulted in greater responsiveness to the self-threatening health information compared to songs in the nostalgia condition. This explanation is not inconsistent with past research (e.g., Agrawal, Menon, and Aaker 2007; Raghunathan and Trope 2002), which examined the influence of positive versus negative affect on negative health messages and found that people experiencing positive affect were more receptive to self-threatening health messages. It could be that while nostalgia is primarily positive, the negative component of this mixed emotion made people less receptive to self-threatening health information, which led to results in the direction opposite of what was predicted. The intention to moderate energy drinks differed between conditions, however, other measures of receptiveness to information, such as attitudes towards the message and risk perceptions did not vary across conditions. Therefore, results are inconclusive.

## GENERAL DISCUSSION

Increasing the effectiveness of self-threatening health information has been a long-standing challenge for social marketers and policy makers alike (Menon, Block, and Ramanathan 2002; Taylor et al. 2000). In the past, researchers have examined motivational, cognitive, contextual, and affective factors that influenced receptiveness to information. Of particular interest to this chapter, is the literature investigating emotions, an affective factor, and message framing, a contextual factor. Specifically, past research has demonstrated that in the context of negative message framing, people in a positive

mood are more receptive to self-threatening health information than those in a negative mood (Agrawal, Menon, and Aaker 2007; Raghunathan and Trope 2002). Much of this research testing the effect of affective states on processing health information has primarily focused on valence of emotions. My research diverges from past affect and health message research in that I tested whether a cognitive component of an emotion influences health message effectiveness. Furthermore, my research differs as it examines how a mixed emotion, rather than a purely positive or negative emotion, influences receptiveness to health information.

This chapter aimed to test the hypothesis that nostalgia increases the effectiveness of self-threatening health communications. This work attempted to make connections between and among nostalgia, meaning in life, self-threats, self-positivity bias, effectiveness of health communications, and the lay conceptualizations of a good life. Research on nostalgia has demonstrated that nostalgic reflections increase a sense of meaning in life (Routledge et al. 2008). Research on the lay conceptualizations of what constitutes a good life has demonstrated meaningfulness as a key component of having a good life (King and Napa 1989) along with health (see chapter 1 pretest). Past research on self-threats and the self-positivity bias in the domain of health have demonstrated that when people are confronted with self-threatening health information, they tend to discount or ignore the information, trading off short-term feelings of positive-affect and self-esteem with long-term health goals. I drew upon this past research and reasoned that when people feel a nostalgia-evoked sense of meaning in life they focus on what constitutes a good life, which increase the valuation of things key to making a life good. Thus, those in a nostalgic state should be more receptive to self-threatening health

communications than otherwise, since health is perceived as relatively more important to them. It was my goal to demonstrate that nostalgia increases the salience of long-term health goals.

Three studies attempted to demonstrate this relationship between nostalgia and receptiveness to self-threatening health information. As predicted in study 1, I found a positive correlation between nostalgia and behavioral intentions suggested in a news clip reporting the link between cell-phone usage and cancer. In study 2, I predicted and found that nostalgia increased motivation to curb participants' most health-threatening behavior. In study 3, I tested the effects of nostalgia versus positive affect on receptiveness to self-threatening health information. Study 3 allowed me to test the positive affect, positive self-regard, and self-affirmation alternative explanations. While study 3 ruled out these alternative explanations, the results from this study were in the direction opposite of what I had predicted.

Perhaps more importantly, studies 2 and 3 of this chapter demonstrated that nostalgia, a primarily positive, mixed emotion, influences receptiveness to health information differently than purely positive affect. Study 2 found that those participants in a nostalgic, relative to neutral, state were more motivated to curb their most health-threatening behaviors. Study 3 directly tested the differences between nostalgia and positive affect on self-threatening health messages by using a control condition that elicited positive affect. The finding that those in the nostalgia, relative to positive affect-eliciting, condition were less receptive to self-threatening health information was inconsistent with studies 1 and 2, and opposite of my prediction. However, the finding that positive affective state increased receptiveness to self-threatening health information

is consistent with past research that tested the differences between positive and negative affective states (Agrawal, Menon, and Aaker 2007; Raghunathan and Trope 2002).

Nostalgia, which has a primarily positive valence, also has negative components, which could have mitigated the effect of nostalgia-evoked positive affect. While these results were unexpected, they demonstrated the different effects of a primarily positive mixed emotion versus a purely positive emotion on the effectiveness of self-threatening health messages.

The findings from study 3 should be interpreted with caution. The health news video clip reported a story of a man who drank 5-Hour Energy twice daily for 5 years. Although I only analyzed data from students who consumed energy drinks, only two students reported consuming energy drinks twice daily. Therefore, the health message may not have been self-threatening to the participants.

The results from the current set of studies are inconsistent – in some cases results suggest that nostalgia increases receptiveness to health information, in other cases results show the opposite effect. Thus, taken together the three studies presented in this chapter do not support my overarching hypothesis that a nostalgia-imbued sense of well-being increases receptiveness to health information. Furthermore, the current pattern of results does not conclusively demonstrate that nostalgia increases the importance of long-term health goals over short-term self-preservation goals, thereby decreasing the self-positivity bias.

## Implications

Studies 1 and 2 showed that nostalgia increased intentions to curb self-threatening health behaviors and promote healthy ones. For social marketers and policy-makers these

results suggest getting people to reflect on nostalgic memories may lead to increased motivations to decrease unhealthful behaviors. For example, a college walk-in medical clinic may find greater compliance with curbing unhealthful behaviors if music from 2007, versus contemporary music, was played in the waiting room. However, given the results of study 3, it may be wiser for these communications to be presented in contexts that elicit positive affect, rather than ones that elicit nostalgia. For example, a public service health message about the risk of herpes from unprotected sex targeting college students would be more effective if shown during current episodes of *The Office*, instead of rerun episodes of *That 70's Show*.

### Limitations and Future Research

More research is warranted in the domain of nostalgia and health. Nostalgia is a flexible construct, and the aspects of well-being elicited by nostalgia may have different effects across domains. To create greater understanding of nostalgia's influence in the health domain, a more informative test of the unique effect of nostalgia would include positive and neutral conditions as control conditions.

One other limitation of this research was that nostalgia was manipulated after participants received the self-threatening information. This sequence was intentional — nostalgia was manipulated after participants were presented with the information because I wanted all participants to initially receive and process the health information in the same manner. Future research could investigate how information is processed after the nostalgia manipulation.

## CONCLUSION

Given the relationship between nostalgia and healthful intentions in studies 1 and 2, nostalgia can be a useful emotion in encouraging health and overall well-being. While study 3 results were inconsistent with my over-arching hypothesis, the current research still sheds light on nostalgia's influence in the health domain by demonstrating contexts where nostalgia promotes and hinders health. In sum, while the findings of the three studies presented here are inconsistent, they do open up novel streams of future research that tackle the challenge of getting people to pay attention to self-threatening health messages.

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## CHAPTER IV

### SUMMARY AND CONCLUSIONS

The two hypotheses of this dissertation centered on the links between and among nostalgia, well-being, and lay perceptions of what constitutes a good life. Specifically, I predicted that a nostalgia-imbued sense of well-being increases the valuation of key components of a good life and decreases the valuation of those that are not. Past research and preliminary findings from this dissertation have shown that when people are asked what constitutes a good life, they find money relatively less desirable and health relatively more desirable (King and Napa 1998; chapter 1 pretest). Following this logic, I formulated two predictions. First, I predicted that those in a nostalgic, relative to neutral, state would care less about money. Second, I predicted that those in a nostalgic, relative to neutral, state would be more receptive to self-threatening health information. In this chapter I summarized the findings from the two previous essays, drew conclusions regarding how firms, policy makers, and social marketers can use these findings, suggested future streams of research, and provided new insights on nostalgia.

### SUMMARY OF FINDINGS

**Essay #1: Nostalgia decreases the desire for money.**

In the first essay, I tested the hypothesis that nostalgia influences the desire for money. Across five studies, I found that nostalgia participants indicated a weaker desire for money compared to control participants. I showed the robustness of this effect across procedural changes in manipulations and measures. Whether people parted with money,

indicated willingness to pay, or reported their attitudes towards money, those who recalled or were reminded of nostalgic memories showed a weaker desire for money. Furthermore, I found that a nostalgia-imbued sense of meaning in life mediated the nostalgia-money effect. This research also addressed and ruled out the alternative explanations of positive affect and other specific affective states (e.g., relaxation) and attitudes towards the current economic value of money.

**Essay #2: Nostalgia increases the receptiveness to self-threatening health information.**

In the second essay, I tested the hypothesis that nostalgia increases receptiveness to self-threatening health information. It has been a challenge for social marketers and policy makers to get people to pay attention to healthful messages, especially self-threatening ones (Menon, Block, and Ramanathan 2002; Taylor et al. 2000). One stream of research has examined self-threatening health messages, establishing that people have a self-positivity bias, which makes them believe that they are less susceptible than their peers to the risks of unhealthful practices (e.g., Kunda 1987, Sherman, Nelson, and Steele 2000). This bias preserves a positive sense of self by orienting people towards short-term self-preservation goals rather than long-term health goals. If nostalgia increases the salience of health-related goals, than those in a nostalgic, relative to neutral, state should indicate greater healthful attitudes and behavioral intentions after being presented with self-threatening health messages.

Three studies tested this hypothesis and provided inconsistent results. The first two studies supported the hypothesis. In the first study, receptiveness to self-threatening

health information and state nostalgia were positively correlated. In the second study, nostalgia increased intentions to curb unhealthful behaviors. However, in the third study, nostalgia decreased healthful intentions and attitudes related to self-threatening messages. There was no support for the meaning in life mediating the effects of nostalgia on receptiveness to self-threatening health messages.

## CONTRIBUTIONS

### Contributions to nostalgia literature

Twenty-five years ago research on nostalgia conceptualized it as a preference for products from the past. The primary focus of this research investigated the antecedents of nostalgic preferences (Holbrook and Schindler 1989, 1994; Schindler and Holbrook 2003). More recently, research on nostalgia conceptualizes it as a cognitively laden mixed emotion with implications for well-being (e.g., Sedikides et al. 2004; Wildschult et al. 2006).

Current research on nostalgia has demonstrated that nostalgia elicits inner psychological processes that contribute to psychological well-being (e.g., Juhl et al. 2010; Routledge et al. 2011; van Tilburg, Igou, and Sedikides 2012; Zhou et al. 2008). These processes include social support, positive self-regard, meaning in life, self-continuity, and positive affect (note: nostalgia also elicits negative affect; Wildschult et al. 2006). Much of this research has looked at the restorative and buffering functions of nostalgia. For example, when people feel bored, an emotion that decreases a sense of meaning in life, subsequently feeling nostalgic restores the sense that life is meaningful (van Tilburg et al.

2012). Similarly, when people feel lonely, a threat to the need to belong, subsequently feeling nostalgia decreases the detrimental effects resulting from a lack of social support (Zhou et al. 2008). Much of this research has tested nostalgia in domains that are directly linked to the aspects of well-being it elicits.

My research differs from past research on nostalgia because I do not conceptualize nostalgia as a psychological resource that one can draw upon when they experience a decrease in meaningfulness or social support, or one that buffers against the threats of meaninglessness and social exclusion. Rather, I conceptualized nostalgia as an emotion that increases the valuation of key components of a good life. When people are nostalgic the motivation for money, an unimportant component of a good life, should wane, whereas the motivation for having a healthful life, an important component of a good life, should increase. In essay 1 I tested and found that nostalgia does indeed decrease the motivation for money. In essay 2 I tested and found that in some cases nostalgia increases the motivation for a more healthful life, but not in others.

### Contributions to money literature

In my research I find that nostalgia decreases the desire for money across different types of situations. Past research by Zhou and colleagues (2012) has demonstrated that nostalgia increases charitable donations. There are two key differences between my work and past research by Zhou and colleagues (2012). First, Zhou and colleagues found that nostalgia increases the amount of time and money given to anonymous others. However, my findings demonstrated that nostalgia only had an effect on money, but not time, given away to anonymous others.

Second, Zhou and colleagues' (2012) research demonstrated that empathy was the mediating variable for the effect of nostalgia on money. My work demonstrated that meaning in life was the mediating variable. This difference suggests that in a charitable context a nostalgia-evoked sense of empathy is the mediator, while in a more generalized context meaning in life is the mediator. While the money effect shown by Zhou and colleagues is consistent with my hypothesis, my set of studies show that nostalgia has a more generalized effect on money in both interpersonal and intrapersonal contexts.

My dissertation also extends previous literature on money and meaning in life. In my research I showed that a nostalgia-imbued sense of meaning in life decreased the desire for money. I reasoned that a sense of meaning in life orients people towards components of a good life, of which money is not compatible. Past research by Kushlev and colleagues (2012) has shown the reverse: parents reminded of money indicated they felt less meaning in life at an event with their children compared to parents who were not reminded of money. They reasoned that money primed the goal of independence, which was not compatible with the interpersonal goals of parenting. My research contributes to Kushlev and colleagues work by showing the bidirectionality of the meaning in life and money relationship.

My research also provided a methodological contribution to the study of money and time. The investigation of how people treat time versus money is a long-standing stream of research in consumer behavior; my time version of the dictator game in the nostalgia and money chapter allowed a new method to test it.

## Contributions to health literature

The nostalgia and health chapter makes the following contributions to the health literature. First, across three studies I demonstrated that nostalgia has bearing on receptiveness to self-threatening information. Second, I demonstrated that nostalgia is more effective at increasing receptiveness to self-threatening health information compared to a neutral state (study 2), but less effective compared to a positive state (study 3).

Third, I showed the effects of a mixed emotion on receptiveness to self-threatening health communications. Past research has primarily investigated the influence of positive, relative to negative, emotions on receptiveness to self-threatening health messages, finding that positive emotions led to greater receptiveness to self-threatening health messages (Agarwal, Menon, and Aaker 2007; Raghunathan and Trope 2002). I showed the different effects of a primarily positive mixed emotion and a positive emotion (study 3). My findings suggest that positive emotions make people more receptive to self-threatening health communications than a primarily positive mixed emotion. Although nostalgia is primarily positive, it does have some negative components, which may have mitigated the effect positive affect on receptiveness of self-threatening health information. I did not find meditational evidence for meaning in life nor any of the other aspects of well-being nostalgia elicits in the health studies. It is possible that the different effects of positive versus mixed emotion suggest that the valence component of nostalgia may be a stronger predictor of receptiveness of health information than its cognitive components.

## IMPLICATIONS

In this dissertation, I demonstrated that nostalgia and influenced attitudes, perceptions, cognitions, and behaviors in the domains of money and health. These findings have several implications for firms, marketers, policy makers, and consumers.

My research has found that nostalgia weakens the desire for money through an increased sense of meaning in life. For marketers, this finding suggests that people would be willing to pay a premium for products that create the sense that life is meaningful when they are in a nostalgic state. Perhaps capitalizing on both nostalgia and meaning in life may lead to the greatest financial returns for marketers. For example, nostalgic consumers may pay more money for products that create meaning, especially for experiential products as family vacations or concerts.

I also showed that nostalgia orients people towards healthful goals and away from monetary ones. Together, these findings suggest that nostalgic consumers would be willing to pay a premium for health insurance. Specifically, when considering health insurance policies, nostalgic consumers not only care about health more, but also money less, leading to greater willingness to pay for health policies than if they were in a neutral state.

For policy makers, the nostalgia-money effect can be used during times of economic downturn to help stimulate a dwindling economy. During these times, consumers tend to hold on to their money although it is beneficial for the economic greater good for them to spend it. My findings demonstrate to policy makers that nostalgia based marketing campaigns for products and services can lead to greater spending during these times and aid in economic recovery.

During economic hardship, nostalgia may also be beneficial to consumers. From a consumer well-being perspective, my research suggests that nostalgia can mitigate the consequences of financial stress by orienting consumers towards goals that render money less desirable. In certain contexts, financial hardship can have negative consequences on well-being (e.g., depression, stress; Ennis, Hobfall, and Schröder 2000) and feeling nostalgic can lead people to perceive the motivation for money is not so pressing.

The findings from my health chapter suggest that health messages that encourage curbing unhealthful behaviors may be beneficial when embedded in contexts where people experience nostalgic, compared to neutral, states. For example, an advertisement asking consumers in their thirties to wear seat belts while driving may be more effective if the commercial was aired during a rerun episode of *Friends*, compared to an episode of *Planet Earth*.

One of the more interesting and unexpected findings from the health chapter revealed a context where nostalgia may not be the optimal emotion to elicit greater well-being. These findings suggest that it may be more effective for social marketers to induce purely positive emotions, compared to nostalgia, when trying to communicate a self-threatening health message. For example, an advertisement informing smokers in their thirties that cigarettes lead to cancer would be more effective if the commercial was aired during a stand-up comedy show compared to a rerun episode of *Friends*.

## LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This dissertation provides several insights and contributions to the literatures on nostalgia, money, and health. However, there are still unanswered questions that warrant future streams of research.

The inconsistency of findings in the nostalgia and health chapter warrants greater understanding of how nostalgia influences motivations, attitudes, behaviors, and cognitions differently than positive and neutral states. It could be that nostalgia may be better at motivating healthful intentions compared to neutral states, but not positive ones. In the future, a greater understanding of how nostalgia influences receptiveness to self-threatening health information should include positive and neutral control conditions.

While I demonstrated health as a relatively important component of a good life and money as a less important component, I did not provide evidence that nostalgia oriented people towards the goals of having a good life. An essential next step in this research is to establish this relationship.

In my research I did not compare how nostalgia for negative events differs from positive ones. Many of the nostalgic memories recalled in my research were positive, although some were negative. Research by Wildschult and colleagues (2006) has demonstrated that nostalgia for negative events often follows a redemption sequence in which the individual survives a difficult time or event. Reflection on such events, although relatively unhappy, increases a sense of meaningfulness in life (Baumeister et al. forthcoming). Therefore, nostalgia for unhappy memories may strengthen the effects of nostalgia that are mediated by meaning in life.

## NEW INSIGHTS ON NOSTALGIA

Through this dissertation research I have refined my conceptualization of nostalgia. In the next section, I will share these insights. Specifically, the process of this dissertation has led to a greater understanding of nostalgia with regards to 1) meaning in life, 2) well-being, 3) construal level, and 4) implications for future research in this field.

### Nostalgia and Meaning in Life

Much of the research on nostalgia and meaning in life (Juhl et al. 2008; Routledge et al. 2008, 2011; 2012; van Tilburg et al. 2012) has proposed that nostalgia increases a sense of meaning in life because the content of nostalgic memories tend to involve close others at momentous, significant events. Through my work on nostalgia, I offer new insight into what contributes to a nostalgia-imbued sense of meaning in life. Specifically, I propose that meaning in life is not only derived from momentous, significant events, but also from increased self-continuity and positive self-regard.

This insight was based on work by Baumeister (1991), who articulated four needs for meaning: purpose, self-worth, self-efficacy, and values. I reasoned that nostalgia satisfies a sense of purpose through an increased sense of self-continuity in life, and self-worth through an increased sense of positive self-regard. These links are discussed further below.

Purpose is derived from making connections among past, present, and future events (Baumeister 1991, Baumeister et al. forthcoming). These connections create a sense that one is working towards goals. Nostalgia increases a sense of self-continuity (Davis 1979, Wildschult et al. 2006; also see nostalgia and health, and nostalgia and

money chapter), which allows people to make connections between past and present events. This connection allows people to realize certain life goals have come to fruition. It is also possible that making connections between the past and the present provides a more concrete sense of meaning, as the future is relatively uncertain.

Self-worth is also satisfied by nostalgia. Nostalgic events are comprised of mainly positive memories, where the self is a central character surrounded by friends and family. I found that nostalgic, compared to neutral, memories led to greater feelings of love and greater perceptions that one is valued and has positive qualities. This finding is consistent with past work (e.g., Wildschult et al. 2006).

Using data from the nostalgia and money chapter, I regressed both positive self-regard and self-continuity onto perceptions of meaning in life. As predicted, results revealed both as significant predictors of meaning in life ( $\beta_{\text{positive self-regard}} = .28, p < .05$ ;  $\beta_{\text{self-continuity}} = .21, p < .02$ ).

It is possible that the two remaining needs for meaning, values and self-efficacy, can also be satisfied through nostalgia. According to Baumeister (1991), values help people evaluate their actions and motives. Orienting people towards some values and away from others creates a hierarchy of what are important and appropriate goals. I have shown that nostalgia appears to orient people towards some values (health) and away from others (money).

Self-efficacy, or the sense that one's efforts lead to desired outcomes, can also be satisfied through nostalgic recollections of times when people have accomplished culturally significant goals. For example, in some of the nostalgic narratives participants were nostalgic about high school graduations, or the birth of their children. Furthermore,

when people are nostalgic for negative events, these events usually have a redemption sequence (e.g., a hardship was overcome), which may also increase a sense of self-efficacy. Future research should test these propositions empirically.

### Nostalgia and Well-Being

For all studies I conducted, I consistently found that participants in a nostalgic state reported greater perceptions of social support, meaning in life, positive self-regard, self-continuity, positive affect, and negative affect than participants in a neutral state. Furthermore, in nostalgia conditions, I found the variances for these aspects of well-being were consistently, and sometimes significantly smaller than control conditions (as demonstrated by Levene's test of heterogeneity). The effect of nostalgia on these processes is both reliable and consistent. One reason for the smaller variance in the nostalgia condition could be due to high correlation between these aspects of well-being (see tables 1 and 2). As demonstrated in the new insights on nostalgia and meaning in life, there are instances when one or more aspects of well-being nostalgia may activate another.

TABLE 1

## NOSTALGIA-EVOKED ASPECTS OF WELL-BEING CORRELATIONS

*Essay #1: Nostalgia Weakens the Desire for Money, Experiment 5*

	SOCIAL SUPPORT	POSITIVE AFFECT	NEGATIVE AFFECT	POSITIVE SELF- REGARD	SELF-CONTINUITY	MEANING IN LIFE
SOCIAL SUPPORT	1	.71**	-.477**	.71**	.63**	.64**
POSITIVE AFFECT	.71**	1	.67**	.73**	.67**	.60**
NEGATIVE AFFECT	-.48**	-.67**	1	-.50**	-.48**	-.46**
POSITIVE SELFREGARD	.71**	.73**	-.50**	1	.76**	.80**
SELF- CONNECTION	.63**	.67**	-.48**	.76**	1	.68**
MEANING IN LIFE	.64**	.60**	-.46**	.80**	.68**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

N = 100

TABLE 2

NOSTALGIA-EVOKED ASPECTS OF WELL-BEING CORRELATIONS

*Essay #2: Nostalgia Increases Receptiveness to Self-Threatening Information, Study 3*

	SOCIAL SUPPORT	POSITIVE AFFECT	NEGATIVE AFFECT	POSITIVE SELF- REGARD	SELF- CONTINUITY	MEANING IN LIFE
SOCIAL SUPPORT	1	.69**	-.01	.61**	.58**	.75**
POSITIVE AFFECT	.69**	1	.33**	.62**	.33**	.49**
NEGATIVE AFFECT	-.01	-.30	1	-.12	.05	.01
POSITIVE SELFREGARD	.61**	.62**	-.12	1	.45**	.60**
SELF- CONNECTION	.58**	.33**	.05	.45**	1	.67**
MEANING IN LIFE	.75**	.49**	.01	.60**	.67**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

N = 93

## Nostalgia and Self-Construal

This dissertation addressed a possible explanatory variable. It is possible that those in the nostalgia condition may have operated at a higher-level construal than those in the control condition. Construal level theory (Trope and Liberman 2000) proposes that an event or object can be represented at different levels of concreteness. Lower-level construal makes situations or events more concrete. Operating at a lower-level construal highlights means and resources (e.g., how an action is done). In contrast, higher-level construal is associated with events or objects that are more abstract. Thinking using a higher-level construal highlights central goals associated with a situation or object (e.g., why an action is done). Generally, objects and situations that are psychologically close in time or place are associated with lower-level construal, while objects and situations that are psychologically distant in time or place are associated with higher-level construal. It is possible that nostalgia could activate a higher-level construal mindset, which could possibly decrease the objective value towards money or increases focus towards health goals (Fujita et al. 2006).

I tested this possible explanatory variable for both money and health streams of research in the following pretest. Forty-five undergraduates from the University of Minnesota (19 females) were randomly assigned to nostalgia or control conditions. Participants in the nostalgia condition were asked to choose a song that was most nostalgic to them from a list of top 20 songs from 2007 and those in the control condition were asked to choose a song from a list of 20 classical music songs. All participants listened to their song choices for three minutes and thirty seconds. After listening to the

song participants indicated how nostalgic the song was to them on a 100-point visual analogue scale (0 = *not nostalgic at all*, 100 = *extremely nostalgic*).

To address the possible construal level explanatory variable, participants then completed the Behavioral Identification Form (BIF; Vallacher and Wegner 1989), which measured the level on which people interpret an action. Specifically, those at a lower-level construal would identify an action by answering how it is done while those at a higher-level construal would identify an action by answering why it is done. For example, someone operating at a higher-level construal would identify washing clothes as “removing odors from clothes” while someone at a lower-level construal would identify the same action as “putting clothes into the machine.” Participants were given 25 different actions and asked to choose whether the action could be interpreted by one of two different ways. Each action was given a higher-level and lower-level alternative.

In confirmation of the manipulation, an independent samples t-test with condition predicting feelings of nostalgia revealed that those who listened to a nostalgic song indicated they felt more nostalgic than those who listened to a classical song ( $M_{\text{nostalgia}} = 73.69$ ,  $SD = 17.40$  vs.  $M_{\text{control}} = 46.96$ ,  $SD = 22.20$ ;  $t(43) = 4.72$ ,  $p < .01$ ). A BIF index was created by adding the number of higher-level identified actions, with higher scores reflecting the greater degree to which one has adopted a higher-level construal. A t-test was conducted using nostalgia condition predicting the BIF index. Results revealed that those in the nostalgia condition identified actions as higher-level marginally *less* than those in the control condition ( $M_{\text{nostalgia}} = 13.38$ ,  $SD = 5.44$  vs.  $M_{\text{control}} = 15.91$ ,  $SD = 4.15$ ;  $t(43) = 2.2$ ,  $p < .09$ ). Thus, these results suggest that those in the nostalgia condition adopted a lower-level construal compared to those in the control condition. One reason

for lower-level construal mindset in the nostalgia condition may be due to the vivid nature of the nostalgic memories, which are more emotionally charged, memorable, and distinct than ordinary or neutral memories (Stephan et al. 2012; see also nostalgia and money, and nostalgia and health chapters). These findings alleviate any concerns that the effects of nostalgia in the money and health chapters were due to differences in participants' self-construal levels.

### Nostalgia and Future Research

The aspects of well-being elicited by nostalgia make it an interesting construct, but at the same time make it difficult to study. Many of these aspects of well-being share commonalities (e.g., happiness and meaning in life; social support and meaning in life; Baumeister et al. forthcoming), which makes it challenging to uncover the underlying processes that drive the effects of nostalgia. Consider the money-nostalgia effect. Theoretically, more than one of nostalgia's components of well-being could have accounted for the effect. For example, the nostalgia-money effect could have been due to an increase of positive affect, negative affect, or social support. Each of these alternative explanations are theoretically sound; positive and negative affect weaken people's grasp on their money (Gardner and Rook 1988; Rook 1987; Rook and Gardner 1993), and past research has hinted that social support offsets desire for money by showing that reminders of money make people behave more self-sufficiently (Vohs, Mead, and Goode 2006). Yet the underlying factor for this effect was meaning in life.

Much more research needs to be done to elucidate exactly how nostalgia works under different contexts. A better approach for future research would directly manipulate different types of nostalgia conditions emphasizing individual processes it elicits.

For example, to test if a nostalgia-imbued sense of meaning in life leads to less desire for money, participants could be asked to recall a nostalgic event that made them feel that their lives were significant and had purpose, a nostalgic event, or an ordinary life event. In this context I predict that participants who write about nostalgic events would desire money less than those who write about an ordinary life event. I also predict that those who are instructed to explicitly write about a meaningful event would desire money even less than participants who are simply instructed to write about a nostalgic event. Furthermore, I predict that there would be less heterogeneity in the responses of participants who are instructed to write about a meaningful nostalgic event compared to a general nostalgic event or ordinary life event. This new approach to research on nostalgia may help demonstrate the aspects of well-being that mediate nostalgia's influence in the domains of money, health, and beyond.

## CONCLUSION

People have a default perception of what they want in their lives, however, when they are asked to think about what makes life good, the desirability of these things changes. While many people think that both money and health are important things to have in their lives (Bowling 1995), when specifically asked what constitutes a good life, people indicate that money is relatively less important and health is relatively more important (King and Napa 1989, chapter 1 pretest).

Nostalgia provides a lens that focuses on the components of a good life. In my dissertation I found that nostalgia acts as a focusing agent that decreases the attractiveness of money and, in some contexts, increases the attractiveness of health. Nostalgia clarifies what people think is desirable in their lives, that is, what people think makes life good.

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## APPENDIX

### Chapter 1 Pretest: Components of Meaning in Life

Sixty-one participants were given King and Napa's (1998) definition of a good life, "a life that is desirable and morally good," then asked to think about what components make a life good. Next, participants were given a list of nine items and indicated the degree to which each of the items constituted a good life (1= *Strongly Disagree*, 7 = *Strongly Agree*). These items were: "being healthy", "having a lot of money", "having friends and family", "having a sense of purpose in life", "having goals in life", "having a high paying job", "making a difference", "being happy," and "having material items".

A within subjects repeated-measures analyses revealed a significant effect of item on the degree to which it constituted a good life ( $F(1, 53) = 21.33, p < .01$ ). Planned contrasts revealed that participants indicated health as a relatively key component of having a good life and money as a relatively less important component of having a good life ( $M_{\text{health}} = 6.25, SD = .72; M_{\text{money}} = 4.66, SD = 1.70; t(60) = 7.24, p < .01$ ). Furthermore, results revealed that being healthy ( $M_{\text{health}} = 6.25, SD = .72$ ) was in the top three key components of having a good life, along with being happy ( $M_{\text{happiness}} = 6.43, SD = .81$ ), and having family and friends ( $M_{\text{familyfriends}} = 6.16, SD = .87$ ). These three items were not significantly different from each other ( $ps = \text{NS}$ ). In comparison, money ( $M_{\text{money}} = 4.66, SD = 1.70$ ) was rated in the bottom three components, indicating it was a less important part of having a good life. Having material items ( $M_{\text{material items}} = 3.98, SD = 1.70$ ) and having a high paying job ( $M_{\text{job}} = 4.18, SD = 1.83$ ) were also rated in the bottom

three components. Planned contrasts revealed significant differences in ratings between money and material items ( $t(60) = 5.19, p < .01$ ), and between money and having a high paying job ( $t(60) = 2.98, p < .01$ ).