

Bringing the past to the present: Temporal self-comparison processes moderate nostalgia's effect  
on well-being

By

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Bringing the past to the present: Temporal self-comparison processes moderate nostalgia's effect  
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## Abstract

This research tested the theory that the effect of nostalgia on well-being depends on temporal comparison processes. Five studies ( $N = 501$ ) apply established models of self and social judgment and demonstrate that nostalgia is a resource for well-being when contextual variables prompt inclusion of the past self in current self-conceptions. Study 1 ( $n = 76$ ) showed initial evidence that inclusion of the nostalgic (vs. ordinary) past self in the current self-concept leads to higher self-concept clarity. Study 2 ( $n = 78$ ) aimed to replicate this pattern for well-being. Supporting hypotheses, recalling a nostalgic (vs. ordinary) memory led to higher psychological well-being when the past self was included in the current self-concept. Study 3 ( $n = 122$ ) conceptualized inclusion as the tendency to focus on similarities (vs. differences) between the current and past selves, and experimentally demonstrated that nostalgia results in higher psychological well-being when a focus on similarities (vs. differences) is induced. Finally, Studies 4 ( $n = 145$ ) and 5 ( $n = 80$ ) examined broader contextual variables that were hypothesized to influence both inclusion and similarity focus mechanisms. In Study 4, recalling a nostalgic memory promoted well-being when a reflective (vs. evaluative) mindset was experimentally primed. In Study 5, individual differences in trait self-reflection moderated nostalgia's contribution to well-being such that nostalgia (vs. control) resulted in higher well-being but particularly when trait self-reflection was high. Taken together, the current research establishes a cognitive mechanism that determines when and how nostalgia contributes to well-being and provides a richer understanding of nostalgia, temporal comparison processes, and mechanisms that maintain and enhance the self.

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Bringing the past to the present: Temporal self-comparison processes moderate nostalgia's effect on well-being

Nostalgia is the only friend that stays with you forever.

—Damien Echols, *Life After Death*

Nostalgia is a useless, futile thing because it is a longing for something that is permanently lost...

—David Nicholls, *Us*

### **Introduction**

The last several decades have seen a surge in research exploring the functions of nostalgia for individuals. A PsycINFO search of the keyword *nostalgia* reveals more than twice the number of publications in the four years since 2010 as in the decade prior, and these numbers have been increasing exponentially since the 1970s (see Figure 1). What can explain this nostalgia boom? A review of recent research provides a compelling answer: Nostalgia is a resource for psychological health and well-being (Routledge, Wildschut, Sedikides, & Juhl, 2013). Contrary to nostalgia's historically negative reputation as a mental illness (see McCann, 1941), Routledge et al. (2013) claim that "research has obtained no evidence that nostalgia is psychologically problematic" (p. 812) and that "nostalgia is a psychological resource—not a liability" (p. 813).

The recent focus on nostalgia's benefits has (potentially) occluded instances in which nostalgia may not function to promote well-being. Consider the two quotes at the outset of this article: One suggests that nostalgia is a reliable friend that will forever provide comfort and security, whereas the other suggests that nostalgia is an exercise in futility because the target of nostalgia is lost in the past. Assuming that these quotes reflect individuals' actual experiences, it seems as though nostalgia can increase well-being under some conditions, but in other cases may

prove useless or perhaps detrimental to well-being. Present-day conceptualizations of nostalgia, at least in some cases, may present a rosier picture of nostalgia's benefits than warranted.

Moreover, the focus on nostalgia's apparent benefits has led to a trend in the literature over-emphasizing nostalgia's effect on *isolated* positive outcomes. For instance, research has shown that nostalgia does everything from making people feel warm in a cold room (Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012) to protecting people against procedural injustice from authority figures (van Dijke, Wildschut, Leunissen, & Sedikides, 2014). The growing nostalgia literature portrays a picture of nostalgia as a panacea for a variety of social and psychological ills.

Little consideration is being given to why nostalgia provides such a diverse array of benefits (see Baldwin, Biernat, & Landau, 2015 for an exception) and the mechanisms that either enhance or attenuate those benefits. The purpose of the current research is to fill these gaps in the literature by proposing a cognitive mechanism, derived from classic social and cognitive psychological theory, that can explain when nostalgia will promote well-being and when it will not. I turn to research in social judgment and propose that nostalgia will result in well-being particularly when people perceive overlap, or similarities, between their past and current self-concepts. I elaborate on this hypothesis in the sections that follow. In Chapter 1, I introduce the concept of nostalgia and describe how it differs from related constructs. I define well-being and summarize some key findings in Chapter 2 and review nostalgia's contribution to well-being in Chapter 3. In Chapter 4, I suggest that temporal comparison processes modulate nostalgia's effect on well-being and make specific predictions about the mechanisms, contextual variables, and individual differences that determine whether nostalgia will result in high, low, or no well-being. Chapters 5-7 present data from five studies that lend support for my predictions. In

Chapter 8, I conclude by integrating the current findings with prior temporal comparison research and discuss the implications of this program of research for the study of self and identity.

## Chapter 1: Nostalgia

Scientific study of nostalgia began with a medical dissertation by Swiss physician Johannes Hofer (1688/1934) in the late 1600s. Hofer had been examining the phenomenon in Swiss military camps where soldiers, who were fighting in foreign lands, were becoming psychologically incapacitated due to their intense desire to return home. Hofer viewed nostalgia as a pathological disease that “depended chiefly on an utterance, the wish to go home” (Austin, 2007; p. 4). This view of nostalgia persisted for most of the 18<sup>th</sup> and 19<sup>th</sup> centuries. Medical discourse during this time period described nostalgia as “a species of melancholy, or a mild type of insanity, caused by disappointment and a continuous longing for home” (in Wilson, 2005; p. 21). The emergence of psychiatry as a medical discipline, and the subsequent attention to nostalgia by practicing clinicians, fueled this particular view (Batcho, 2013). The most severe cases of nostalgia were viewed as psychosis and were, on occasion, diagnosed postmortem as the cause of death (McCann, 1941).

The ways that people experience nostalgia, and the ways that social scientists conceptualize it, have changed dramatically in the past few decades. Davis (1979) found that college students associated words like *comfort* and *warmth* with nostalgia more so than words like *homesickness*. Boym (2001) summarizes nostalgia this way: “Modern nostalgia is... a spiritual longing, a nostalgia for an absolute, a home that is both physical and spiritual, the Edenic unity of time and space before entry into history” (p. 8). The idea that nostalgia is a spiritual longing is common in theoretical considerations of nostalgia. For example, Harper (1966) wrote that nostalgia is a “progress toward presence” which he describes as a spiritual awareness of “what life ought to be like” (pp. 28-29). Jacoby (1985) speculated that the ultimate

goal of nostalgic reflection is “a state of being which finds symbolic expression in the image of Paradise” (p. 4), an image that resembles the Biblical Eden.

This expanded view of nostalgia—one that includes a symbolic longing for the comfort and security of idyllic times and places—has led to diversity in formal definitions. The *Oxford Dictionary* defines nostalgia as “a sentimental longing or wistful affection for the past, typically for a period or place with happy personal associations.” Some define nostalgia in broad affective terms—as positive mood (Belk, 1990; Davis, 1979)—while others focus on more specific manifestations of nostalgia, defining it as a preference for objects that were more common in the past (Schindler & Holbrook, 2003). Still others focus on the imaginative or constructive nature of nostalgia, claiming that nostalgia is about an “idealized or sanitized version of an early time period” (Stern, 1992; p. 11). In the following sections, I present a more detailed analysis of nostalgia in order to provide a working conceptualization. To do so, I briefly review prior research regarding the content of nostalgia and compare nostalgia to related constructs.

### **Defining and Distinguishing Nostalgia**

What are nostalgic memories about? On the basis of systematic analyses of written narratives, Wildschut, Sedikides, Arndt, & Routledge (2006) showed that nostalgia typically featured the self as the focus or “main character” in the event. Nostalgic memories most often described social interactions with friends and family, but also portrayed momentous or important events, settings (e.g., parks), episodes of life (e.g., “the good old days”), animals (e.g., pets), commodities (e.g., toys), and past selves (e.g., “feeling like a princess”). Although the majority of nostalgic memories were positive, they were also tinged with a feeling of sadness or bittersweetness. Yet, participants tended to rate their nostalgic memories as more positive than

negative, and coding of the narratives revealed that they tended to follow a redemptive tone. That is, positive experiences increasingly overshadowed any negative aspects of the recalled event.

These findings were conceptually replicated in a prototype analysis by Hepper, Ritchie, Sedikides, & Wildschut (2012). Lay conceptions of nostalgia's central (or primary) characteristics included fond memories, personal meaning, social relationships, keepsakes, happiness, and childhood. Consistent with some theorizing (Baldwin et al., 2015; Harper, 1966; Stern, 1992), nostalgia was also described as a longing for an idealized past. Peripheral (or secondary) characteristics of nostalgia included comfort and security, wishing or desire, dreams, and goals. Descriptions of nostalgia did include some negative components (e.g., homesickness, sadness, anxiety), but they were relatively infrequent compared to the others. Taken together, the research regarding nostalgia's content suggests that it is primarily a positive self-focused emotion that is result of recalling meaningful and idealistic events and relationships from the past. Are these aspects of nostalgia different from related emotions and memory? The next sections address this question.

**Homesickness.** Qualitative evidence from interviews with college students revealed that the word homesickness was rarely used to describe nostalgia (Davis, 1979). Corroborating these observations, Hepper and colleagues (2012) found that homesickness was not central in lay descriptions of nostalgia. Moreover, homesickness stems from a perceived disconnect from the home, and can be maladjustive; for instance, homesickness is associated with stress and anxiety in first-year college students who moved away for college (Thurber & Walton, 2012; Woosley & Shepler, 2012). Homesickness maps on to the conceptualization of nostalgia from past centuries (Hofer, 1688) but does not describe how nostalgia is typically conceptualized today. Nostalgic memories do not typically focus on the physical home (Davis, 1979; Hepper, 2012; Wildschut et

al., 2006) and are not typically focused on loss. Instead nostalgia is more closely associated with future oriented concepts like goals (Hepper et al., 2012), growth (Baldwin & Landau, 2014) and optimism (Cheung, Wildschut, Sedikides, Hepper, Arndt, & Vingerhoets, 2013). The two constructs are phenomenologically and psychologically distinct.

**Reminiscence.** Reminiscence involves recounting, and organizing, events from one's life story that are considered important parts of the self-concept or self-definition (McMahon & Rhudick, 1967). Reminiscence is not a feeling; it is the act of narrating important life events, usually in the presence of others, such as close family or a therapist. And research and theory on reminiscence is focused on how older adults, in particular, use reminiscence to develop a meaningful life story (Kaminsky, 1984; McMahon & Rhudick, 1967). For instance, people may reminisce about "turning points" in their lives, even if those experiences were negative (e.g., a divorce). Recounting these events can aid in constructing a coherent life narrative (McAdams, 1993).

Nostalgia may be a component of reminiscence, as nostalgic events are likely to be considered important moments in one's life story (Hepper et al., 2012; Wildschut et al., 2006), but nostalgia is also a *type* of memory and a unique *feeling* (Baldwin et al., 2015; Wildschut et al., 2006). Moreover, nostalgia can also be prompted by incidental sensory experiences, such as listening to music (Cheung et al., 2006; Routledge et al., 2011) or smelling familiar scents (Reid, Green, Wildschut, & Sedikides, 2015; Waskul, Vannini, & Wilson, 2009). Reminiscence does not capture these kinds of wistful episodes.

**Sentimentalism.** In Hepper et al.'s (2012) prototype analysis, nostalgia was sometimes described as "sentimental." However, people can feel sentimental from experiences that would not induce nostalgic feelings, such as watching an emotional film. As put by Wilson (2005):

“Sentimental conjures up the image of a teary-eyed individual touched by a current experience that strikes an emotional chord...”(p. 25). The Oxford Dictionary describes a sentimental person as one who is excessively prone to tenderness or sadness. Nostalgia’s affective signature is more complex (e.g., bittersweet), typically features the self with close others, and also has a redemptive tone (Wildschut et al., 2006). A sentimental episode may include these components but they are not defining characteristics. Thus, sentimental feelings reflect a broader category of emotional arousal.

**Ordinary autobiographical memory.** Nostalgia is a unique form of autobiographical memory, which is the general recall of past life events. Nostalgia can be distinguished from other kinds of autobiographical memory both by the way nostalgic memories are constructed and by the feelings associated with them. Prior theorizing suggests that nostalgic memories highlight values or morals that people consider intrinsically good or right (Davis, 1979; Harper, 1966). More generally, nostalgia is said to “enable one to discover (or think about) one’s sense of the ‘Good’ or the ‘Right’” and represent the desire for freedom from extrinsic constraints or barriers to the authentic self (Wilson, 2005; p. 26). Corroborating this theoretical discourse, recent research demonstrates that nostalgic memories offer a window to the “true” self (Baldwin et al., 2015). In the studies described here, “ordinary memories” provide the comparison point, the control condition, to study the effects of nostalgia.

In sum, nostalgic memories can be distinguished from related constructs based on their content and the affect that they induce. People are nostalgic for experiences with close others and for momentous events, which are likely to represent who people think they truly are, making them different than other kinds of autobiographical memories. Nostalgia has a unique mixed affective signature that is primarily positive, but involves a tinge of sadness associated with the

realization of loss. However nostalgia does not dwell on the loss, as is the case with homesickness. Nostalgia is distinct from sentimentalism, which involves similar “tender” emotions but does not necessarily result from thinking about a past event; and reminiscence, which is the “intellectual exercise” (Wilson, 2005; p. 25) of constructing a coherent life story from meaningful life events, which could include both positive and negative experiences.

In the current research, I am primarily interested in how the way people think about their nostalgic memories—how they relate to the recalled event—influences the extent to which recalling the memory will promote well-being. I am not as interested in predicting nostalgia’s well-being effects with the content of the memories, or the specific affect they induce. Thus, in the current research, nostalgia was operationalized as, simply, the recall of a nostalgic event or episode from one’s personal past. Considering that lay definitions of nostalgia are consistent from person to person (Hepper et al., 2012), I expected participants to share a common understanding of nostalgia, and to recall nostalgic memories that are typical of those reported in prior research (Baldwin et al., 2015; Hepper et al., 2012; Wildschut et al., 2006). Therefore, although participants’ memories would likely have many of the key features of nostalgia, these features were not central to my primary hypotheses and thus, I do not include these features in the operational definition of nostalgia in the current research.

Does recalling a nostalgic memory lead to unique psychological effects compared to recalling other autobiographical memories or events? Compelling evidence from research in psychology has begun to show that, compared to thinking about other self-relevant experiences, nostalgia can promote and protect psychological resources that are necessary for achieving well-being (Baldwin et al., 2015; Routledge et al., 2013). The following sections define well-being and elaborate on the ways nostalgia contributes to well-being.

## Chapter 2: Well-being

In a broad sense, well-being is the result of living the “good life.” Colloquially, well-being is equated with happiness and is of high importance for many people: In a large internationally representative sample, almost 70% of respondents rated happiness as the most important aspect of life (Suh, Diener, Oishi, & Triandis, 1998). Although happiness appears to be a universally important aspect of the good life, there is some debate regarding the variables are essential for achieving happiness and whether happiness is an essential component of well-being at all. Thus, the well-being research is divided among studies that focus on *subjective* well-being and those that focus on *psychological* well-being (although some incorporate both), which I describe in the following sections.

### Subjective Well-Being

Subjective well-being (SWB) is defined as high positive affect, low negative affect, and an overall satisfaction with life (Diener, Lucas, & Oishi, 2002; Lucas, Diener, and Suh, 1996). In general, experiencing consistently high positive affect and consistently low negative affect is likely to result in overall life satisfaction. However, enduring happiness is also indirectly influenced by momentary positive (or negative) feelings. For instance, people who have a tendency to experience positive affect when exposed to rewarding experiences (e.g., extroverts) will attempt to maintain their high levels of positive affect by seeking out future reward (Lucas & Fujita, 2000; Watson and Clark, 1984). This tendency to seek out and experience momentary positive affect is indicative of a long-term behavioral pattern that eventually produces overall happiness (DeNeve & Cooper, 1998; Lucas & Fujita, 2000).

Subjective well-being also includes a cognitive component, both in terms of the measurement of life satisfaction (evaluations of one’s life) and in terms of the processes that

modulate experiences of positive and negative affect. Diener and colleagues (2002) state that “It is not just who we are that matters to happiness, but how we *think* about our lives” (p. 67; emphasis added), and “the way people perceive the world is much more important to happiness than objective circumstances” (p. 68). These claims are supported by meta-analytic and narrative reviews demonstrating that personality accounts for less than 5% of variability in SWB (DeNeve & Cooper, 1999) and that demographic variables such as income, age, sex, as well as objective measures of health do not correlate highly and reliably with SWB (Diener et al., 2002). What is the role of cognition in SWB?

In a meta-analysis, DeNeve & Cooper (1998) found that the strongest correlates of SWB were variables reflecting tendencies to construe experiences in a positive (or negative) light. For instance, *hardiness*, or the tendency to interpret negative or stressful events in an optimistic way and to engage in active coping behavior, was highly correlated with SWB. *Trust* was also correlated with SWB, and to a greater degree than extraversion (although extraversion was still a predictor), suggesting that a belief that others are honest and reliable is more predictive of SWB than the tendency to gravitate toward positive and exciting social interactions.

In sum, SWB is defined as experiencing pleasure, avoiding negative affect, and being satisfied with life. The emphasis on subjective feelings of pleasure and satisfaction has led researchers to focus primarily on determining the characteristics of happy people, such as personality traits like high extraversion and low neuroticism. Some research has also demonstrated that the way people think about their experiences, such as the tendency to interpret negative events in a positive way, contribute to SWB. However, SWB research has received criticism for exaggerating the importance of hedonic pleasure and happiness because approaching pleasure and avoiding pain does not always promote optimal outcomes. For

example, research shows that people with many important goals (compared to those with few important goals) report higher life satisfaction but also display more symptoms of anxiety (Pomerantz, Saxon, and Oishi, 2000). Other studies demonstrate that people will seek pleasure that comes from social approval and high status, even at the cost of physical health (Ben-Ari, Florian, Mikulincer, 1999; Goldenberg & Arndt, 2008). Considering that the pursuit of happiness and satisfaction do not always lead to long-term well-being, other researchers have focused on what allows people flourish and realize their full human potential.

### **Psychological Well-Being**

Psychological well-being (PWB) is “explicitly concerned with the development and self-realization of the individual” (Ryff & Singer, 2008, p. 14). PWB is loosely based on the Aristotelian concept of *eudaimonia*, which in the simplest of terms, means knowing the “true” self, realizing one’s full potential, and making the most of one’s talents. This conception of well-being defines the construct as the extent to which an individual’s behaviors mesh with their deeply held values and beliefs, and thus lead to vitality and flourishing. Although pleasure is a component of PWB, emphasis is placed on traditionally humanistic pursuits such as self-actualization, authenticity, and personal growth. Specifically, Ryff (1989) operationally defines PWB as self-acceptance, positive relationships, autonomy, environmental mastery, purpose in life, and personal growth. These six components of PWB are viewed as ends in themselves, and not just means to happiness and satisfaction.

Integrating the PWB perspective with other approaches to well-being, Ryan & Deci’s (2000) self-determination theory (SDT) suggests that the six components of PWB map onto a simpler structure of basic psychological needs: The needs for autonomy, competence, and relatedness. Fulfillment of these needs provides individuals with the nutrients necessary for

achieving health and well-being. Thus, the SDT approach differs slightly from Ryff's theory of PWB in that it does not define well-being in terms of the basic needs, but instead theorizes that need satisfaction fosters well-being. Furthermore, the SDT approach acknowledges that satisfaction of basic needs can foster both PWB and SWB, claiming "the assessment of positive and negative affect is useful insofar as emotions are, in part, appraisals of the relevance and valence of events and conditions of life with respect to the self" (Ryan & Deci, 2001; p. 147). SDT goes further to say that happiness and positive affect can take on different forms, depending on the source of the emotions. For instance, succeeding on an activity that was forced on participants resulted in happiness (high SWB) but not feelings of vitality (low PWB) whereas succeeding on an activity that was autonomous resulted in both happiness and vitality (high SWB and PWB).

In sum, perspectives on PWB recognize that there is more to life than simply feeling happy, and argue that the ways that people realize their true and full potential is an important component of positive psychological functioning. Ryff defines PWB as self-acceptance, positive relationships, autonomy, environmental mastery, purpose in life, and personal growth. Similarly, SDT suggests that satisfaction of the three basic needs of autonomy, competence, and relatedness, is a minimum requirement for achieving a fully functioning life. Overall, PWB can be defined in terms of how much a person is committed to their deeply held values, engaged in self-growth and discovery, and motivated and able to realize their fullest potential. In the following section, I review research demonstrating that nostalgia contributes to well-being.

### **Chapter 3: Nostalgia Contributes to Well-Being**

If nostalgia contributes to well-being, recalling a nostalgic memory should induce positive affect and contribute to other aspects of happiness (SWB), as well as satisfy basic needs required for psychological growth and self-actualization (PWB). There is overwhelming evidence that nostalgia induces positive affect compared to recalling ordinary memories (e.g., Hepper et al., 2012; Stephan et al., 2012; Turner, Wildschut, & Sedikides, 2012; Verplanken, 2012; Wildschut et al., 2006, 2012; Zhou et al., 2012). Levels of positive affect induced by recalling a nostalgic memory are even indistinguishable from levels induced by thinking about a recent positive event (Stephan et al., 2012).

Research has also demonstrated that nostalgia is associated with more general ratings of happiness and life satisfaction. Using an established measure of trait nostalgia, Baldwin et al. (2014) found that nostalgia was positively correlated with measures of well-being which included happiness and life satisfaction. These associations were significant after controlling for Big Five personality and state positive and negative affect. Thus, dispositional nostalgia contributes to positive evaluations of life (SWB) over and above personality dispositions and mood. Other lines of research demonstrate that nostalgia is more than a fleeting moment of happiness. Nostalgia promotes a variety of psychological resources necessary for optimal functioning and self-actualization as well.

#### **Positive Self-Regard**

For instance, many findings demonstrate that nostalgia increases positive evaluations of the self, which is a component of PWB (Ryff, 1989). Wildschut et al. (2006) found that participants who reflected on a nostalgic memory reported higher self-esteem compared to participants who reflected on an ordinary memory. This effect has been replicated a number of

times using both guided imagery recall tasks (Baldwin & Landau, 2014) and incidental nostalgia priming with music (Cheung et al., 2013). The link between nostalgia and self-esteem also emerges at the implicit level. In research by Vess, Arndt, Routledge, Sedikides, & Wildschut (2012), participants were randomly assigned to reflect on a nostalgic memory or a positive future event and then categorized a list of positive and neutral adjectives as belonging to the category “me” or the category “not me.” Supporting the link between nostalgia and positive self-regard, participants in the nostalgia condition were faster at assigning positive adjectives to the “me” category than were participants in the positive future condition. This suggests that nostalgia specifically, and not simply a positive mood (i.e., thinking about a positive future) can bring to mind a positive self-schema which becomes more accessible in cognition.

### **Social Connectedness**

A number of correlational studies suggest a link between nostalgia and social connectedness, which is considered a component of PWB (Ryff, 1989) and a basic psychological need (Ryan & Deci, 2000). For example, Batcho (1998) found that trait nostalgia was positively associated with a preference to engage in activities with others. Other studies show that scores on measures of nostalgia are positively associated with trait and state levels of perceived social support, or feelings that close others are available especially during times of distress (Zhou et al., 2008). Batcho (2013) also found that trait nostalgia predicted preference for social support coping strategies as well as the likelihood that participants would choose social support coping strategies in response to distress.

Experimental research corroborates these associations. For example, Wildschut et al. (2006) found that participants who reflected on a nostalgic memory felt more “loved” and “protected,” showed more secure attachment styles, and reported more interpersonal competence

(perceived ability to provide emotional support to close others) compared to participants in a control condition (see also Cheung et al., 2013; Turner, Wildschut, Sedikides, 2012; Wildschut et al., 2010). Confirming the link between nostalgia and relatedness, Zhou and colleagues (2008) found that prompting people to reflect on a nostalgic memory compared to an ordinary memory led to increases in perceived social support.

### **Meaning and Purpose**

Nostalgia is a resource for meaning in life, which maps onto the *purpose* component of Ryff's (1989) concept of PWB. People typically describe nostalgia as having personal value and significance (Hepper et al., 2012) and dispositional nostalgia is associated with higher purpose in life (Routledge et al., 2011). Experimental evidence corroborates these associations: Inducing nostalgia with music or by recalling a personal memory increased self-reported meaning in life when compared to neutral control conditions (Routledge et al., 2011). Nostalgia also promotes meaning to a greater degree than thinking about other positive, self-relevant events (e.g., a desired future; Routledge et al., 2012).

Other research shows that nostalgia involves abstract thinking, which is linked to thinking about symbolic or schematic aspects of a target, such as the purpose of an event, rather than the concrete details of a target, such as what time an event occurred (Trope & Liberman, 2010; Vallacher & Wegner, 1985). Stephen and colleagues (2012) coded participants' nostalgic, ordinary, and positive memories for traces of abstract thinking. They showed that participants who reflected on a nostalgic memory (vs. ordinary and positive memories) used more abstract language and cognitive words indicative of cognitive elaboration (e.g., insight words) to describe their memories.

## **Personal Growth**

Indirect support for the link between nostalgia and growth, another component of Ryff's (1989) conception of PWB, comes from qualitative research demonstrating that people describe nostalgia with words such as desire, change, and future (Hepper et al., 2012). In support of these qualitative findings, experimental research shows that nostalgia increases optimism about the future (Cheung et al., 2013) and promotes growth-oriented self-perceptions (e.g., "I am the kind of person that likes to explore new things") and growth-oriented behavioral intentions (e.g., "If I had the chance, I would go explore new things"; Baldwin & Landau, 2014). Correlational and experimental findings also demonstrate that nostalgia is associated with higher approach motivation including the tendency for fun seeking, drive, and reward responsiveness (Stephan, Wildschut, Sedikides, Zhou, He, Routledge, et al, 2014). Conceptualizing these findings as nostalgia promoting openness to experience, recent research shows that nostalgia can enhance creativity (van Tilburg, Sedikides, & Wildschut, 2015).

## **Intrinsic Self-Expression and Authenticity**

In order to synthesize the diversity of nostalgia's positive effects under a single mechanism, Baldwin et al. (2014) tested whether nostalgia offers a window to the intrinsic self-concept—who people think they really are. We claim that, as a result of opening a window to one's true and authentic qualities, nostalgia encourages intrinsic self-expression, which leads to many of the positive outcomes of nostalgia shown in prior research. Authenticity and intrinsic self-expression captures many of the components of PWB described by Ryff (e.g., environmental mastery, autonomy) as well as Ryan and Deci (2001; e.g., autonomy).

In one representative study, participants who recalled a nostalgic memory (vs. ordinary memory) rated their past-selves as more authentic and as a result, were less concerned with

meeting extrinsic standards of self-worth in their current lives (Baldwin et al., 2015). Other research has documented the converse relationship: When prompted to describe an event during which they felt most (versus least) like their “true” or “real” self, participants rated that experience as more nostalgic (Lenton et al., 2012). Nostalgia also makes the intrinsic self-concept more accessible in cognition. Baldwin and colleagues (2014) randomly assigned participants to recall a nostalgic (vs. ordinary) memory and then to describe their “true” self or their everyday self. Participants who previously had recalled a nostalgic memory showed greater fluency (e.g., higher word counts) and cognitive elaboration (e.g., insight words) when describing their true selves. Thus, attributes of the true self become more cognitively available after recalling a nostalgic memory.

In sum, evidence is in favor of the notion that nostalgia is a source of well-being for individuals. Not only does nostalgia induce positive affect, but it also promotes positive evaluations of life overall (SWB), even after controlling for the influence of other personality traits. Moreover, nostalgia bolsters the satisfaction of needs and resources necessary for self-actualization and optimal functioning, by opening a window to the authentic self (PWB).

### **Is Nostalgia Always Beneficial?**

Despite compelling evidence that nostalgia contributes to well-being, some research findings do *not* support this view. For instance, Verplanken (2012) found that nostalgia increased anxiety and depression for individuals who tend to ruminate on their problems (i.e., obsessive worriers). Similarly, nostalgia increased feelings of sadness for university students who were made aware of differences between their high school and college selves (Iyer & Jetten, 2011). In other cases—for instance, under some experimental conditions—nostalgia had no apparent benefits when compared to ordinary memories (Wildschut, Sedikides, Routledge, Arndt, &

Cordaro, 2010; Routledge et al., 2012).

These findings are not easily reconciled with Routledge et al.'s (2013) claim that there is no evidence that nostalgia is psychologically problematic. To make sense of these contradictory findings, the current research aims to test a general hypothesis based on two premises: 1) evaluations of an object of judgment (*target*) are influenced by salient contextual information (*standard*), and 2) the direction of influence can be “toward” the salient contextual information (*assimilation*) or “away” from it (*contrast*). Under these general assumptions, I hypothesize that nostalgia's contribution to well-being is the result of comparison processes whereby perceptions of one's current life (the target) assimilate to the positive picture of the self represented in nostalgic memories (the standard).

Thus, in conditions that favor assimilation, recalling a nostalgic memory will result in well-being as people's affect and self-evaluations will be congruent with the (typically) positive, authentic, and meaningful picture of themselves reflected in their memories. However, in conditions that favor contrast, recalling a nostalgic memory will lead to reduced well-being, as people's affect and self-evaluations are shifted away from the positive image of the past. Conditions that favor contrast might also lead to null-effects of nostalgia, if nostalgic memories are determined to be irrelevant for self-evaluations. In the following section, I describe assimilation and contrast effects in more detail, and summarize three existing models that explain how assimilation, contrast, and null effects may result from temporal comparisons. Then I make novel predictions about nostalgia's well-being function that follow from each model.

## **Chapter 4: Models of Assimilation and Contrast**

Assimilation and contrast refer to shifts in perceptions and judgments as a result of salient contextual information (the standard). A shift toward the contextual information is assimilation and displacement away from the contextual information is contrast. Stated differently, assimilation is characterized by a “positive relation between the implications of some piece of information and the judgment” whereas contrast is characterized by a “negative (inverse) relationship between the judgment and the implications of some piece of information” (Bless, Schwarz, & Wänke, 2003; pp. 180-181). Assimilation and contrast refer to outcomes—specifically the direction of displaced outcomes—and not to the process or mechanism by which those outcomes occur. Models for how assimilation and contrast effects emerge are numerous (see Biernat, 2005). In the present research, I focus on three models that are most relevant for making predictions about nostalgia’s well-being functions.

### **The Inclusion/Exclusion Model**

Assimilation and contrast effects can be understood in terms of the inclusion/exclusion model (IEM; Schwarz & Bless, 1992), which is based on the assumption that judgments of a target rely on mental representations of both the target itself, as well as the standard to which the target is compared. Observers are said to construct these representations at the time of judgment, accessing salient contextual information about both the target and standard until a judgment can be made with sufficient certainty. The IEM posits that the same contextual information can result in assimilation and contrast effects, depending on how it is used. Specifically, when contextual information is determined to be relevant to representations of the target, it is “included” in those representations resulting in assimilation effects. Conversely, when contextual information is determined to be irrelevant to representations of the target, two different construal process can

occur: Either the information is “excluded” from representations of the target and used as a standard of comparison (contrast) or it is excluded from representations of the target and ignored (null effect; Schwarz, Münkler, & Hippler, 1990; see also Martin, 1986).

The factors that facilitate inclusion and exclusion are varied. For instance, information is included in representations of the target when the target is ambiguous (Higgins, 1996). In this case (e.g., when an observer is judging whether an ambiguous face is happy or sad), contextual information that is accessible at the time is used to form a representation of the target, and will lead to more positive judgments if positive concepts are salient and negative judgments if negative concepts are salient. Assimilation is also likely to occur when contextual cues signal that available information belongs in representations of the target. In one study, judgments of life satisfaction were more strongly (positively) correlated with marriage satisfaction when the marriage scale came before (vs. after) the life satisfaction measure (Schwarz, Strack, & Mai, 1991). The “before” order conveys that marriage satisfaction may be part of (included in) general life satisfaction. However, contextual information is only used in constructing representations of the target if observers are not aware that context may influence their judgment. For instance, when participants are aware of the influence of an experimental priming procedure, they do not use information resulting from that procedure (exclusion) and judgments either contrast away from that information, or are not influenced by the information at all (Martin, 1986; Mussweiler & Neumann, 2000; Strack, Schwarz, Bless, Kübler, & Wänke, 1993).

Inclusion also occurs when the standard and the target belong to the same superordinate category, whereas contrast or null effects occur if the standard and target belong to different categories. In a simple test of this idea Strack, Schwarz, and Gschneidinger (1999) asked participants to think about a positive or negative event that happened to them, either recently or

many years ago, and then to rate their current life satisfaction. Assimilation occurred regarding life satisfaction judgments when participants recalled recent events, as those events could be construed as belonging to the same category of events happening in “my life now.” Contrast occurred when participants recalled distant events, as those events do not fall in the same category as events happening in “my life now.”

It is noteworthy that imposed category boundaries can result in similar effects, even when actual temporal distance is held constant. When college students were asked to consider a positive or negative event from “the last two years,” resulting life satisfaction judgments assimilated to the valence of the past event. However, contrast occurred if additional wording was included asking participants to consider events from “the last two years, that is, before you came to the university.” These instructions drew a categorical distinction between high school and college life, and thus events from high school were excluded from representations of participants’ current lives (Schwarz & Strack, 1999).

In sum, the IEM describes assimilation and contrast effects as resulting from how people use contextual information to form representations of a target. When the target and standard are part of the same superordinate category, standard-consistent information is included in representations of the target and assimilation occurs. If the target and standard are not part of the same category, standard-consistent information is excluded from representations of the target, and, assuming the standard is relevant in the comparison domain, representations of the target will contrast away from that standard-consistent information. If the contextual information is determined to be irrelevant to the judgment at hand, it is simply ignored and not used as a standard of comparison.

## The Selective Accessibility Model

The selective accessibility model (SAM; Mussweiler, 2003a, 2003b) describes assimilation and contrast effects in terms of the information about a target and a standard that is accessible at the time of judgment. Thus, the SAM differs from the inclusion/exclusion mechanism in that it focuses on what kind of information about the target is made accessible via comparison, as opposed to how salient information is used to construct mental representations of the target or standard. According to the SAM, comparison processes activate an information search regarding the similarity or dissimilarity of the target and standard. First, observers test whether the target and standard are similar or different on broad, holistic, dimensions (e.g., “Are the target and standard members of the same social category?”). When an initial decision is reached regarding this general relation between the target and standard, the observer will then “selectively generate information that is consistent with the focal hypothesis of the comparison” (Mussweiler, 2007; p. 168). That is, if the target and standard are determined to be similar, the perceiver will attempt to confirm this hypothesis by accessing information about the target that is *consistent* with the standard. If the target and standard are determined to be dissimilar, the perceiver will attempt to confirm this hypothesis by accessing information about the target that is *inconsistent* with the standard. The accessible information thus becomes the basis of judgment: Assimilation to the standard will occur when the accessible information is standard-consistent, and contrast from the standard will occur when the information is standard-inconsistent.

In a straightforward test of this mechanism, Mussweiler (2001a) primed participants with either a similarity focus or a difference focus prior to a judgment task. Participants were shown two pencil drawings of a city scene side-by-side (Figure 2), and were asked to list either similarities (similarity focus condition) or differences (difference focus condition) between the

two scenes. In a subsequent task, participants read about an ostensible student who was described as either high or low on successful adjustment to college and then rated their own levels of college adjustment. When a similarity focus was induced, participants rated themselves high (low) on adjustment when comparing to a standard who was also high (low) on adjustment, reflecting an assimilation effect. The opposite pattern was true for participants primed with a difference focus. Critically, these assimilation and contrast effects emerged despite the fact that the standard was always of the same social category (i.e., student) as the participant. According to the IEM, similar category membership should prompt inclusion of contextual information in representations of the target, and thus always lead to assimilation. The finding that contrast can occur even when category membership is held constant suggests that the accessibility mechanism can operate independently of the inclusion/exclusion mechanism.

This is not to suggest that the selective accessibility and inclusion/exclusion mechanisms are mutually exclusive. Indeed, Mussweiler (2007) states that the selective accessibility mechanism can depend on how knowledge of the target and standard is categorized. When the target and the standard are perceived as belonging to the same category (e.g., both are students), similarity testing is more likely to occur. When the target and the standard are perceived as belonging to different categories (e.g., one is a psychology student and the other is an engineering student), difference testing is more likely to occur. The two models diverge regarding the interpretation of how target representations come about. The SAM posits that target representations are based on accessible features of the target that are made salient by direct comparison to the standard and subsequent hypothesis testing processes. The IEM posits that representations of the target are constructed on the spot by either including or excluding contextual information.

## The Reflection and Evaluation Model

The reflection and evaluation model (REM; Markman & McMullen, 2003, 2005) is best described as a combination of the IEM and SAM (Biernat & Eidleman, 2007) that is specific to how assimilation and contrast arise in *mental simulation*, which is the consideration of alternatives to present reality (Markman & McMullen, 2003). Mental simulation is said to occur in any type of comparative thinking in which a perceiver is considering the implications of contextual information for the self. Thus, the REM is primarily focused on self-relevant judgments that are the result of people being prompted to consider counterfactuals like “What if I had chosen a different career?” and “What would it feel like to win the lottery?;” or the implications of social comparisons like “If I was as smart as John, I wouldn’t have to study as much.”

The model defines two types of mental simulation—reflection and evaluation—that occur simultaneously when people are considering alternatives to present reality. Reflection involves immersing oneself in the counterfactual and thinking about it “as if” it is true. Reflection is a pattern of thought that is focused primarily on the counterfactual standard itself; perceivers are “transported” to the alternate reality as they imagine themselves (the target) experiencing the counterfactual event (the standard). Evaluation involves switching attention between the present and the counterfactual, which facilitates using the counterfactual as a reference point for evaluating one’s self or current standing. Therefore, the model posits that reflection results in assimilation effects whereas evaluation results in contrast. Finally, the REM makes a distinction between *upward* and *downward* mental simulation. Mental simulation is upward when the counterfactual is evaluatively *superior* to the present reality and it is downward when the counterfactual is evaluatively *inferior* to the present reality.

The REM has a few marked advantages over the IEM and SAM, which may not be as amenable to comparisons with counterfactual standards. Consider that a possible future event (e.g., being accepted to Harvard) can serve as a standard for evaluating the current self. In terms of the IEM, unless a clear category distinction between the current and possible self was salient, both the target and standard are part of the same broad category “me” and thus features of the possible self should typically be included in representations of the current self, leading to assimilation (e.g., “I am a smart person”). However, imagining a possible self may *simultaneously* remind people of circumstances in their current lives that make it unlikely they can achieve that possible self, and focusing on the implications of those circumstances may result in contrast (“I am not as smart as I could be”; Lockwood & Kunda, 1997). This type of contrast effect is not due to the target and standard belonging to different categories. Instead, the exclusion of standard-consistent information from current-self construals in this case is due to *evaluations* of the (low) likelihood of achieving the desired self. Thus, mental simulation may produce assimilation and contrast effects simultaneously, depending on whether people are focused primarily on the counterfactual or whether they are evaluating the nature of the relationship between the counterfactual and their current standing. These assimilation and contrast effects are not as easily accounted for by the IEM, which describes assimilation and contrast primarily in terms of categorization of the standard and target, and does not consider how assimilation and contrast can occur simultaneously.

The REM has a distinct advantage over the SAM as well, as the SAM may have difficulty explaining why hypothesis testing and information search would occur when the standard is a counterfactual (and potentially hypothetical) event. Perceivers *know* that counterfactual information is objectively different from reality; they would have to ignore the

fact that information brought to mind through hypothesis testing is factually untrue if similarity testing were to occur. But people can, and do, consider how their current lives are similar to counterfactual realities, even when they are completely imaginary. The REM explains these cognitions as resulting from reflection—how much people immerse themselves in the imagined counterfactual event—and not hypothesis testing per se.

Much like the IEM, the SAM also has difficulty explaining how assimilation and contrast effects occur simultaneously during mental simulation. As speculated by Mussweiler (2003b) “the same comparison may involve both the assimilative tendencies of selective accessibility and the contrastive tendencies of reference point use” (p. 483). This means that a standard, despite its initial similarity to the target, may be treated as a reference point in future judgments which could have consequences independent of selective accessibility. For example, evaluating one’s own success in college compared to another student who is similar to the self would activate knowledge of one’s own success (see Mussweiler, 2003b). However, engaging in this comparison also makes the other student a high (upward) comparison standard, which could bring to mind knowledge of how one has failed to live up to the other student’s success. In this example, both similar and dissimilar information is accessible via competing hypothesis testing processes and the SAM is not completely clear on how assimilation and contrast can occur when both kinds of information are equally available. The REM would suggest that assimilation or contrast will result from the tendency to engage in one of two parallel simulation styles: The tendency to vividly simulate being like the successful student or the tendency to “step back” and compare the imagined self to the present self. These mental simulation styles can operate independently of selective accessibility mechanisms.

The REM describes some contextual variables that uniquely promote reflective and

evaluative mental simulation, and thus assimilation and contrast. Of particular relevance to the current research is the claim that reflection occurs when perceivers are instructed to focus solely on the counterfactual itself, whereas evaluation occurs when perceivers are instructed to focus on the present reality relative to the counterfactual (McMullen, 1997). Evidence of this process was shown in a study in which participants were asked to consider a moderately negative event from their lives and to imagine how it could have been better (upward counterfactual) or worse (downward counterfactual). Reflection was primed by instructions to “vividly imagine what might have happened instead” whereas evaluation was primed by instructions to “vividly imagine the event *and* what might have happened instead” (italics added; McMullen, 1997).

Participants in the reflection condition reported higher positive affect after upward reflection compared to downward reflection whereas this pattern was reversed for participants in the evaluation condition. However, when subsequent scale items called for an evaluation of the actual event (thereby priming use of the counterfactual as a reference across all of the conditions), contrast occurred regardless of the initial simulation style. Results revealed that participants who imagined an upward counterfactual rated the actual event evaluatively worse compared to those who imagined a downward counterfactual.

### **Summary**

The models just described account for the basic processes that mediate a variety of assimilation and contrast effects. The IEM is concerned with how contextual information is used, and describes assimilation as being determined by the extent to which contextual information is *included* in representations of a target. Contrast can occur when contextual information is *excluded* from representations of the target, and when the excluded information is considered relevant for use as a standard of comparison. Otherwise, excluded information is simply ignored.

Inclusion and exclusion are determined, primarily, by whether the target and standard belong to the same superordinate category.

The SAM is a conceptual relative of the IEM and is concerned not with how information is used, but instead with what kind of information about the target is made accessible by comparison processes. When a target and standard are determined to be similar on broad dimensions (e.g., category membership), observers seek further evidence that is consistent with that initial observation. Assimilation results from searching for features of the target that are similar to features of the standard. Conversely, when a target and standard are determined to be different on broad dimensions, observers search for features of the target that are dissimilar to features of the standard.

The REM integrates aspects of both the IEM and the SAM, and is focused primarily on describing how assimilation and contrast arise in mental simulation. According to the REM, two parallel modes of thinking—reflection and evaluation—mediate assimilation and contrast effects. Reflection involves vividly simulating a counterfactual reality in a way that transports the self into that reality, such that the self experiences the counterfactual as if it is real. Reflection leads to assimilation, as aspects of the counterfactual are included in current self-construals, and cognitions that are consistent with the counterfactual become salient. Evaluation involves a focus on the present relative to the counterfactual, and thus leads to contrast as aspects of the counterfactual are excluded from current self-construals, and cognitions that are inconsistent with the counterfactual become salient. The REM distinguishes between standards that are evaluatively superior to the present (upward counterfactual) and those that are inferior (downward counterfactuals).

### **Assimilation to and Contrast from Nostalgic Memories**

Nostalgia's effects on well-being can be understood in terms of each of these models. First, a nostalgic memory would be considered an upward counterfactual. Nostalgic memories are predominantly positive (Holak & Havlena, 1998; Wildschut et al., 2006), are conceptualized as meaningful and significant by most people (Hepper et al., 2012), reflect a time relatively superior to the present (Harper, 1966; Jacoby, 1985; Summers, Johnson, & McColl-Kennedy, 2001; Wilson, 2006), and give people access to their authentic selves (Baldwin et al., 2015). Compared to ordinary and positive memories, nostalgia is characterized as having a high degree of abstract mental simulation (Stephen et al., 2012) which, according to Wilson (2005), involves active recreation of the memory as well as both a comparison to the present and a desire to return to the past. Altogether, nostalgia involves both a vivid simulation of the past event (reflection; upward counterfactual) as well as a comparison with the present (evaluation; upward counterfactual). Thus, recalling a nostalgic memory can induce both inclusion and exclusion processes, as well as similarity and difference testing mechanisms.

These hypothesized comparison processes are depicted in Figure 3. The model shows how a reflective mindset will prompt a vivid simulation of the event as if it is happening. As a result, perceivers imagine a high degree of overlap between their current and nostalgic selves and bring to mind self-attributions that are consistent with the nostalgic self. The resulting effects on well-being are positive; when asked to rate how the memory makes them feel on various dimensions of well-being (e.g., meaning in life) perceivers' ratings will assimilate to the nostalgic event they had reflected on. However, an evaluative mindset will prompt using the recalled memory as a reference point for evaluating the present. As a result, perceivers imagine low overlap between their current and nostalgic selves, and bring to mind self-attributes that are

inconsistent with the nostalgic self. As a result, perceivers' ratings of well-being will contrast away from the nostalgic event.

A final outcome depicted in the model is one in which perceivers determine that the differences between their current and past selves are irrelevant for their current lives. This would lead perceivers either to ignore the nostalgic memory when rating their current lives, or to adjust their ratings such that they correct for any negative effects the evaluation (and contrast) may have had. In either case, well-being would look no different from baseline levels. The current research empirically tests predictions that follow from each stage of the model. In general, those predictions are as follows:

*H1: Nostalgia, compared to recalling an ordinary memory, will increase well-being particularly when the nostalgic self is included in the current self-concept.*

*H2: Nostalgia, compared to recalling an ordinary memory, will increase well-being particularly when perceivers are focused on similarities (vs. differences) between their current and past selves.*

*H3: Nostalgia, compared to recalling an ordinary memory, will increase well-being particularly when the context (i.e., incidental priming, individual differences) prompts a reflective (vs. evaluative) mindset.*

### **Overview of the Current Studies**

The model presented here hinges on perceivers relying on their nostalgic memories to construct a current self-concept that in turn influences current well-being. Before testing the key hypotheses about effects on well-being, my goal in Study 1 was to show that nostalgia makes people *more confident* in who they are, but particularly when they include their past selves in their current self-concepts. Participants in Study 1 recalled a nostalgic or ordinary memory

before rating their self-concept clarity—feelings that the self is clearly defined, consistent, and stable. I measured inclusion by having participants indicate how subjectively close they feel to who they were during the time of the memory they recalled. I predicted that nostalgia would increase self-concept clarity, but only for participants who were likely to include their nostalgic selves in representations of their current self-concepts (i.e., high subjective closeness).

After demonstrating that nostalgic self-inclusion leads people to have greater confidence in who they really are, Studies 2-6 test the predictions made in *H1*, *H2*, and *H3*. Study 2 tests the hypothesis that including the nostalgic self in current self-construals will result in higher well-being (*H1*). Well-being was conceptualized as high positive affect, low negative affect, and feelings related to PWB, such as high self-esteem, meaning in life, and authenticity. I predicted that well-being would be higher for participants led to engage in nostalgia (vs. control), but only when inclusion was high.

Conversely, I predicted that well-being would be uninfluenced by recalling a nostalgic memory when inclusion was low, as the relatively low overlap (and potentially high psychological distance) between the nostalgic and current selves would justify excluding and ignoring the nostalgic self when evaluating one's current life. Alternatively, contrast effects—whereby nostalgia results in lower well-being relative to the control condition—may be possible if low inclusion prompts use of the nostalgic self as a standard of comparison (see Figure 3). This possibility is weakened by evidence that contrast effects such as these are isolated, and specific to participants who are prone to ruminate on problems in their lives (Verplanken, 2012) or for participants who are explicitly instructed to think about differences between their current and past selves (Iyer & Jetten, 2011). Individuals scoring low on the measure of inclusion in Study 2 would not necessarily engage in deliberate (contrastive) comparisons as in these isolated

examples. Thus, contrast may be possible at low levels of inclusion, but I expect that null effects are more likely.

Study 3 further tests whether making standard-consistent (or inconsistent) cognitions salient via the selective accessibility mechanism will moderate nostalgia's well-being effects (*H2*). The SAM model posits that features of the target—in this case, one's current self or current life—can be made accessible independently of inclusion/exclusion processes. Thus, despite variability in the extent to which participants are prone to construct representations of their current selves using information about their past selves (i.e., inclusion), assimilation and contrast can nevertheless occur when standard-consistent (inconsistent) features of one's current self are cognitively available at the time of current life judgements. To test this hypothesis, I randomly assigned participants to a similarity (or difference) focus condition in which they were instructed to think about similarities (or differences) between two pencil drawings. Afterward, participants recalled a nostalgic (or ordinary) memory and then completed the same well-being measure as in Study 2.

I predicted that nostalgia (vs. control) would result in higher well-being when the similarity focus was induced, which would be evidence of assimilation. Conversely, I did not expect the difference focus to induce a deliberate (contrastive) comparison to the nostalgic self. Past research suggests that nostalgia results in contrast effects when participants are reminded of a clear and specific category distinction between the past and present selves (i.e., high school vs. college self; Iyer & Jetten, 2011). Simply considering how general features of the current and past selves are different, as is the case in Study 3, should not make the past and present selves mutually exclusive objects of judgement. Additionally, the general difference focus might lead participants to conclude that their past selves are irrelevant to evaluations of their current lives,

and thus recalling a nostalgic memory should have no effect on current well-being (see Figure 3).

Studies 4 and 5 tested the contextual variables that enhance inclusion/exclusion and selective accessibility mechanisms during mental simulation. Study 4 tested the hypothesis that reflecting on a nostalgic memory (vs. ordinary memory) would lead to increased well-being whereas using a nostalgic memory (vs. an ordinary memory) as a standard for evaluating one's current life would result in decreased, or no effect on well-being (*H3*; see Figure 3) Participants were first randomly assigned to recall an ordinary or nostalgic memory. After describing the gist of the memory, participants were again randomly assigned to vividly imagine the memory as if it was happening (reflection condition) or to compare the memory to their current lives (evaluation condition).

Finally, Study 5 tested the hypothesis, derived from the REM, that reflective mental simulation, and thus assimilation, is more likely to occur when an individual is focused specifically on an imagined standard itself. In Study 5, I measured individual differences in participants' trait self-reflection (i.e., the tendency to focus on intrinsic, personal aspects of the self) prior to randomly assigning them to recall a nostalgic or ordinary memory. I predicted that nostalgia would increase well-being for participants who tend to focus on their own intrinsic and personal qualities, as they would be more likely to vividly reflect on the picture of themselves in their recalled memories. However, I expected nostalgia to have decreasing positive effects on well-being as participants' tendency to engage in self-reflection decreased (*H3*).

## **Chapter 5: Nostalgia's Effects on the Self-Concept and Well-Being are Determined by Inclusion and Exclusion Processes**

### **Study 1**

Nostalgia's positive outcomes are hypothesized to be the result of nostalgia bringing to mind a clear and positive working model of the self (Baldwin et al., 2015; Wildschut et al., 2006) and making positive and authentic self-attributes more accessible in cognition (Baldwin et al., 2015; Vess et al., 2012). However, empirical evidence has yet to demonstrate that nostalgia leads people to be any more confident in the positive self-concept that is reflected in nostalgic memories. It is only assumed that nostalgia's contribution to well-being is due to perceivers becoming more sure of who they really are, which influences (positively) evaluations of their current lives.

But of course, it is possible that nostalgia primes positive affect and/or positive concepts in general without leading to any changes in the self-concept specifically. Additionally, it is possible that the abstract nature of nostalgic memories (Stephan et al., 2012) would make people more confused, rather than more sure of who they really are. I addressed these possibilities in Study 1 by assessing participants' self-concept clarity after they recalled a nostalgic (vs. ordinary) memory. Going further, I tested for moderation by past-self inclusion, and predicted that nostalgia would promote self-concept clarity but only when perceived closeness to the past self was high.

### **Method**

Participants were 76 MTurk workers ( $M_{\text{age}} = 35.74$ ; 54% Female) who completed the survey for compensation (\$0.50). MTurk is an online program developed by Amazon in which tasks are outsourced to "workers" for payment. Although MTurk samples have been shown to

produce as reliable data as those obtained in a typical laboratory setting (Buhrmester, Kwang, & Gosling, 2011). Participants identified as White (82%), Asian (5%), Hispanic (4%), Black (3%), and “other” (2%). The remaining 4% of participants did not report their race.

**Memory conditions.** After reading a short information statement, participants were randomly assigned to recall a nostalgic or ordinary memory from their past. Participants in the nostalgia condition received the following prompt, which has been shown to reliably induce state nostalgia (Baldwin et al., 2015; Routledge et al., 2011; Wildschut et al., 2006):

Please think of a past event that you have personally experienced and that you think about in a nostalgic way. Specifically, please try to think of a part of the past that makes you feel most nostalgic. Please bring this event to mind and think it through for a few minutes before continuing on.

Participants in the control condition received instructions to write about an “ordinary event” from their past.

Please think of a specific ordinary event from your past that you personally experienced. Please bring this ordinary event to mind and think it through for a few minutes before continuing on.

Participants in both conditions described their memory in detail by typing into an essay text box. After the memory task, participants completed a 13-item affect measure that served to disguise the manipulation check item. Participants indicated how nostalgic they were feeling on a 7-point scale (1 = *slightly or not at all*, 7 = *extremely*).

**Self-concept clarity.** Participants were then instructed to think about “who you are currently” as they responded to the 12-item Self-Concept Clarity Scale (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996; Appendix A). Using a 5-point scale, participants

indicated their agreement with statements that reflected the extent to which their self-beliefs are clearly defined, consistent, and stable (e.g., “In general, I have a clear sense of who I am and what I am;” 1 = *strongly disagree*, 5 = *strongly agree*). Scores were averaged into a reliable measure ( $\alpha = .91$ ), with high scores indicating higher self-concept clarity.

**Memory questionnaire.** After the self-concept clarity measure, participants were asked to recall the memory they had written about earlier and to record the age they were during that time. They also indicated how close they felt to who they were during the time of the memory (1 = *not close at all*, 7 = *extremely close*), which served as the measure of inclusion of the past-self into the current self-concept. Participants also indicated the extent to which they were still in contact with people they interacted with during the time of the memory (1 = *not at all*, 7 = *very much*), how often the memory came to mind in their daily lives (1 = *not at all*, 7 = *very much*), and how much they would like to leave their current life and return to the time they had just thought about (1 = *not at all*, 7 = *very much*). These variables were assessed to account for other factors that are not directly related to inclusion per se, but that could still influence feelings of closeness. Finally, participants answered demographic questions before completing the study.

## Results

**Preliminary analyses.** First I tested whether age and temporal distance (current age minus memory age, in years) differed across conditions. Participants did not differ in age ( $p = .62$ ) but temporal distance was greater for nostalgia participants compared to control participants ( $M = 16.39$ ,  $SD = 13.79$  vs.  $M = 7.06$ ,  $SD = 8.91$ ),  $t(70) = 3.41$ ,  $p = .001$ ,  $d = .80$ . To account for the effects that temporal distance may have on the remaining outcome variables of interest, I controlled for temporal distance in all subsequent analyses.

As expected, nostalgia participants reported higher nostalgia compared to control

participants ( $M = 5.48$ ,  $SE = .32$  vs.  $M = 3.91$ ,  $SE = .32$ ),  $F(1, 69) = 11.36$ ,  $p = .001$ ,  $\eta_p^2 = .14$ . Nostalgia and control participants did not differ on inclusion of the past-self ( $p = .20$ )<sup>1</sup> or current connection to people they interacted with in their memory ( $p = .30$ ). Nostalgic memories were more familiar (brought to mind more often) than ordinary memories, ( $M = 4.30$ ,  $SE = .28$  vs.  $M = 2.64$ ,  $SE = .28$ ),  $F(1, 69) = 16.93$ ,  $p < .001$ ,  $\eta_p^2 = .20$ . Nostalgia participants also indicated a greater desire to leave their current lives for the one they recalled in their memory, ( $M = 4.60$ ,  $SE = .35$  vs.  $M = 3.68$ ,  $SE = .35$ ),  $F(1, 69) = 3.17$ ,  $p = .08$ ,  $\eta_p^2 = .04$ . Considering that these differences in memory familiarity and desire to return to the past may confound the effects of nostalgia and inclusion of the past-self on self-concept clarity, I included them as covariates in the primary analyses as well.

**Primary analyses.** To test the hypothesis that nostalgia (vs. control) would increase self-concept clarity for people who felt close to their past self, I regressed self-concept clarity on memory condition (dummy coded 1 = *nostalgia* and 0 = *control*), subjective closeness, and the memory condition  $\times$  subjective closeness interaction. Temporal distance, memory familiarity, and desire to return to the past were included as covariates.<sup>2</sup> The predicted memory condition  $\times$  subjective closeness interaction was significant,  $b = .28$ ,  $SE = .10$ ,  $t(65) = 2.84$ ,  $p = .006$ ,  $\Delta R^2_{\text{Interaction}} = .10$  (Figure 4).

To probe this interaction, conditional effects of memory condition were assessed at low (-1 SD) and high (+1 SD) levels of subjective closeness. The conditional effect of memory condition on self-concept clarity was not significant at low levels of closeness,  $b = -.05$ ,  $SE = .29$ ,  $t(65) = .18$ ,  $p = .86$ . In contrast, self-concept clarity was higher for nostalgia (vs. control)

<sup>1</sup> Subjective closeness was lower in the nostalgia condition (vs. the control condition) without controlling for temporal distance, which supports the inclusion of temporal distance as a covariate in the analyses. I was interested in the moderating effect of subjective closeness accounting for confounding effects of temporal distance.

<sup>2</sup> The effects looked very similar without these covariates.

participants who were high in subjective closeness,  $b = 1.00$ ,  $SE = .29$ ,  $t(65) = 3.51$ ,  $p < .001$ .

Conditional effects of closeness were also assessed within each memory condition. Subjective closeness was not associated with self-concept clarity in the control condition ( $p = .34$ ) whereas closeness was positively associated with self-concept clarity in the nostalgia condition,  $b = .21$ ,  $SE = .07$ ,  $t(65) = 2.97$ ,  $p = .004$ .

## **Discussion**

The results of Study 1 suggest that nostalgic memories can increase the clarity of one's self-concept. Participants who felt close to who they were in their nostalgic memories reported high self-concept clarity compared to those who did not feel close to who they were during that time. Furthermore, nostalgia participants who felt close to their past selves reported higher self-concept clarity compared to control participants who felt equally as close to their past selves. This simple effect is noteworthy, as it suggests that self-continuity does not contribute to a clear identity in general. Whereas prior theorizing and empirical evidence support the notion that "in order to have a sense of who we are, we have to have a notion of how we have become and of where we are going" (Taylor, 1989; p. 47 cited in Sani, 2008), the current findings demonstrate that continuity with the nostalgic self in particular is what results in a clearer sense of self. Studies 2-5 built on these findings and explored how temporal comparison processes moderate nostalgia's contribution to well-being.

## **Study 2**

Study 2 tested the same past-self inclusion mechanism as in Study 1 except with SWB and PWB as outcome variables. Moreover, Study 2 included additional items assessing past-self inclusion. In Study 1, inclusion was assessed with a single item asking participants how "close" they felt to who they were in their recalled memory. It was assumed that participants interpreted

this item to mean psychological (subjective) closeness, but it is obviously possible that some participants were thinking in literal terms and responded to the item with temporal or physical distance in mind. Three new items were included to better assess the extent to which participants included aspects of their past selves in their current self-concepts. Participants recalled a nostalgic or ordinary memory, indicated their positive and negative affect (SWB), and completed a measure assessing self-regard, social connectedness, meaning in life, and authenticity (PWB). The measure of past-self inclusion was presented last. I predicted that SWB and PWB would be higher for nostalgia participants but particularly when past-self inclusion was high.

### **Method**

Participants were 78 adults ( $M_{\text{age}} = 31.06$ ; 44% Female) who completed the survey on MTurk for compensation (\$0.50). They identified as White (71%), Hispanic (10%), Asian (9%), Black (5%), Indian (1%), and “other” (3%). One participant did not report race.

**Memory conditions.** Participants were randomly assigned to the same nostalgia and control conditions as in Study 1.

**Affect.** Following the memory task, participants completed a 24-item measure of positive and negative affect (PANAS; Watson, Clark, & Tellegen, 1988; Appendix B). Using a 7-point scale (1 = *slightly or not at all*, 7 = *extremely*) participants indicated how much they were feeling 10 positive emotions ( $\alpha = .90$ ) and 10 negative emotions ( $\alpha = .93$ ). Using the same rating scale, participants also responded to four items assessing state nostalgia (nostalgic, wistful, longing, sentimental;  $\alpha = .74$ ). Positive affect scores were averaged and high scores were conceptualized high SWB. Negative affect scores were averaged and low scores were conceptualized as high SWB. Nostalgia scores were averaged and served as a manipulation check. All items were presented in random order.

**Psychological well-being.** Following the memory task, participants indicated how their recalled memory made them feel on a variety of dimensions including *positive self-regard* (e.g., “makes me value myself more”), *social connectedness* (e.g., “makes me feel connected to loved ones”), and *meaning in life* (e.g., “makes me feel life has a purpose”). Items were borrowed from past research on the functions of nostalgia (Hepper et al., 2012). I also included three items intended to measure the established *authenticity* function of nostalgia (e.g., “makes me feel authentic;” Baldwin et al., 2014). Participants responded to all items using a 7-point scale (1 = *strongly agree*, 7 = *strongly disagree*) and high scores were conceptualized as high PWB ( $\alpha = .98$ ; Appendix C). Items were presented in random order.

**Inclusion of the past-self.** Following the well-being measure, participants indicated their age during the recalled event (memory age) and responded to four items assessing “who they were” during that time. As in Study 1, participants indicated how close they felt to who they were during the time of their recalled event (1 = *not close at all*, 7 = *extremely close*) but also indicated how connected they felt to who they were (1 = *not at all connected*, 7 = *extremely connected*) and how similar they felt to who they were (1 = *not at all similar*, 7 = *extremely similar*).

The final inclusion item was an adapted version of the Including the Other in the Self Scale (Aron, Aron, & Smollan, 1992) in which a series of increasingly overlapping Venn diagrams represents the relationship between two targets, one of which is usually “the self” and another is “the other.” In the current study, I asked participants to imagine that the circles in the diagrams represented the relationship between “who you are today” and “who you were during the time of your recalled memory.” Each of the five pairs of circles was labeled with a number and participants chose the set of circles that best represented their feelings. Scores for each of the

inclusion items were standardized and combined to form a reliable inclusion index ( $\alpha = .92$ ; Appendix D). Finally, participants reported demographics.

## Results

**Preliminary analyses.** First I tested whether age and temporal distance differed across conditions. Nostalgia participants were slightly older than control participants ( $M = 33.32$ ,  $SD = 11.25$  vs.  $M = 28.87$ ,  $SD = 9.19$ ),  $t(75) = 1.90$ ,  $p = .06$ ,  $d = .43$ . Nostalgia participants also recalled more distant memories compared to control participants ( $M = 17.42$ ,  $SD = 12.37$  vs.  $M = 6.10$ ,  $SE = 6.08$ ),  $t(75) = 5.12$ ,  $p < .001$ ,  $d = 1.16$ . Therefore age and temporal distance were included as covariates in all subsequent analyses.

Consistent with the manipulation, nostalgia participants were higher in state nostalgia compared to control participants ( $M = 3.58$ ,  $SE = .82$  vs.  $M = 2.78$ ,  $SE = .94$ ),  $F(1, 77) = 8.17$ ,  $p = .006$ ,  $\eta_p^2 = .10$ . Inclusion did not differ across conditions ( $p = .29$ ).

**Primary analyses.** To test the primary hypothesis that nostalgia (vs. control) would increase well-being for people who included their past self in their current self-concept, I conducted separate regression analyses for negative affect, positive affect, and PWB as outcomes. Each outcome was regressed on memory condition (dummy coded 1 = *nostalgia* and 0 = *control*), the inclusion index, and the memory condition  $\times$  inclusion interaction. I included current age and temporal distance as covariates.<sup>3</sup>

There were no effects for negative affect ( $ps > .11$ ), and positive affect was affected only by the main effect of memory condition,  $F(1, 77) = 4.11$ ,  $p = .05$ ,  $\eta_p^2 = .05$ . Nostalgia participants reported higher positive affect compared to control participants ( $M = 3.27$ ,  $SE = .74$  vs.  $M = 3.02$ ,  $SE = .89$ ). The memory condition  $\times$  inclusion interaction was not significant ( $p > .77$ ).

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<sup>3</sup> The effects looked very similar without these covariates.

However, psychological well-being was affected by the memory condition  $\times$  inclusion interaction,  $b = .83$ ,  $SE = .34$ ,  $t(71) = 2.43$ ,  $p = .02$ ,  $\Delta R^2_{\text{Interaction}} = .05$  (Figure 5). To probe this interaction, conditional effects of memory condition were assessed at low (-1 SD) and high (+1 SD) levels of inclusion. The conditional effect of nostalgia was not significant at low levels of inclusion,  $b = .55$ ,  $SE = .43$ ,  $t(71) = 1.27$ ,  $p = .21$ . In contrast, PWB was higher for nostalgia (vs. control) participants at high levels of inclusion,  $b = 2.00$ ,  $SE = .47$ ,  $t(71) = 4.21$ ,  $p < .001$ . Conditional effects of inclusion were also assessed within each memory condition. Inclusion was not associated with PWB in the control condition ( $p = .43$ ) whereas inclusion was positively associated with well-being in the nostalgia condition,  $b = 1.01$ ,  $SE = .25$ ,  $t(71) = 4.06$ ,  $p < .001$ .

## **Discussion**

Results of Study 2 support the notion that the well-being that results from recalling a nostalgic memory is influenced by the extent to which people include their nostalgic memories into representations of their current selves. Supporting predictions, recalling a nostalgic (vs. ordinary) memory resulted in higher PWB for participants who were high on past-self inclusion but not for participants who were low on past-self inclusion. Moreover, PWB was positively associated with inclusion but only for nostalgia participants—the extent to which control participants included their ordinary past selves in their current self-concepts did not predict PWB. These effects of past-self inclusion on PWB further demonstrate that self-continuity has positive implications for self and identity when people feel connected to a nostalgic self in particular.

Study 2 did not support the notion that inclusion/exclusion processes moderate the effects of nostalgia on SWB (positive and negative affect). Although results replicated nostalgia's general SWB function, as evidenced by nostalgia (vs. control) increasing overall positive affect,

this effect did not depend on levels of past-self inclusion. This lack of moderation might mean that participants did not need to use features of their past selves to construct representations of their current feelings because their feelings were unambiguous. Indeed, nostalgic memories are positive for most people (Holak & Havlena, 1998; Wildschut et al., 2006) and thus, it might be possible that the main effect of nostalgia on positive affect is due to an assimilative process that is not captured by the inclusion/exclusion mechanism. This possibility is discussed in Studies 4 and 5.

In sum, Studies 1 and 2 provide initial evidence that nostalgia is a positive resource for the self, particularly when individuals include features of their nostalgic selves in their current self-concepts. In Study 1, nostalgia led participants to feel more confident about who they were, and to rate their self-concepts as more clear, consistent, and stable, but particularly when they felt close to who they were in their memory. In Study 2, participants reported higher PWB, which was assessed with a broad set of items measuring feelings of positive self-regard, social connectedness, meaning in life, and authenticity. Importantly, inclusion in both studies was a significant moderator of nostalgia's effects after controlling for temporal distance, meaning that the effects were not attributable to objective distance between past and present selves.

However, controlling for temporal distance also highlights a potential limitation of the IEM when making predictions about nostalgia's well-being effects. In both Studies 1 and 2, participants' nostalgic memories were more temporally distant, on average, when compared to ordinary memories. Stephan et al. (2012) reported a similar discrepancy: Nostalgic memories were more distant both in time and in space (nostalgic events took place further away) compared to ordinary memories. These findings are problematic in light of prior research showing that temporal distance leads to exclusion of past events from current self-construals. For instance,

current life satisfaction was shown to contrast away from a previously recalled event when that event took place in the distant (vs. recent) past (Strack et al., 1999). Other research shows that people will deliberately disparage distant past-selves in order to see the current self as having improved over time (a contrast effect; Wilson & Ross, 2001).

A limitation of Studies 1 and 2, then, is that controlling for temporal distance in order to get an unbiased measure of inclusion is somewhat artificial. A more compelling account of nostalgia's well-being effects would be evidence for a comparison mechanism that leads to assimilation effects independently of temporal distance; that is, even when temporal distance is greater for nostalgic (vs. ordinary) memories. Study 3 explores the selective accessibility mechanism as one such possibility.

## **Chapter 6: Nostalgia's Effects on Well-Being are Determined by a Selective Accessibility**

### **Mechanism**

#### **Study 3**

Study 3 aimed to provide a more ecologically valid test of the comparison processes that modulate nostalgia's contribution to well-being by allowing for natural differences in temporal distance between nostalgic and ordinary memories. On the basis of the SAM, assimilation should result from a focus on similarities between the target and standard, which is induced after deciding that the target and standard are similar to one another on broad dimensions. Although temporal distance might contribute to this initial decision, it is not inevitable that high distance will lead to a search for differences (or that low distance will lead to a search for similarities) especially if contextual variables encouraging a similarity (difference) focus are more prevalent. For instance, reminding people of categorical differences between their current and past selves will lead to contrast effects even when temporal distance is relatively low (Strack et al., 1999). On this basis, it is also conceivable that a focus on broad similarities between the current and past selves (e.g., "they are both *me*") could lead to assimilation effects even when temporal distance is relatively high.

Study 3 tested whether a focus on similarities versus differences would moderate nostalgia's well-being effects independently of temporal distance. Participants were randomly assigned to an incidental similarity or difference focus induction and then were randomly assigned to recall a nostalgic or ordinary memory. The study was a 2 (accessibility: similarity vs. difference)  $\times$  2 (memory: nostalgia vs. control) between-subjects experiment.

#### **Method**

Participants were 122 adults ( $M_{\text{age}} = 35.17$ ; 54% Female) who completed the survey on

MTurk for compensation (\$0.50). They identified as White (71%), Black (8%), Asian (5%), Hispanic (4%), and “other” (3%). Approximately 9% of participants were multiracial.

**Selective accessibility conditions.** Participants read a short information statement that described the study as examining memory and personality. Instructions indicated to participants that they would complete two ostensibly unrelated tasks. The first task (the focus induction) was described as a pilot test for a future study on event memory. Participants were shown two pencil drawings simultaneously (Figure 2) and were randomly assigned to determine either as many similarities or as many differences between the pictures as possible. This accessibility prime has been used in prior social comparison research and reliably primes similarity and difference testing strategies that carry over across experimental tasks (Mussweiler, 2001a). Participants were allowed to gaze at the pictures for as long as they wanted before listing the similarities (differences) in a text box.

**Memory conditions.** Following the selective accessibility prime, an ostensible loading screen was displayed for eight seconds after which point the next page loaded automatically. After reading brief instructions describing the next portion of the survey as examining autobiographical memory and personality, participants were randomly assigned to similar nostalgia and control conditions from Studies 1 and 2. Following the memory task, participants indicated how similar they felt to who they were in the recalled event (1 = *not at all similar*; 7 = *very similar*), which served as a manipulation check that the similarity focus induction led participants to see more similarities between their current and past selves.

**Affect.** Following the accessibility prime and memory recall task, participants completed the same 20-item measure of positive and negative affect used in Study 2 ( $\alpha = .93$ ), and responded to the same four items assessing state nostalgia ( $\alpha = .86$ ). As in Study 2, high positive

affect and low negative affect was conceptualized as high SWB. Nostalgia scores were averaged and served as a manipulation check. All items were presented in random order.

**Psychological well-being.** Participants then completed the same measure of PWB as in Study 2 ( $\alpha = .95$ ) and answered demographics.

## Results

**Preliminary analyses.** As in the previous studies, I first tested for differences in age and temporal distance across conditions. A 2 (accessibility: similarity vs. difference)  $\times$  2 (memory: nostalgia vs. control) analysis of variance (ANOVA) with age as the outcome revealed a main effect of memory such that nostalgia participants were slightly younger than control participants ( $M = 32.93$ ,  $SD = 10.28$  vs.  $M = 37.34$ ,  $SD = 12.19$ ),  $F(1, 118) = 4.54$ ,  $p = .04$ ,  $\eta_p^2 = .04$ . Neither the main effect of accessibility, nor the accessibility  $\times$  memory interaction was significant ( $ps > .16$ ). A main effect of memory also emerged for temporal distance, such that nostalgia participants' memories were more distant ( $M = 18.25$ ,  $SD = 13.05$  vs.  $M = 5.81$ ,  $SD = 10.82$ ),  $F(1, 118) = 33.26$ ,  $p < .001$ ,  $\eta_p^2 = .22$ . No other effects were significant for temporal distance ( $ps > .21$ ).

As expected, the 2  $\times$  2 ANOVA revealed a main effect of memory on state nostalgia, such that nostalgia participants felt more nostalgic compared to control participants ( $M = 4.55$ ,  $SD = 1.36$  vs.  $M = 2.95$ ,  $SD = 1.69$ ),  $F(1, 118) = 32.78$ ,  $p < .001$ ,  $\eta_p^2 = .22$ . Neither the main effect of accessibility, nor the accessibility  $\times$  memory interaction, was significant for state nostalgia ( $ps > .59$ ).

Attesting to the validity of the selective accessibility prime, the 2  $\times$  2 ANOVA revealed a main effect of accessibility on perceived similarity to the past self,  $F(1, 118) = 5.36$ ,  $p = .02$ ,  $\eta_p^2 = .04$ . Participants in the similarity condition felt more similar to their past selves compared to

those in the difference condition ( $M = 5.45$ ,  $SD = 1.52$  vs.  $M = 4.81$ ,  $SD = 1.83$ ). A main effect of memory also emerged, such that participants in the nostalgia condition felt less similar to their past selves compared to participants in the control condition ( $M = 4.55$ ,  $SD = 1.56$  vs.  $M = 5.68$ ,  $SD = 1.68$ ),  $F(1, 118) = 15.49$ ,  $p < .001$ ,  $\eta_p^2 = .12$ . The accessibility  $\times$  memory interaction was not significant ( $p = .30$ ).

**Primary analyses.** To test the primary hypothesis that nostalgia's effect on well-being would be moderated by whether similar or dissimilar features of the current and past-self were accessible, I conducted separate 2 (accessibility: similarity vs. difference)  $\times$  2 (memory: nostalgia vs. control) ANOVAs, with negative affect, positive affect, and PWB as the dependent variables. No effects were significant for negative and positive affect ( $ps > .26$ ; I return to the meaning of these null effects later). For PWB, the main effect of accessibility was not significant ( $p = .34$ ) whereas the main effect of memory was significant, such that nostalgia participants reported greater PWB compared to control participants ( $M = 4.80$ ,  $SD = 1.28$  vs.  $M = 3.92$ ,  $SD = 1.51$ ),  $F(1, 118) = 12.87$ ,  $p = .001$ ,  $\eta_p^2 = .10$ . This main effect was qualified by a significant accessibility  $\times$  memory interaction,  $F(1, 118) = 4.95$ ,  $p = .03$ ,  $\eta_p^2 = 0.04$  (Figure 6).

Simple effects tests revealed that, as predicted, nostalgia (vs. control) participants reported higher PWB in the similarity condition ( $M = 5.20$ ,  $SD = 1.08$  vs.  $M = 3.76$ ,  $SD = 1.37$ ),  $F(1, 118) = 13.39$ ,  $p < .001$ ,  $\eta_p^2 = 0.12$ , but not in the difference condition ( $p = .35$ ). Moreover, similarity-focused (vs. difference-focused) participants reported higher PWB in the nostalgia condition ( $M = 5.20$ ,  $SD = 1.07$  vs.  $M = 4.40$ ,  $SD = 1.35$ ),  $F(1, 118) = 5.02$ ,  $p = .03$ ,  $\eta_p^2 = 0.04$ , but not in the control condition ( $p = .37$ ).<sup>4</sup>

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<sup>4</sup> As I expected, these patterns of results looked very similar when controlling for age and temporal distance.

## Discussion

Study 3 tested the hypothesis that nostalgia will result in higher well-being when a focus on similarities (vs. differences) is induced. Results support this hypothesis with regard to PWB but not SWB. PWB was higher for participants who recalled a nostalgic (vs. ordinary) memory but particularly when a similarity focus was induced prior to recalling the memory. PWB was higher for similarity-focused (vs. difference-focused) participants in the nostalgia condition whereas this effect did not emerge for participants in the control condition. In line with the SAM, these data suggest that a similarity focus brought to mind features of participants' current lives that are consistent with the time reflected in their nostalgic memories, which included thoughts about their authentic and positive qualities as well as meaningful experiences with close others (Baldwin et al., 2015; Wildschut et al., 2006).

As was the case in Study 2, I did not find evidence for assimilation/contrast on measures of positive and negative affect, nor was there evidence for main effects of nostalgia on positive and negative affect. However, further analyses revealed that although the interactions of accessibility and memory on both positive and negative affect were not statistically significant, the patterns of predicted effects were apparent. Positive affect was higher for nostalgia (vs. control) participants in the similarity focus condition, but lower for nostalgia (vs. control) participants in the difference focus condition. Similarly, negative affect was lower for nostalgia (vs. control) participants in the similarity focus condition, but this effect was reversed in the difference focus condition. These "cross-over" patterns explain why main effects of memory condition did not emerge as opposite effects of memory condition across the accessibility conditions canceled each other out.

Also consistent with Study 2, I did not find evidence of contrast on the measure of PWB

in Study 3—that is, the difference focus induction did not result in lower PWB for nostalgia participants relative to control participants. A focus on differences between the current and nostalgic self does not appear to make features of the current self salient that would result in lower well-being. Instead, it may be that a general difference focus leads participants to focus on things like “I am older now than I was then,” “I have more experience now,” or “Things are different now, but not better or worse.” Cognitions such as these would not necessarily bear on current PWB. Alternatively, the difference focus induction may have led participants to exclude features of their memories in such a way that standard-inconsistent cognitions did not come to mind at all. Contrast against the past self may only occur when it is viewed as a mutually exclusive entity, such as when comparing one’s high school and college selves (Iyer & Jetten, 2011; Strack et al., 1999).

Overall, Studies 2 and 3 provide converging evidence that nostalgia’s well-being function is the result of assimilative temporal comparison processes. PWB was higher after recalling a nostalgic memory when nostalgic-self inclusion was high (Study 2), and when a similarity focus was induced (Study 3). Importantly, the effects of Study 2 emerged even though participants’ nostalgic memories were, on average, relatively more distant than their ordinary memories. Thus, the selective accessibility mechanism can operate independently of temporal distance in contexts that encourage a focus on similarities. In these contexts, a focus on similarities interacts with mental construal processes, and thus enhances inclusion of the nostalgic self in current self-construals (see Figure 3; also Mussweiler, 2003). The final aim of the current research was to determine the variables that encourage a focus on similarities during mental simulation. On the basis of the REM (Markman & McMullen, 2003), Studies 4 and 5 explore how reflective (vs. evaluative) mental simulation influence nostalgia’s contribution to well-being.

## Chapter 7: Nostalgia's Effect on Well-Being is Determined by Mental Simulation Processes

### Study 4

As depicted in Figure 3, reflective and evaluative mindsets will determine whether perceivers' well-being ratings assimilate to, or contrast from, their nostalgic memories. According to the REM, comparing the self to a salient standard requires some degree of mental simulation—one has to *imagine* how the self is related to the standard (Markman & McMullen, 2003). In the case of nostalgia, the initial step is a vivid simulation of the event as if it is happening. This reflective, or experiential, mode of simulation enhances inclusion and similarity testing processes and thus, leads to assimilation effects. However, if contextual variables call for using the nostalgic event as a reference point to make judgments about one's current self or standing, exclusion and difference testing processes are initiated and the result is either a contrast effect or a null effect (Figure 3). These simulation styles should also operate independently of temporal distance. For instance, one could vividly re-live an event that occurred many years ago (reflection and assimilation), or evaluate one's current standing relative to an event that occurred very recently (evaluation and contrast), as long as contextual variables promote these mental simulation styles.

Study 4 tested general predictions that follow from the foregoing account. Participants were first randomly assigned to recall an ordinary or nostalgic memory. After thinking about the gist of their memory, participants were again randomly assigned to further imagine the event as if it was happening again (reflection condition) or to think about how their memory compared to their current lives (evaluation condition). The study was a 2 (memory: control vs. nostalgia)  $\times$  2 (simulation: evaluation vs. reflection) between-subjects experiment.

I predicted that nostalgia (vs. control) would result in higher well-being but particularly

for participants in the reflection condition. I did not have strong predictions about effects of nostalgia (vs. control) on well-being in the evaluation condition; the REM predicts that nostalgia participants would report lower well-being relative to control participants due to comparing their present lives to a relatively more positive past. Alternatively, nostalgia participants may not differ from control participants if the evaluation induction leads them to decide that their past-selves are irrelevant for judgments of present well-being, an effect that would be consistent with results of Studies 2 and 3 (and depicted in Figure 3).

## **Method**

Participants were 145 MTurk workers ( $M_{\text{age}} = 34.71$ ; 61% Female) who completed the survey for compensation (\$1.00). They identified as White (69%), Black (8%), Asian (6%), Hispanic (6%), American Indian (1%), and “other” (5%). Seven participants indicated more than one race (5%).

**Memory conditions.** Participants read that the study was about the relationship between imagination and memory and were randomly assigned to recall a nostalgic or ordinary memory from their past. Instructions were similar to those in Studies 2 and 3 except that participants in the current study were asked to spend a few moments thinking about the gist of the memory before typing four keywords into separate text boxes.

**Mental simulation conditions.** After briefly thinking about the memory, participants were randomly assigned to reflection and evaluation conditions that asked them to consider their memories in further detail. In the reflection condition, participants received the following instructions, which were based on those used in prior research (Markman, 1997):

Close your eyes and try to re-live your memory as much as possible, putting yourself back in that situation and vividly imagining it as it is happening again. As you think about

the event, try to make your memory of the event as detailed as possible.

In contrast, participants in the evaluation condition were given the following instructions, again based on prior research (Markman, 1997):

Close your eyes as you think about your memory and compare the event to what your life is like today. In other words, think about the event in comparison to situations and experiences in your current life. As you compare the event to your life today, try to make the comparison as detailed as possible.

Participants typed their responses into a text box. After one minute, a “continue” button appeared at the bottom of the screen at which point participants could proceed with the remainder of the study. However, all participants were told explicitly that they could continue writing for as long as they would like. I recorded the amount of time participants spent writing about their memories and obtained word counts for their memories.

**Affect.** Following the memory and mental simulation tasks, participants completed the same 20-item measure of positive and negative affect used in Studies 2 and 3 ( $\alpha = .93$ ), and responded to the same four items assessing state nostalgia (nostalgic, wistful, longing, sentimental;  $\alpha = .85$ ). As in previous studies, high positive affect and low negative affect was conceptualized high subjective well-being. Nostalgia scores were averaged and served as a manipulation check. All items were presented in random order.

**Psychological well-being.** Finally, participants completed the same measure of PWB as in Studies 2 and 3 ( $\alpha = .96$ ) and answered demographic questions.

## Results

**Preliminary analyses.** First, I conducted a 2 (memory: control vs. nostalgia)  $\times$  2 (simulation: evaluation vs. reflection) analysis of variance (ANOVA) to test whether age and

temporal distance differed across conditions. A main effect of memory emerged for age such that nostalgia participants were slightly younger than control participants ( $M = 33.07$ ,  $SD = 10.81$  vs.  $M = 36.52$ ,  $SD = 11.76$ ),  $F(1, 141) = 3.64$ ,  $p = .06$ ,  $\eta_p^2 = 0.03$ . Age did not differ across simulation conditions nor was there a significant interaction ( $p > .11$ ). Main effects of simulation and memory emerged for temporal distance. Temporal distance was higher in the evaluation condition compared to the reflection condition ( $M = 13.84$ ,  $SD = 10.95$  vs.  $M = 10.11$ ,  $SD = 11.97$ ),  $F(1, 141) = 4.37$ ,  $p = .04$ ,  $\eta_p^2 = 0.03$  and for nostalgia participants compared to control participants ( $M = 15.00$ ,  $SD = 11.68$  vs.  $M = 8.55$ ,  $SD = 10.59$ ),  $F(1, 141) = 11.92$ ,  $p = .001$ ,  $\eta_p^2 = 0.08$ . The interaction was not significant ( $p = .19$ ).

I also examined whether writing time and word count differed across conditions, as differences in the *extent* to which people engaged in mental simulation might influence the predicted effects. Participants wrote marginally more words in the reflection (vs. evaluation) condition, ( $M = 68.63$ ,  $SD = 46.27$  vs.  $M = 56.67$ ,  $SD = 35.77$ ),  $F(1, 141) = 3.11$ ,  $p = .08$ ,  $\eta_p^2 = 0.02$ , but no other effects were significant ( $ps > .28$ ).

Finally, I tested whether the memory manipulation was effective: As expected, the main effect of memory on state nostalgia was significant,  $F(1, 141) = 17.13$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . Participants in the nostalgia condition felt more nostalgic than those in the control condition ( $M = 4.75$ ,  $SD = 1.42$  vs.  $M = 3.64$ ,  $SD = 1.78$ ). Neither the main effect of simulation condition, nor the memory  $\times$  simulation interaction, was significant ( $ps > .44$ ).

**Primary analyses.** To test the primary hypothesis that nostalgia would increase well-being for participants in the reflection (vs. evaluation) condition, I conducted the same  $2 \times 2$  ANOVA as above with positive affect, negative affect, and PWB as dependent variables.

**Positive affect.** Participants in the reflection condition reported higher positive affect

compared to participants in the evaluation condition ( $M = 4.18$ ,  $SD = 1.41$  vs.  $M = 3.68$ ,  $SD = 1.42$ ),  $F(1, 141) = 4.24$ ,  $p = .04$ ,  $\eta_p^2 = 0.03$ . The main effect of memory condition was not significant, but the memory  $\times$  simulation interaction was,  $F(1, 141) = 4.09$ ,  $p = .05$ ,  $\eta_p^2 = 0.03$  (Figure 7).

Simple effects tests within the simulation conditions revealed that nostalgia (vs. control) participants expressed more positive affect in the reflection condition ( $M = 4.53$ ,  $SD = 1.33$  vs.  $M = 3.81$ ,  $SD = 1.42$ ),  $F(1, 141) = 5.07$ ,  $p = .03$ ,  $\eta_p^2 = 0.04$ , but not in the evaluation condition ( $p = .53$ ). Simple effects of simulation within each memory condition revealed that reflection (vs. evaluation) increased positive affect for nostalgia participants ( $M = 4.53$ ,  $SD = 1.33$  vs.  $M = 3.58$ ,  $SD = 1.48$ ),  $F(1, 141) = 8.76$ ,  $p = .004$ ,  $\eta_p^2 = 0.06$ , but not for control participants ( $p = .98$ ).

**Negative affect.** Neither the main effects of simulation and memory conditions, nor the memory  $\times$  simulation interaction were significant for negative affect ( $ps > .14$ ).

**Psychological well-being.** A main effect of memory condition emerged such that nostalgia participants expressed greater PWB compared to control participants ( $M = 4.76$ ,  $SD = 1.40$  vs.  $M = 4.08$ ,  $SD = 1.55$ ),  $F(1, 141) = 7.34$ ,  $p = .008$ ,  $\eta_p^2 = 0.05$ . The main effect of simulation was not significant ( $p = .57$ ) but there was a significant memory  $\times$  simulation interaction,  $F(1, 141) = 6.53$ ,  $p = .01$ ,  $\eta_p^2 = 0.04$  (Figure 8).

Simple effects tests revealed that nostalgia (vs. control) participants expressed greater PWB in the reflection condition ( $M = 5.12$ ,  $SD = 1.08$  vs.  $M = 3.86$ ,  $SD = 1.57$ ),  $F(1, 141) = 14.36$ ,  $p < .001$ ,  $\eta_p^2 = 0.09$ , but not in the evaluation condition ( $p = .92$ ). Moreover, PWB was higher in the reflection (vs. evaluation) condition for nostalgia participants ( $M = 5.12$ ,  $SD = 1.08$  vs.  $M = 4.37$ ,  $SD = 1.59$ ),  $F(1, 141) = 5.11$ ,  $p = .03$ ,  $\eta_p^2 = 0.04$ , and the opposite pattern approached statistical significance for control participants ( $M = 3.86$ ,  $SD = 1.57$  vs.  $M = 4.34$ ,

$SD = 1.53$ ),  $F(1, 141) = 1.89$ ,  $p = .17$ ,  $\eta_p^2 = 0.01$ .<sup>5</sup>

## Discussion

Study 4 provides further support for the hypothesis that nostalgia increases well-being when assimilation to the past-self is likely. Participants who recalled a nostalgic memory reported more positive affect and higher PWB when they were instructed to imagine the event as if it was happening again (reflection) compared to when they were instructed to compare the event to their current lives (evaluation). Further, nostalgia led to increased positive affect and PWB compared to recalling an ordinary memory, but only in the reflection condition. Taken together, these findings show that nostalgia's well-being function is determined by *how* people think about their nostalgic memories—whether they reflect on the event itself or whether they think about the comparison between the event and their present lives.

Study 4 compliments Studies 2 and 3 in a crucial way, as it demonstrates evidence for assimilation of general positive affect (SWB). The experiential mode of mental simulation that characterizes reflective processing was more influential for SWB than the feature-based inclusion and similarity testing mechanisms tested in Studies 2 and 3. It appears as though the affective benefits of nostalgia (e.g., happiness) are determined by the tendency to vividly experience the memory as if it is happening again, whereas benefits for the self-concept (e.g., feeling authentic) are determined by the degree of past and current-self inclusion/similarity. However, considering that the REM describes reflective mental simulation as enhancing the inclusion and selective accessibility mechanisms described by the IEM and SAM (Markman & McMullen, 2003), the REM provides a fuller account of nostalgia's well-being function as the REM can describe the antecedents to inclusion and similarity testing that occur during nostalgic

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<sup>5</sup> As in Study 3, these effects looked very similar when controlling for age and temporal distance.

recollection.

Study 4 used experimental inductions of reflection and evaluation, but other naturally occurring contextual variables might also promote reflective (vs. evaluative) mental simulation. In Study 5, reflection is operationalized in terms of trait self-reflection; this study tests whether individual differences in self-reflection moderate nostalgia's contribution to well-being.

### **Study 5**

What contextual variables encourage the experiential mode of mental simulation that leads people to vividly reflect on counterfactual events? According to the REM, focusing explicitly on the past or counterfactual event (vs. switching attention between the event and current reality) is synonymous with reflection. Put in terms of autobiographical recall, reflection should be more likely to occur for those who are relatively introspective; that is, those who tend to consider their own personal feelings, to think about who they are inside, and to reflect on the meaning of their self-attributes. For people high in self-reflection, recalling an autobiographical memory should enhance these tendencies, as memories provide valuable information about the self. Thus, recalling a memory should prompt reflective mental simulation for individuals high in self-reflection, which will mean higher well-being for these individuals if the recalled memory is a nostalgic one (vs. an ordinary one).

Study 5 tested this hypothesis by assessing individuals' trait levels of self-reflection as a moderator of nostalgia's effect on well-being. Self-reflection was assessed with a measure of private self-consciousness developed according to conceptualizations by Buss (1980) and others (e.g., Scheier, 1980). The scale measures the extent to which people "focus on the more personal, covert, and unshared aspects of the self" and high scores indicate someone who is "generally self-reflective and introspective" (Scheier, 1980, p. 515). If self-reflection encourages reflective

mental simulation of autobiographical memories, then recalling a nostalgic (vs. ordinary) memory should result in well-being particularly for people high in private self-consciousness.

Moreover, I predicted that self-reflection specifically, and not reflective tendencies in general, would moderate nostalgia's effects on well-being. To test this prediction, I also measured the extent to which participants prefer, and engage in, imaginative, curious, and "unrestricted" thinking, which are components of the Big Five personality factor *intellect/openness* (Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger, & Gough, 2006; Hofstee, De Raad, & Goldberg, 1992). Items assessed general reflective tendencies that are not self-focused. General reflection was included, along with self-reflection, as a moderator of nostalgia's effects on well-being.

## Method

Participants were 80 Introductory Psychology students ( $M_{\text{age}} = 19.41$ ; 49% Female) who completed the survey for partial course credit. They identified as White (82%), Asian (9%), Black (5%), Hispanic (3%), and "other" (1%).

**Trait reflection.** After reading a brief information statement, participants completed two measures of trait reflection. A 10-item private self-consciousness scale was used as a measure of self-reflection (e.g., "I am constantly reflecting about myself;" Goldberg et al., 2006).

Participants used a 7-point scale to rate how much each statement described themselves (1 = *not at all like me*, 7 = *very much like me*) and the items formed a reliable composite, with higher numbers reflecting higher self-reflection ( $\alpha = 0.77$ ; Appendix E). An 8-item imagination scale was used as the measure of general reflective tendencies (e.g., "I have a vivid imagination;" Goldberg et al., 2006). Participants used a 7-point scale to rate how much each statement described themselves (1 = *not at all like me*, 7 = *very much like me*) and the items formed a

reliable composite, with higher numbers reflecting higher general reflection ( $\alpha = 0.84$ ; Appendix F). Scales were presented in random order.

**Memory conditions.** After completing the reflection measures, participants were randomly assigned to the same nostalgia and control conditions from Studies 1-4.

**Well-being.** Participants then completed the same measure of PWB as in Studies 2-4. Four additional items were included to measure memory-induced positive affect (SWB) consistent with prior research regarding the unique affective signature of nostalgia (Hepper et al., 2012; Appendix C). These positive affect items reflect, specifically, how much the memory induced positive feelings (e.g., “this memory makes me feel happy”). No measures of negative affect were included. Embedded in the well-being scale was a single item manipulation check (“Thinking about this memory makes me feel nostalgic”).

## Results

**Preliminary analyses.** Independent samples *t*-tests revealed that nostalgia and control participants did not differ in self-reflection or general reflection ( $ps > .54$ ). Age did not differ by condition ( $p = .19$ ) although nostalgia participants recalled more distant memories ( $M = 5.90, SD = 4.51$  vs.  $M = 2.58, SD = 2.96$ ),  $t(75) = 3.80, p < .001, d = .87$ . As expected, participants in the nostalgia condition felt more nostalgic than participants in the control condition ( $M = 5.69, SD = 1.26$  vs.  $M = 3.45, SD = 1.66$ )  $t(75) = 6.71, p < .001, d = 1.52$ .

**Primary analyses.** Nostalgia participants reported higher SWB, ( $M = 5.70, SD = 1.27$  vs.  $M = 4.58, SD = 1.32$ ),  $t(75) = 3.79, p < .001, d = .81$ , and higher PWB, ( $M = 5.44, SD = 1.13$  vs.  $M = 4.51, SD = 1.17$ ),  $t(75) = 3.55, p = .001, d = .86$ , compared to control participants. To test the prediction that nostalgia’s effect on SWB and PWB would be moderated by self-reflection specifically, and not reflection in general, I regressed each measure of well-being on memory

condition (dummy coded 1 = *nostalgia* and 0 = *control*), self-reflection, general reflection, and the memory  $\times$  self-reflection and memory  $\times$  general reflection interactions (see Table 1 for the regression models).

***Subjective well-being.*** The anticipated memory  $\times$  self-reflection interaction was significant for SWB ( $\Delta R^2 = .08$ ) whereas the memory  $\times$  general reflection interaction was not (Table 1). To probe the significant memory  $\times$  self-reflection interaction, I conducted a separate regression analysis including memory, self-reflection, and the memory  $\times$  self-reflection interaction as predictors of SWB. Conditional effects of memory were assessed at low (-1 SD) and high (+1 SD) levels of self-reflection. As predicted, SWB was higher for nostalgia (vs. control) participants when self-reflection was high,  $b = 1.96$ ,  $SE = .40$ ,  $t(73) = 4.99$ ,  $p < .001$ , but not when self-reflection was low ( $p = .54$ ; Figure 9). Additionally, the conditional effect of self-reflection on SWB was trending and positive for nostalgia participants,  $b = .39$ ,  $SE = .25$ ,  $t(73) = 1.56$ ,  $p = .12$ , but was significantly negative for control participants,  $b = -.67$ ,  $SE = .25$ ,  $t(73) = 2.71$ ,  $p = .008$ .

***Psychological well-being.*** The anticipated memory  $\times$  self-reflection interaction was significant for SWB ( $\Delta R^2 = .09$ ) whereas the memory  $\times$  general reflection interaction was not (Table 1). To probe the significant memory  $\times$  self-reflection interaction, I conducted a separate regression analysis including memory, self-reflection, and the memory  $\times$  self-reflection interaction as predictors of PWB. Conditional effects of memory were assessed at low (-1 SD) and high (+1 SD) levels of self-reflection. As predicted, PWB was higher for nostalgia (vs. control) participants when self-reflection was high,  $b = 1.69$ ,  $SE = .36$ ,  $t(73) = 4.75$ ,  $p < .001$ , but not when self-reflection was low ( $p = .66$ ; Figure 10). Additionally, the conditional effect of self-reflection on PWB was positive for nostalgia participants,  $b = .43$ ,  $SE = .22$ ,  $t(73) = 1.90$ ,  $p = .06$ ,

but was significantly negative for control participants,  $b = -.52$ ,  $SE = .22$ ,  $t(73) = 2.40$ ,  $p = .02$ .<sup>6</sup>

## Discussion

Study 5 lends support for the notion that nostalgia leads to well-being when people are encouraged to reflect on who they were in their recalled memory. Individuals who were prone to self-reflection were more likely to benefit from their nostalgic memories than those who were not prone to self-reflection. Moreover, those high in self-reflection showed reduced well-being as a result of recalling an ordinary memory. These effects suggest that individuals high in self-reflection, as a result of seeking out valuable information about themselves, tend to imagine autobiographical memories as they are real or true. Doing so is advantageous if the memory reflects positively on the self, as is the case with nostalgia, but may be disadvantageous if the memory reflects negatively on the self (a situation not studied here).

The current study also demonstrates assimilation (contrast) on the measure of SWB, which is somewhat inconsistent with the previous studies. However, the measure of SWB in Study 5 differed from previous measures in that participants rated their memory-induced positive affect (e.g., “This memory makes me feel good”) whereas previous measures asked participants to rate how they were feeling “right now.” Thus, the effects of nostalgia on state SWB might depend on how people are considering their feelings in light of their recalled memory. In Study 5, instructions prompted participants to use their recalled memory to inform their feelings (inclusion) and SWB ratings assimilated to the memory as a function of self-reflection. In Studies 2-4, instructions did not prompt participants to use their recalled memory when indicating their feelings (exclusion), and thus, SWB ratings were not by moderated by temporal comparison processes in general.

Another implication of these findings is that nostalgia may be a liability for individuals

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<sup>6</sup>These effects for both PWB and SWB looked very similar when controlling for age and temporal distance.

low in private self-consciousness. It could be that low scores on the self-consciousness measure correspond to a negative form of self-consciousness, namely, *ruminatio*n (Trapnell & Campbell, 1999). The scale items used in this study more closely resembled a form of self-reflection associated with positive epistemic drives like curiosity and need for understanding (e.g., “I look for hidden meaning in things”) as opposed to negative, evaluative drives prompted by worry or anxiety, which are characteristic of rumination (Trapnell & Campbell, 1999). Although it is not possible to determine if low scorers on the current measure were indeed high in ruminative self-focus, comparing the current research to similar findings is suggestive. Verplanken (2012) showed that participants characterized as obsessive worriers (i.e., those likely to ruminate on their problems) experienced lower well-being after recalling a nostalgic memory, much like individuals low in private self-consciousness in the current study.

It is also noteworthy that nostalgia’s effects on well-being were not moderated by general reflective tendencies, such as having an active imagination, preferring variety to routine, and enjoying flights of fantasy. This null effect weakens an alternative explanation that nostalgia promotes well-being for people high in self-reflection simply because they are more abstract or “philosophical” thinkers in general. Instead, it was a focus on understanding the self specifically that explained the extent to which nostalgia promoted well-being.

## Chapter 8: General Discussion

Across five studies, I tested the general hypothesis that nostalgia will benefit individuals when they are likely to perceive overlap, or similarities, between their current and past selves. In Study 1, participants who recalled a nostalgic memory showed more confidence and clarity about who they are today, but particularly when they felt psychologically close to their past self. This initial study supports the notion that assimilation to nostalgic memories changes how people think about themselves, and not just how they feel (Baldwin et al., 2015; Wildschut et al., 2006). Consistent with this idea, nostalgia's effect on PWB (but not SWB) depended on whether people included their nostalgic self in current self-concepts (Study 2) or were focused on similarities prior to recalling their memory (Study 3). This is novel evidence that self-comparison processes determine the extent to which nostalgia provides essential psychological nutrients for the self, beyond boosting positive affect.

Studies 4 and 5 reveal what conditions are likely to prompt assimilation (or contrast). Participants who were experimentally primed to reflect vividly on their memories (Study 4) or who were high on dispositional self-reflection (Study 5) derived more well-being from nostalgia. Interestingly, positive affect (SWB) was sensitive to the reflection/evaluation mechanism in Study 4—participants who reflected on their nostalgic memories felt more positive affect compared to those who were instructed to compare their memories to their lives today. In Study 5, those who habitually self-reflect also showed increased positive affect in response to a nostalgic memory. Thus, the affective benefits of nostalgia demonstrated in the literature may be an artifact of the instructions typically used in nostalgia primes; those asking participants to reflect on their nostalgic memories, to describe them in detail, and to focus on the feelings that they induce (Baldwin et al., 2015; Baldwin & Landau, 2014; Routledge et al., 2011; 2012;

Wildschut et al., 2006). Nostalgia feels good particularly when the memory is recalled using an experiential, reflective, mode of mental simulation.

Although the current research provides broad support for the hypothesis that nostalgia is a resource for well-being when assimilation is likely, there is little support for opposing contrast effects, namely, that nostalgia reduces well-being when assimilation is unlikely. Instead, nostalgia participants' well-being did not differ from control participants when they were low on measures of past-self inclusion (Studies 1 and 2), were in a difference testing mindset (Study 3), were prompted to compare their current lives to their memory (Study 4), or were low in trait self-reflection (Study 5). Patterns suggesting contrast were evident for self-concept clarity at low levels of psychological closeness in Study 1, for positive affect in the evaluation condition in Study 4, and among those low in private self-consciousness in Study 5. However, the lack of statistical significance and inconsistency of these effects suggests that contrast effects are limited, at best. Thus, individuals do not appear to use their nostalgic memories as comparison standards, or if they do, they correct their well-being judgments to account for the expected negative influence of a nostalgic comparison.

Corrective processes such as these are said to emerge when a cue suggests that effects of the context should be "partialed out" of representations of the target (Martin, 1986) and when people have the motivation and ability to do so (Petty & Wegener, 1993). It is plausible that null effects of nostalgia for people in an evaluative mindset (Study 4) or for those who perceive little overlap between their current and nostalgic selves (Studies 1-3) are due to those participants being aware of the idealistic nature of their nostalgic memories, and thus correcting for their influence on self-judgments. Similar effects have been found when people consider other types of counterfactuals, such as visiting a dream vacation spot (Wegener & Petty, 1995). People

intuitively understand that a trip to Chicago would appear less desirable than normal, when compared to a dream vacation to Paris. Correcting for the influence of the ideal event (e.g., a desired, but unlikely, visit to Paris) can return judgments of the more realistic vacation spot to normal baseline levels. In the same way, people might understand that their current lives will seem worse than they actually are when compared to an ideal nostalgic memory, and they adjust their evaluations accordingly.

Corrective efforts also emerge when conversational norms encourage people to ignore the influence of the context (e.g., “Don’t let your bad day affect how you feel about your spouse;” see Schwarz & Clore, 1983). If evaluative mindsets, exclusion, and difference testing bring to mind norms about how the past should not be considered in light of the present (norms reflected in the second quote at the outset of this paper), then people may adjust their evaluations according to those norms.

### **Advancing Understanding of Nostalgia’s Functions**

The current research provides the first evidence (to my knowledge) for a cognitive mechanism that can account for how nostalgia benefits (or does not benefit) well-being. Although some studies address the role of cognition in nostalgia’s effects, they are typically focused on cognitive *outcomes* such as accessibility of the true self-concept (Baldwin et al., 2015) or abstractness of nostalgic memories (Stephan et al., 2012). Very little consideration has been given to the cognitive mechanisms that determine or moderate nostalgia’s influence on the self. This research is a novel step in that direction by showing how nostalgia depends on the ways people compare to who they were in the past.

On this basis, the current research also clarifies many of the seemingly anomalous findings in the literature. For instance, Verplanken (2012) found that individuals with a strong

worry habit tended to experience higher feelings of anxiety and depression after recalling a nostalgic memory compared those who recalled an ordinary memory. These findings were discussed as reflecting a contrast effect due to habitual worriers' dysfunctional rumination. The current research supports Verplanken's (2012) intuitions and also provides a theoretical context. It is not dysfunctional mental health per se that causes the contrast, but instead a tendency to evaluate one's current life in comparison to the past.

Similar effects were found for college students who focused on how moving to college separated them from the lives they had built in their home communities (Iyer & Jetten, 2011). For these participants, recalling a nostalgic memory led to more sadness, lower life satisfaction, higher perceived obstacles to academic success, and lower interest in new opportunities in college. These effects were explained as the result of low identity continuity. However, the current research provides a richer account of these findings—I suggest that it is not (low) continuity per se that makes nostalgia a liability but the exclusion of the nostalgic self, and accessibility of past-self inconsistent cognitions, that lead to relatively more negative representations of the current self. Indeed, the low continuity instructions in Iyer and Jetten (2011) induced evaluative thinking by telling participants that many students at university ostensibly feel like “very different people at university, *compared to who they were back at home*” (italics added; p. 100). In the high continuity condition, participants were told that many students ostensibly feel “very much the same people as they were back at home” (p. 100). Thus the high continuity condition focuses explicitly on the past event (who you were back home) and similarities to that time, whereas the low continuity condition focuses on the comparison between the current and past self (who you are now vs. who you were back home) and differences compared to that time.

The notion that comparison processes more accurately explain Iyer and Jetten's (2011) findings becomes especially apparent when considering the effects of continuity for the ordinary memory participants. These researchers found that recalling a nostalgic memory resulted in positive outcomes when participants thought about similarities to the past self (high continuity condition), but the *opposite* effect was true for participants who recalled an ordinary memory. For instance, high continuity was associated with decreased interest in exploring new opportunities for participants who recalled an ordinary memory. This pattern of results is counterintuitive in light of research suggesting that, in general, high self-continuity integrates "temporally disparate aspects of an individual's personal history, everyday experience...and envisioned future into a unified and purposeful whole..." (Landau, Greenberg, & Solomon, 2010) and that life stories are usually continuous in a redemptive direction (McAdams, 2005; Wilson & Ross, 2001). It seems as though self-continuity should promote positive outcomes in general.

Alternatively, I suggest that it is not high continuity per se that results in positive outcomes for the self, but instead the extent to which continuity prompts people to include aspects of positive past-selves into current self-conceptions. In the current Studies 1 and 2, self-continuity (e.g., feeling psychologically close to the past self) was associated with positive outcomes but only when the past self was a nostalgic one. If high self-continuity prompts inclusion of ordinary aspects of the self into representations of the current self, the result is a self-concept that is relatively mundane, typical, and purposeless. This assimilative temporal comparison would explain the relatively more negative self-evaluations for participants who felt high continuity with their ordinary selves in Iyer and Jetten (2011) and also the lower well-being for control participants in contexts supporting assimilation in the current research (e.g., control

participants in the reflection condition in Study 4).

The null and contrast effects reported in Verplanken (2012) and Iyer and Jetten (2011) are not isolated findings, although other negative effects of nostalgia in the literature have gone relatively unnoticed and ignored. For instance, Wildschut and colleagues (2010) reported that nostalgia increased perceived social connectedness and perceived interpersonal competence for people who were low in attachment avoidance. However, nostalgia did *not* influence perceived social connectedness (a null effect), and actually *reduced* perceived interpersonal competence (a contrast effect), for people high in attachment avoidance. The authors considered that the positive effects of nostalgia for people low in avoidance were due to these individuals using nostalgia as an “indirect strategy to establish proximity to close others” as they “rely on mental representations of social bonds as a source of social connectedness” (p. 581). In other words, these authors imply that people low in avoidance engage in nostalgic temporal comparisons that promote assimilation. However, the authors did not discuss why nostalgia was not a resource for individuals high in avoidance. My current model would suggest that high avoidants, to the extent that they distance themselves from others and suppress thoughts about romantic relationships (Fraley & Shaver, 2000; Hazan & Shaver, 1987), are more likely to exclude nostalgic memories (which are likely to involve interactions with close others) from their current self-conceptions. As a result, nostalgia is not a resource for well-being, specifically in the domain of close relationships, for individuals high in attachment avoidance. Again, it is not attachment style per se that determines nostalgia’s contribution to well-being, but instead the extent to which attachment style prompts assimilative or contrastive temporal comparisons.

Overall, the story of nostalgia depicted by the current research, as well as many findings in the literature, does not support the claim that “research has obtained no evidence that nostalgia

is psychologically problematic” (Routledge et al., 2013; p. 812). On the contrary, there is evidence that nostalgia can be problematic if contextual variables encourage using the nostalgic memory as an upward temporal comparison standard. The apparent bias in the literature for nostalgia’s positive functions could be due to typical nostalgia manipulations prompting reflective mental simulation, and thus inclusion and similarity testing mechanisms. However, null and contrast effects of nostalgia are just as likely in contexts that promote evaluation, and thus these effects should not be ignored or considered anomalous.

### **Advancing Temporal Comparison Theory**

It is practically impossible to evaluate oneself without making comparisons to salient standards (Festinger, 1954). Temporal comparison theory suggests that, in the same way that people need to compare to others to assess their attitudes and other social judgments, temporal comparisons are necessary for maintaining a sense of an enduring self-concept over time (Albert, 1977). Albert’s (1977) theory, in an attempt to draw direct parallels with Festinger’s (1954) conceptualization of social comparison processes, assumes that the tendency to compare one’s current self with past selves will decrease as the *temporal* distance between the two self-concepts increases. In corollaries of this hypothesis, Albert (1977) also suggests that past-self standards that are recent and similar to the present self are most likely to be selected, and that if the only self-description available for comparison is a temporally remote one, then the comparison will have negative implications.

The current research suggests that an update to temporal comparison theory is needed, as nostalgic self-comparisons resulted in higher self-concept clarity (Study 1), and higher well-being (Studies 2-5) even though nostalgic memories were, on average, more remote in each study (see also Stephan et al., 2012). Clearly nostalgic self-comparisons have positive

implications despite the relatively distant nature of the nostalgic self. Moreover, Study 1 demonstrated that nostalgic memories are more familiar (brought to mind more often) than ordinary memories, which suggests that nostalgic self-comparisons are more likely than ordinary self-comparisons, despite nostalgic memories being more remote.

It may be the case that people will choose a temporal comparison that is most relevant for the task at hand, regardless of whether they are objectively near or far from the present. When evaluating one's current life on dimensions of PWB, such as authenticity, close relationships, and meaning in life, a temporal comparison with a past self that is perceived to reflect these aspects of one's identity may be most relevant. Although the current studies did not allow participants to choose to engage in nostalgia, it was the case that nostalgic comparisons were more likely to influence ratings of PWB compared to ordinary memory comparisons. Other research has documented a tendency for individuals to experience nostalgia when they are motivated to recall a clear picture of who they think they really are (Baldwin et al., 2015, Study 5). However, choosing a nostalgic temporal comparison would likely be a detriment to other needs, such as the desire to maintain a view of the self as improving over time, as the nostalgic self reflects a very high (ideal) standard. Instead, people may select distant *inferior* selves for comparison, and by way of contrast, view the current self as a significant improvement from the past (Wilson & Ross, 2001). In this case, it is precisely the remoteness of the past self that makes it a relevant and likely comparison standard.

Thus, temporal comparisons are likely to occur, and can provide benefits for the integrity of the self-concept, even when the past comparison standard is relatively distant in time. Contrary to claims made by Albert (1977), which implicate temporal *closeness* as the primary determinant of whether a temporal standard is selected, it seems more likely that people will

select a temporal standard based on the implications of the comparison for their current motives and needs. Sometimes temporal distance can influence this decision, but it is not inevitable. Furthermore, the consequences of a temporal comparison—whether it is negative or positive for the self—can be determined by comparison mechanisms that operate independently of temporal distance (Studies 3-5).

### **Limitations and Future Directions**

Some limitations of the current research are worth considering. First, evidence for external validity is limited, as the measures of SWB and PWB used in each of the studies was always the same. Because I was primarily interested in testing the effects of specific comparison processes on well-being, I considered it important to use the same measures of well-being throughout, in order to compare the comparison effects across studies. However, the reported effects may be an artifact of the measures used and not a broad indication that nostalgia promotes well-being as a function of temporal comparisons. A more robust test of the effects of nostalgic comparisons on well-being would incorporate other validated measures, such as a measure of life satisfaction (SWB; Deiner, Emmons, Larson, & Griffin, 1985), basic need satisfaction (PWB; Gagné, 2003), and other theoretically supported factors of PWB that were not measured explicitly in the current research (Ryff, 1995).

Another possible limitation is in regard to the measure of PWB, as it instructed participants to indicate how much their recalled memory made them *feel* about different life aspects (e.g., relationships, meaning). Thus, the measures may have continued to induce reflective mental simulation, as indicating one's feelings might prompt continual experiential processing of the recalled memory. If measures instead assessed the cognitive (evaluative) component of well-being by asking participants to agree or disagree with statements about their

current lives (e.g., “My life is close to my ideal;” Deiner et al., 1985) they may have been more likely to use their recalled memories as a comparison standard thereby resulting in contrast. Indeed, past research suggests contrast effects emerge for measures that call for explicit evaluations of one’s current self or standing (McMullen, 1997). Further research should explore how nostalgic comparisons result in assimilation and contrast as a function of the type of judgment being made (e.g., affective vs. evaluative).

Along these lines, the current research does not adequately address the broader contextual variables that might prompt reflective and evaluative mindsets. As depicted in Figure 3, I suggest that these different mindsets prompt inclusion/exclusion and selective accessibility mechanisms. And although Study 5 examines private self-consciousness as one individual difference that that might prompt reflective mental simulation, the current measure of private self-consciousness was not able to differentiate between a curious and “philosophical” form of self-reflection and a more evaluative and “ruminative” form of self-reflection (Trapnell & Campbell, 1999). Future research should aim to disambiguate the effects that these two forms of self-reflection have on nostalgic temporal comparisons.

Another variable that might encourage reflective or evaluative mindsets is what Markman & McMullen (2003) refer to as temporal perspective, which is the extent to which an event is “perceived as a final and completed event or as part of a series of events that will continue into the future” (p. 256). When people see themselves on a trajectory toward desired future states that are attainable and plausible, assimilation to temporal standards should occur. In regard to nostalgic temporal comparisons, this means that recalling a nostalgic memory should result in reflection and assimilation if opportunities for similar experiences, or the ability to be like the nostalgic self, is high (e.g., “I can still be like that and do those things”). On the other hand, if

these opportunities are low, recalling a nostalgic memory should result in evaluation and contrast (e.g., “There is no chance for me to be like that and do those things anymore”). Future research could experimentally prime, or measure, perceptions of the future as open and full of opportunity; a construct known as *extended future time perspective* (Lang & Carstensen, 2002). In one attempt to test this idea, Robertson (2013) induced a limited time perspective in second-year college students, primed nostalgia, and then measured well-being. However, contrary to my theorizing and predictions following from the REM, these participants reported *higher* well-being compared to students for whom limited time perspective was not induced. Trying to explain this effect would be speculative, but one possibility is that the limited time instructions reminded participants that their college life would be ending soon (a limited perspective) but then asked participants to also describe what graduation, and their lives after graduation, would be like (an extended, future, perspective). So although these participants were reminded of limited time in college, they were also given the opportunity to imagine the possibilities beyond university. Thus, it is still unclear how time perspective may or may not influence nostalgia’s contribution to well-being.

A closely related idea is that reflective mental simulation should be more likely if the self-concept is perceived to be highly mutable—that is, able to adjust to important contextual information that is relevant for the self (Markman & McMullen, 2003; Stapel & Koomen, 2000). In order for inclusion of the past self into current self-conceptions, there needs to be “room” in the current self-concept for new information to be added. A potentially fruitful idea for generating hypotheses in this area is Dweck and colleagues’ (1988) notion of implicit theories of personality. People with incremental theories of personality view the self as malleable and able to change over time whereas people with entity theories of personality view the self as something

that does not change. On the one hand, people with incremental theories might be more likely to reflect on nostalgic memories in a way that prompts inclusion of the nostalgic self in current self-conceptions, as they view the self as malleable and open to contextual information. On the other hand, people with incremental theories might be more like to recognize the extent to which the current self has changed over time, which would result in excluding the nostalgic self from current self-conceptions. In terms of entity theorists, nostalgia might prompt exclusion as the current self-concept is set in stone and not open to new information. On the other hand, if nostalgic memories reflect the “true” self (Baldwin et al., 2015), then entity theorists might be more likely to reflect on nostalgic memories as they attempt to gain valuable knowledge of the authentic and immutable aspects of who they are. Thus it is not completely clear how implicit theories of the self—whether it is incremental or an entity—influence how people compare to their nostalgic selves. Future research should explore these processes.

Questions also remain about whether the momentary effects of nostalgia on well-being presented in the current research would persist over time. It may be the case that the positive feelings people gain from their nostalgic memories in the moment promote an “obsession” with returning to the past for security or comfort (see Routledge et al., 2012). In the long run, doing so might cause people to ignore their “in the moment” experiences, and thus might work against the benefits of mindfulness for well-being (Brown & Ryan, 2003). In a related vein, it is unclear whether momentary experiences of negative affect and low PWB for participants who contrasted against their nostalgic memories is truly indicative of low well-being. Indeed, it may be useful to recognize how one has failed to live up to the authentic and ideal self reflected in nostalgic memories. This recognition, by way of evaluation and contrast, might motivate people to reduce the discrepancy between their current and nostalgic self. Albert (1977) suggests that: “When a

discrepancy exists between the current self-description and self-descriptions from the past, there will be a tendency to change the current self-description” (p. 497), specifically in a way that brings uniformity to the two self-descriptions. Thus, evaluative mindsets that lead to contrast against nostalgic memories may have long term benefits for well-being that are mediated by self-regulatory processes.

Initial support for this idea is found in recent research examining people engaging in addictive behaviors. Participants who reported low levels of self-continuity expressed greater readiness to change their addictive behaviors, but this effect was mediated by the extent to which participants were nostalgic for the life they had *before* the onset of their addiction (Kim & Wohl, 2015). Although using the nostalgic self as a reference point for evaluating one’s current life would likely result in momentary negative affect for people currently engaging in addictive behaviors, doing so also motivates behaviors that would result in healthier and more optimal outcomes in the future. Thus, future research should explore how nostalgic temporal comparisons influence both momentary and long-term well-being, and whether different mechanisms explain these effects.

Consideration should also be given to the relatively high homogeneity in sample characteristics across studies. Most participants were recruited online via MTurk (with the exception of Study 5), were middle-aged, and predominantly White. Thus it would be difficult to generalize these findings to more demographically diverse samples without further empirical evidence. Future research could explore whether nostalgic temporal comparisons are more or less likely for older adults whose nostalgic selves may be perceived as categorically different. Some recent research suggests that the effects of age on nostalgia’s well-being function are complex, however. For instance, Robertson (2013) found that older adults were more likely to

exhibit a “past-oriented longing”—or proneness to relive the past in response to stress or discomfort—but particularly among those who reported high well-being in their current lives. This could mean that nostalgic memories are chosen as comparison standards for older adults who have lived pretty good lives and are afforded benefits of including aspects of their nostalgic selves in their current self-concepts. Conversely, older adults who are dissatisfied with their lives may not engage in nostalgic comparisons, as doing so may cause further detriments to well-being. Robertson (2013) also showed that nostalgia proneness was detrimental for well-being in older adults who tend to engage in close relationships for the satisfaction of growth needs (e.g., “My interpersonal relationships are important to me because they allow me to learn about myself). It is likely that opportunities for growth-oriented relationships diminish as one grows old, and thus nostalgic memories may serve as impossible comparison standards, to the extent that they represent positive interactions with close others (Wildschut et al., 2006). Exploring the complexities of nostalgic comparisons in older adult samples is a fruitful avenue for future research.

Exploring the influence of other demographic and ecological variables may prove fruitful as well. For instance, participants lower in social class may perceive relatively lower opportunity for future growth, and thus, on the basis of the REM (Markman & McMullen, 2003) would not benefit from nostalgic temporal comparisons. Also, people who experience constant change, such as individuals who move constantly for the military, might be more likely to use their nostalgic memories as “anchors” for the self, compared to individuals for whom life is relatively stable and consistent. Exploring these broad contextual variables would undoubtedly advance understanding of nostalgia’s psychological functions.

Finally, comparing recall of nostalgic memories to other experimental conditions would

further advance understanding of nostalgia's well-being functions. In the current research, I compared nostalgia to recall of ordinary autobiographical memories, but it may, or may not, be the case that nostalgia would not confer benefits to individuals when compared to other events, such as a recent meaningful event or a positive event expected to occur in the future. Moving forward, research could explore when nostalgic comparisons (vs. comparisons with other events) are more likely to occur and what unique benefits nostalgia offers over and above these other comparisons. Perhaps nostalgic comparisons are more likely, and more beneficial, when people are faced with self-uncertainty because those memories provide clear information about the *true* self (Baldwin et al., 2015). Comparison with other positive events may not provide as reliable information about the true self as does nostalgia, making nostalgia a unique resource for well-being when the self is uncertain. Furthermore, it would be interesting to compare recall of nostalgic memories to recall of recent authentic experiences. If comparison to the authentic self is the primary reason nostalgia promotes well-being, comparison to other authentic events might show similar benefits as nostalgia. However, it may be that the temporal component of nostalgia is an important contributor to well-being, as things that are older are typically considered better (Eidelman, Crandall, & Pattershall, 2009). Future research is needed to confirm these speculations.

## **Conclusions**

Should nostalgia be considered a close friend that stays with you forever, or dismissed as something permanently lost in the past? The current research suggests that it would be most beneficial to adopt the former view—reflecting on nostalgic memories so that they become a part of one's current self-concept can promote nutrients necessary for realizing one's fullest potential. However, contrary to some recent claims (Routledge et al., 2014), this is not an

inevitable function of nostalgia. If contextual variables prompt exclusion of the past from the present, then nostalgia does not provide these nutrients to the same degree, and in some cases may pose a liability. Thus, it is important to consider how certain contexts either foster inclusion or exclusion of nostalgic memories from one's current self-concept, as these variables have broad implications for personal health and well-being.

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## Appendices

### APPENDIX A

#### Self-Concept Clarity Scale (Campbell, Trapnell, Heine, Katz, Lavalley, & Lehman, 1996)

1      2      3      4      5

*Strongly disagree*

*Strongly agree*

1. My beliefs about myself often conflict with one another.\*
2. On one day I might have one opinion of myself and on another day I might have a different opinion.\*
3. I spend a lot of time wondering about what kind of person I really am.\*
4. Sometimes I feel that I am not really the person that I appear to be.\*
5. When I think about the kind of person I have been in the past, I'm not sure what I was really like.\*
6. I seldom experience conflict between the different aspects of my personality.
7. Sometimes I think I know other people better than I know myself. \*
8. My beliefs about myself seem to change very frequently.\*
9. If I were asked to describe my personality, my description might end up being different from one day to another day.\*
10. Even if I wanted to, I don't think I could tell someone what I'm really like.\*
11. In general, I have a clear sense of who I am and what I am.
12. It is often hard for me to make up my mind about things because I don't really know what I want.\*

*Note.* \* Indicates reverse-scored item.

## APPENDIX B

**Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)**

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
	<i>Slightly or not at all</i>					<i>Extremely</i>	
1. Interested						11. Distressed	
2. Excited						12. Upset	
3. Strong						13. Guilty	
4. Enthusiastic						14. Scared	
5. Proud						15. Hostile	
6. Alert						16. Irritable	
7. Inspired						17. Ashamed	
8. Determined						18. Nervous	
9. Attentive						19. Jittery	
10. Active						20. Afraid	

*Note.* Items 1-10 are positive affect items and 11-20 are negative affect items.

## APPENDIX C

**Well-Being Scale** (Baldwin et al., 2015; Hepper et al., 2012)

1      2      3      4      5      6      7

*Strongly disagree*

*Strongly agree*

"Thinking about this event..."

- |                                       |  |
|---------------------------------------|--|
| 1. Makes me feel happy.               | 11. Makes me feel like I can trust others.   |
| 2. Puts me in a good mood.            | 12. Makes me feel like life is worth living. |
| 3. Makes me feel active.              | 13. Makes me feel like life is meaningful.   |
| 4. Makes me feel calm.                | 14. Makes me feel like life has a purpose.   |
| 5. Makes me value myself more.        | 15. Makes me feel like there is a greater    |
| 6. Makes me feel like I have many     | purpose to life.                             |
| positive qualities.                   | 16. Makes me feel like I can be myself.      |
| 7. Makes me feel good about myself.   | 17. Makes me feel free to express my own     |
| 8. Makes me feel loved.               | ideas and opinions.                          |
| 9. Makes me feel connected to others. | 18. Makes me feel authentic.                 |
| 10. Makes me feel protected.          |  |

Note. Items 1-4 were included in Study 5 as the measure of SWB; Items 5-7 measured positive self-regard; items 8-11 measured social connectedness; items 12-15 measured meaning in life; items 16-18 measured authenticity.

## APPENDIX D

**Past-Self Inclusion Scale**

1. Thinking about who you were during the time of memory you wrote about earlier, how close do you feel now to the person you were then?

1            2            4            5            6            7

*Not at all close*

*Very close*

2. Thinking about who you were during the time of the memory you wrote about earlier, how connected do you feel now to the person you were then?

1            2            4            5            6            7

*Not at all connected*

*Very connected*

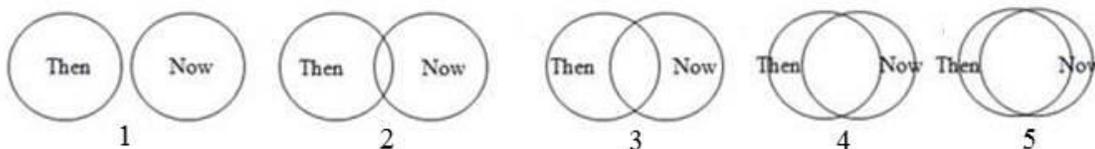
3. Thinking about who you were during the time of the memory you wrote about earlier, how similar do you feel now to the person you were then?

1            2            4            5            6            7

*Not at all similar*

*Very similar*

4. Imagine that each pair of circles in the graphic below represents the relationship you have to the person you were during the time of the event you wrote about earlier. Choose a picture along the continuum that best represents the relationship between who you are **now** and who you were **then**.



## APPENDIX E

**Private Self-Consciousness Scale (Goldberg et al., 2006)**

1      2      3      4      5      6      7

*Very much like me*

*Not at all like me*

1. I am constantly reflecting about myself.
2. I examine my motives constantly.
3. I look for hidden meaning in things.
4. I try to examine myself objectively.
5. I spend time reflecting on things.
6. I like to get lost in thought
7. I don't try to figure myself out.\*
8. I rarely look for a deeper meaning in things.\*
9. I seldom daydream.\*
10. I seldom get lost in thought.\*

*Note.* \* Indicates reverse-scored item; Items were compiled by Goldberg et al. (2006) but represent concepts from Buss's (1980) Personal Attitudes Survey.

## APPENDIX F

**Imagination Scale (Goldberg et al., 2006)**

1      2      3      4      5      6      7

*Very much like me*

*Not at all like me*

1. I have a vivid imagination.
2. I prefer variety to routine.
3. I believe in the importance of art.
4. I enjoy wild flights of fantasy.
5. I need a creative outlet.
6. I do not like art.\*
7. I do not enjoy going to art museums.\*
8. I do not like poetry.\*
9. I seldom get lost in thought.\*
10. I seldom daydream.\*

*Note.* \* Indicates reverse-scored item; Items were compiled by Goldberg et al. (2006) but represent concepts from the Abridged Big-Five Dimensional Circumplex, Factor V (Hofstee, De Raad, & Goldberg, 1992).

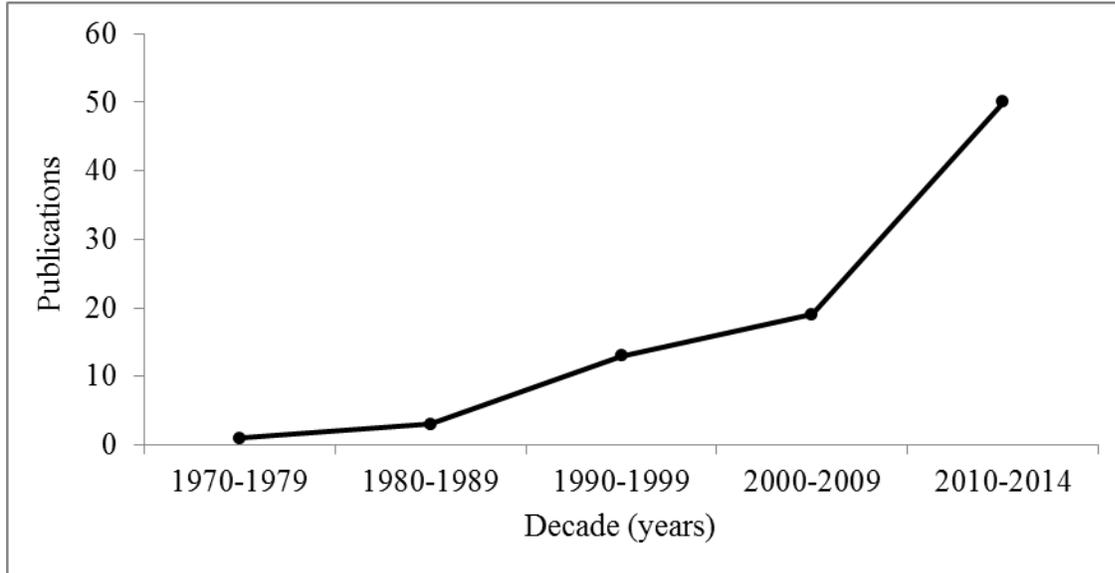
### Tables and Figures

Table 1: Well-Being as a function of Memory Condition, Self-Reflection, and General Reflection

Dependent Variable: SWB				
Independent Variable	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	7.78	1.24	6.30	< .001
<b>Memory</b>	<b>-3.97</b>	<b>1.75</b>	<b>2.26</b>	<b>.03</b>
<b>Self-Reflection</b>	<b>-.79</b>	<b>.29</b>	<b>2.69</b>	<b>.009</b>
General Reflection	.14	.19	.78	.44
<b>Memory × Self-Reflection</b>	<b>1.18</b>	<b>.42</b>	<b>2.80</b>	<b>.007</b>
Memory × General Reflection	-.14	.29	-.49	.63
Dependent Variable: PWB				
Independent Variable	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	7.03	1.10	6.40	< .001
<b>Memory</b>	<b>-3.60</b>	<b>1.56</b>	<b>2.31</b>	<b>.02</b>
<b>Self-Reflection</b>	<b>-.62</b>	<b>.26</b>	<b>2.37</b>	<b>.02</b>
General Reflection	.11	.17	.67	.51
<b>Memory × Self-Reflection</b>	<b>1.06</b>	<b>.37</b>	<b>2.84</b>	<b>.006</b>
Memory × General Reflection	-.13	.25	-.52	.60

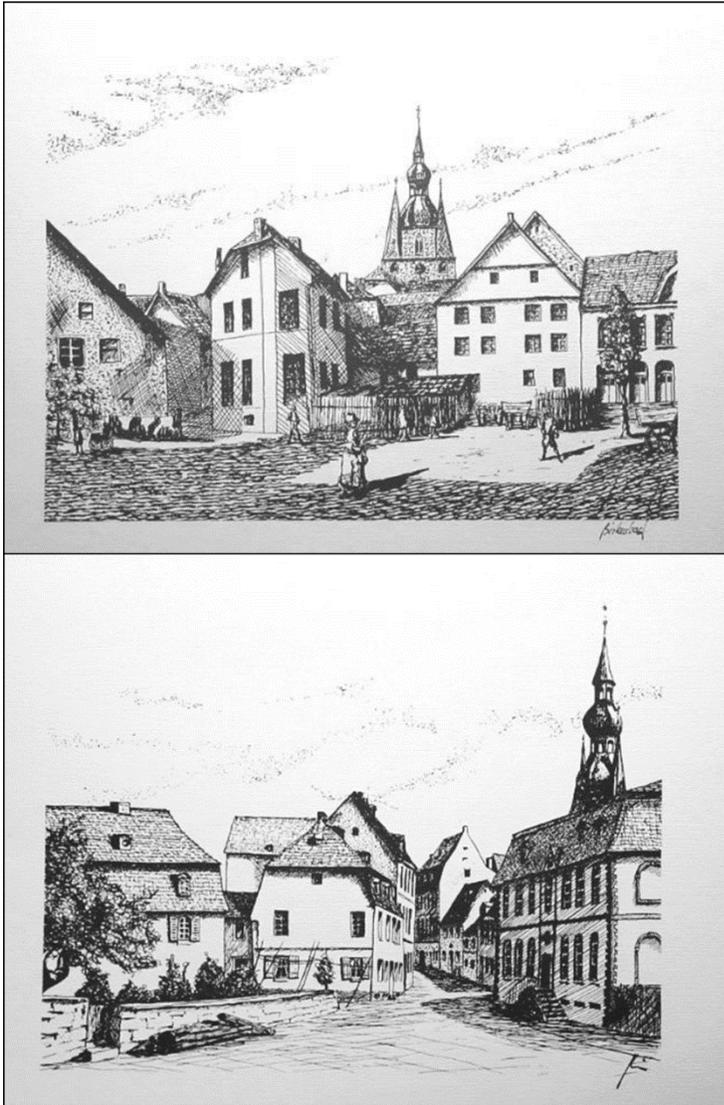
Note. Regression coefficients are unstandardized. Boldfaced items reflect significant effects at  $p < .05$ .

Figure 1: Nostalgia Publications by Decade



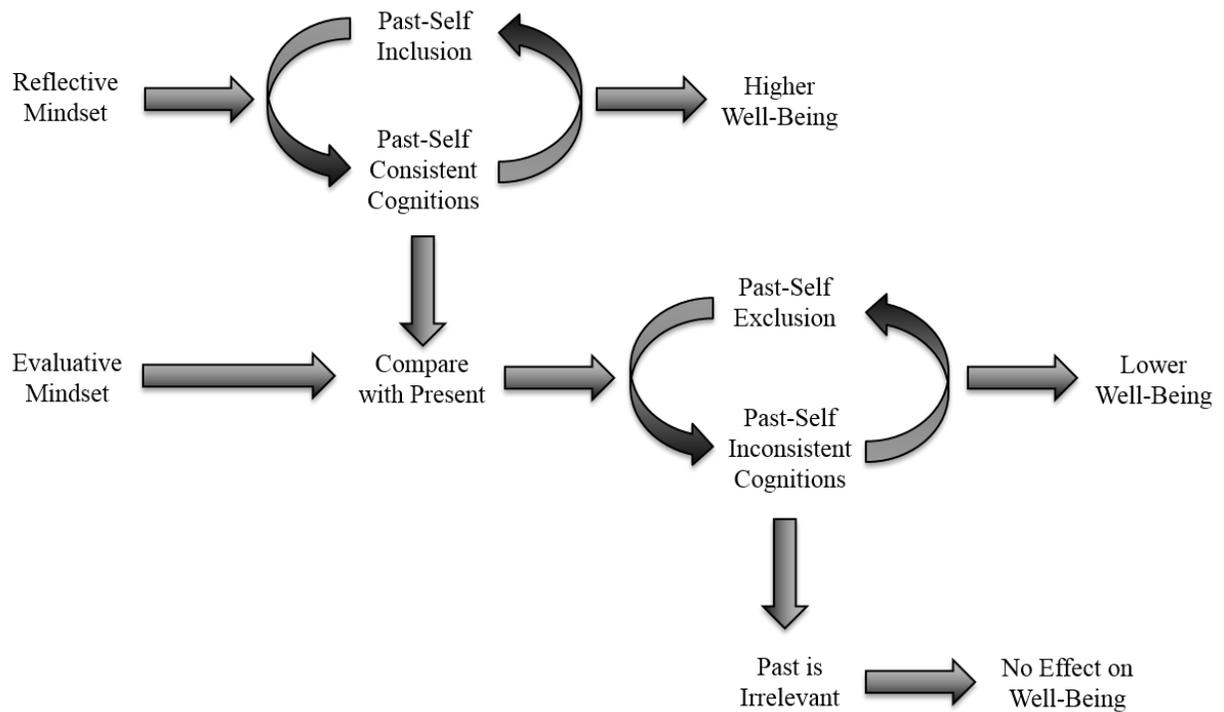
*Note.* Data points reflect the number of peer-reviewed publications returned searching the keyword “nostalgia” on PsycInfo between the years 1970 to 2014.

Figure 2. Selective Accessibility Prime



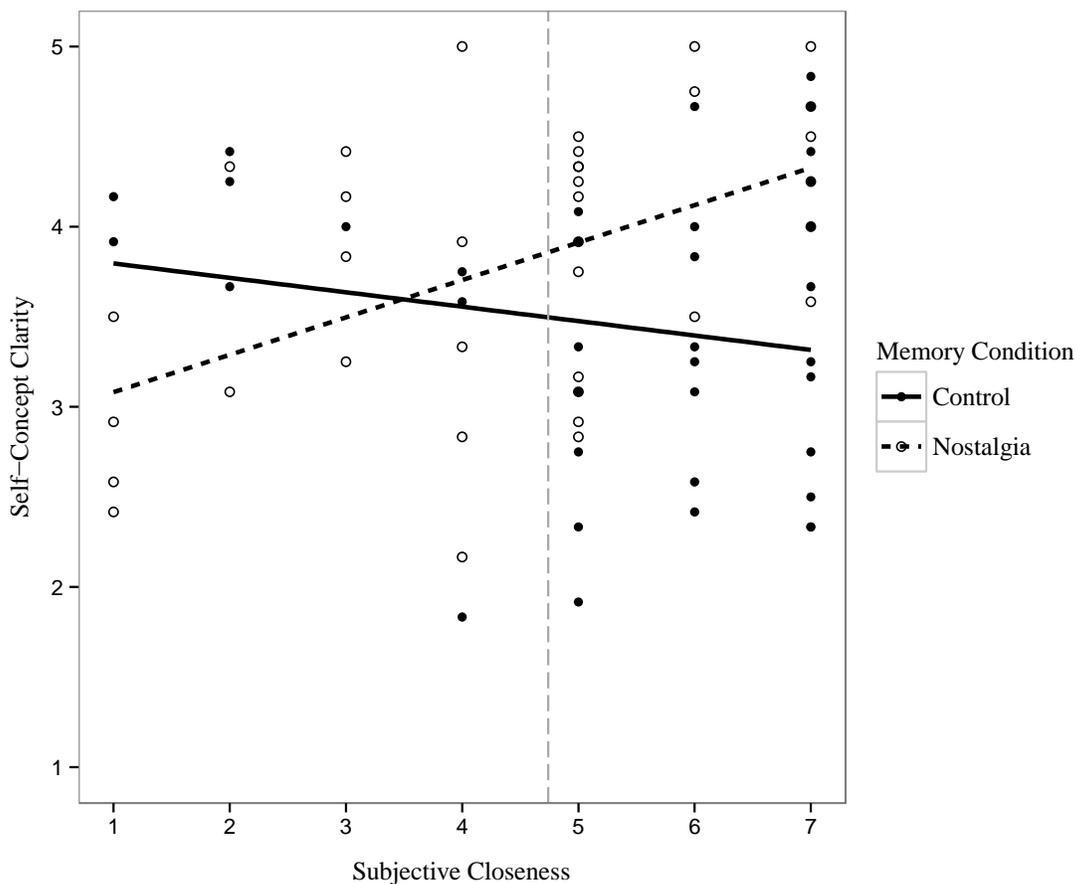
*Note.* Prime is from Mussweiler (2001a) and used in the current Study 3. Participants were asked to think of as many similarities/differences between the two pictures.

Figure 3. Model of Nostalgic Temporal Comparisons



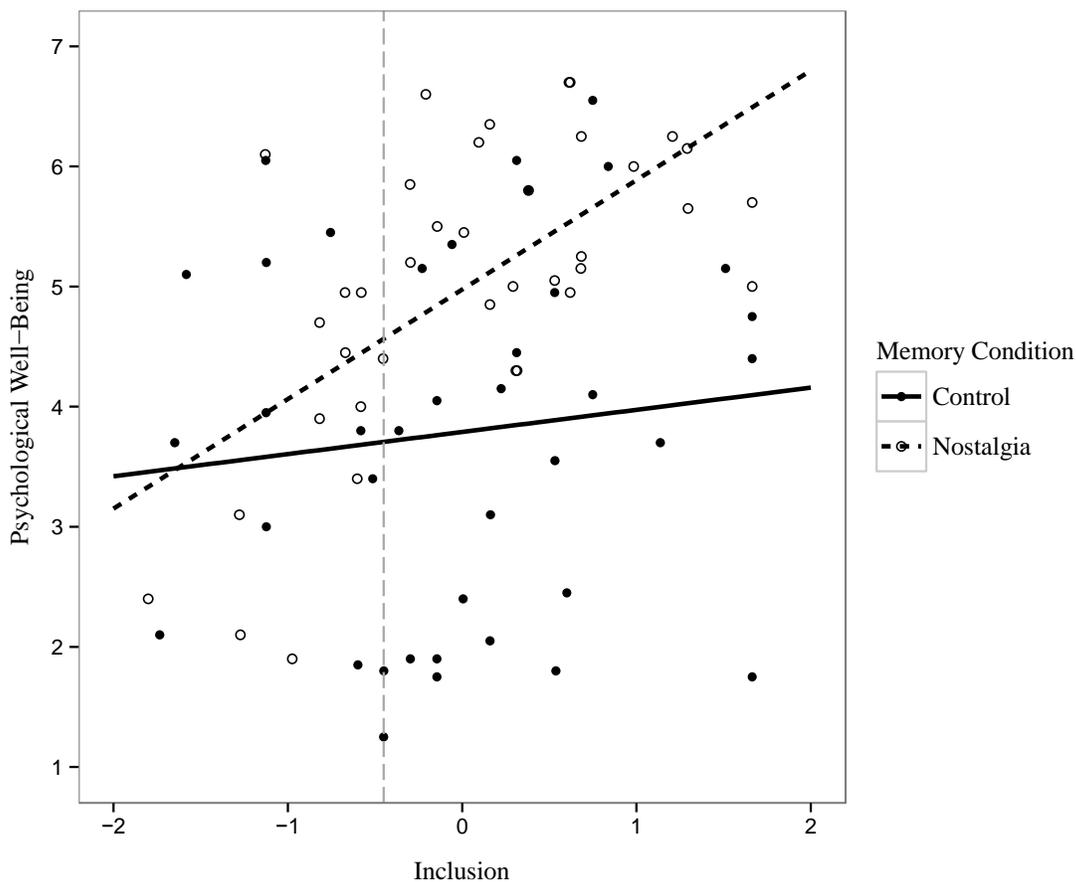
*Note.* The model depicts the comparison processes that result in higher, lower, or no well-being after recalling a nostalgic memory.

Figure 4. Self-Concept Clarity as a Function of Memory Condition and Subjective Closeness



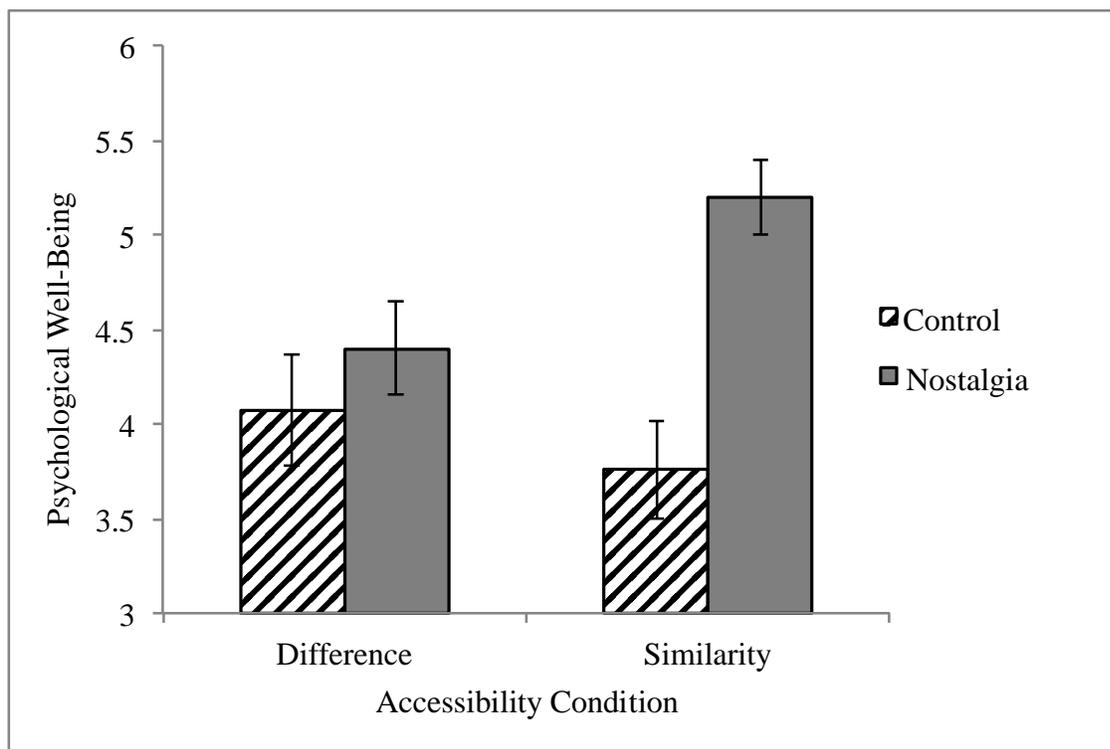
Note. The vertical dashed line indicates the value of subjective closeness where the effect of memory condition on self-concept clarity becomes significant at  $p = .05$ . Condition effects to the right of the dashed line are significant at  $p < .05$  whereas condition effects to the left of the line are not significant. Covariates included temporal distance, memory familiarity, and desire to return to the past. Points plotted with dots are participants' actual data whereas the regression lines are plotted against fitted values adjusted for covariates.

Figure 5. PWB as a Function of Memory Condition and Past-Self Inclusion



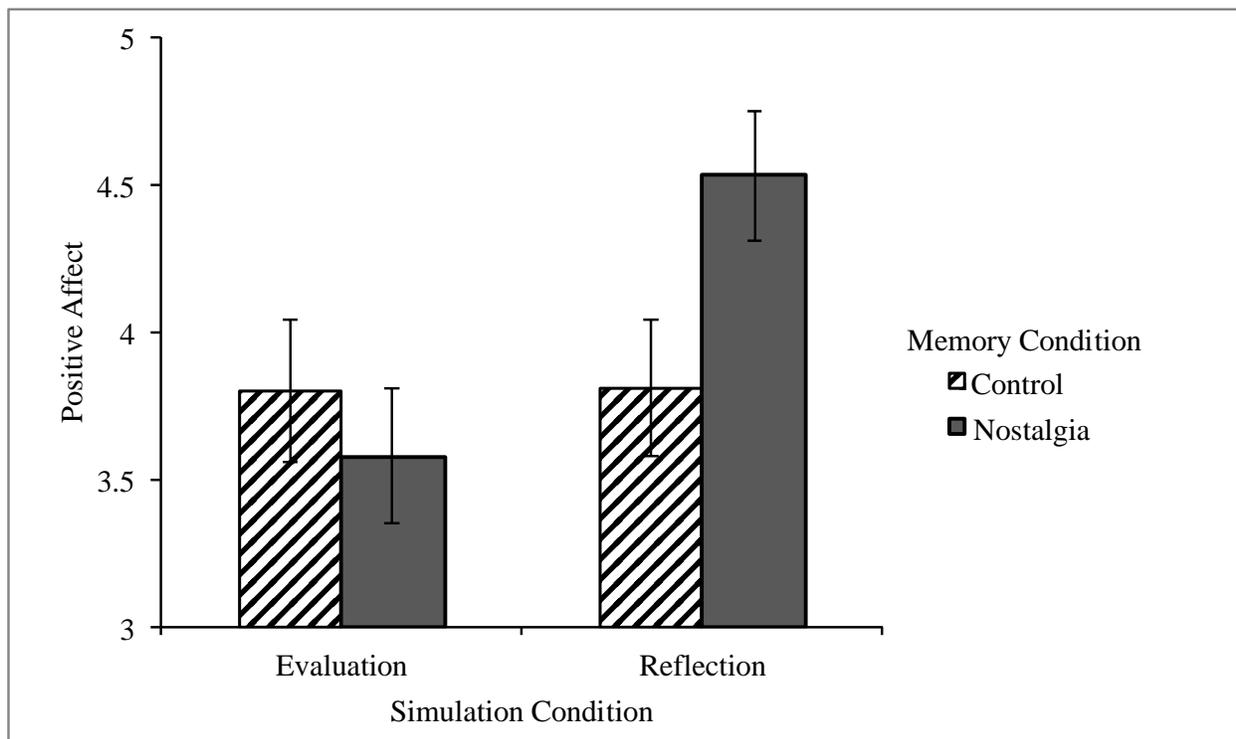
*Note.* The vertical dashed line indicates the value of inclusion where the effect of memory condition on PWB becomes significant at  $p = .05$ . Condition effects to the right of the dashed line are significant at  $p < .05$  whereas condition effects to the left of the line are not significant. Covariates included age and temporal distance. Points plotted with dots are participants' actual data whereas the regression lines are plotted against fitted values adjusted for covariates.

Figure 6. Psychological Well-Being as a Function of Memory and Accessibility Conditions



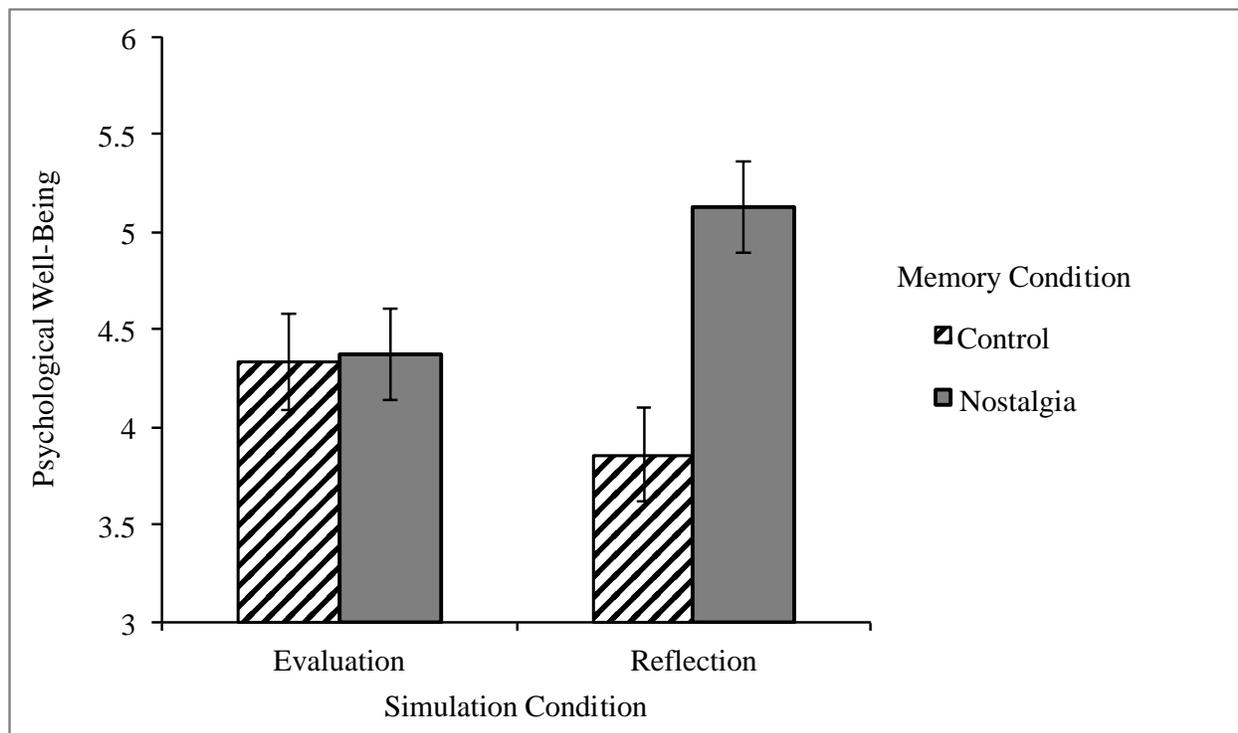
Note. Error bars represent standard errors.

Figure 7. Positive Affect (SWB) as a Function of Memory and Simulation Conditions



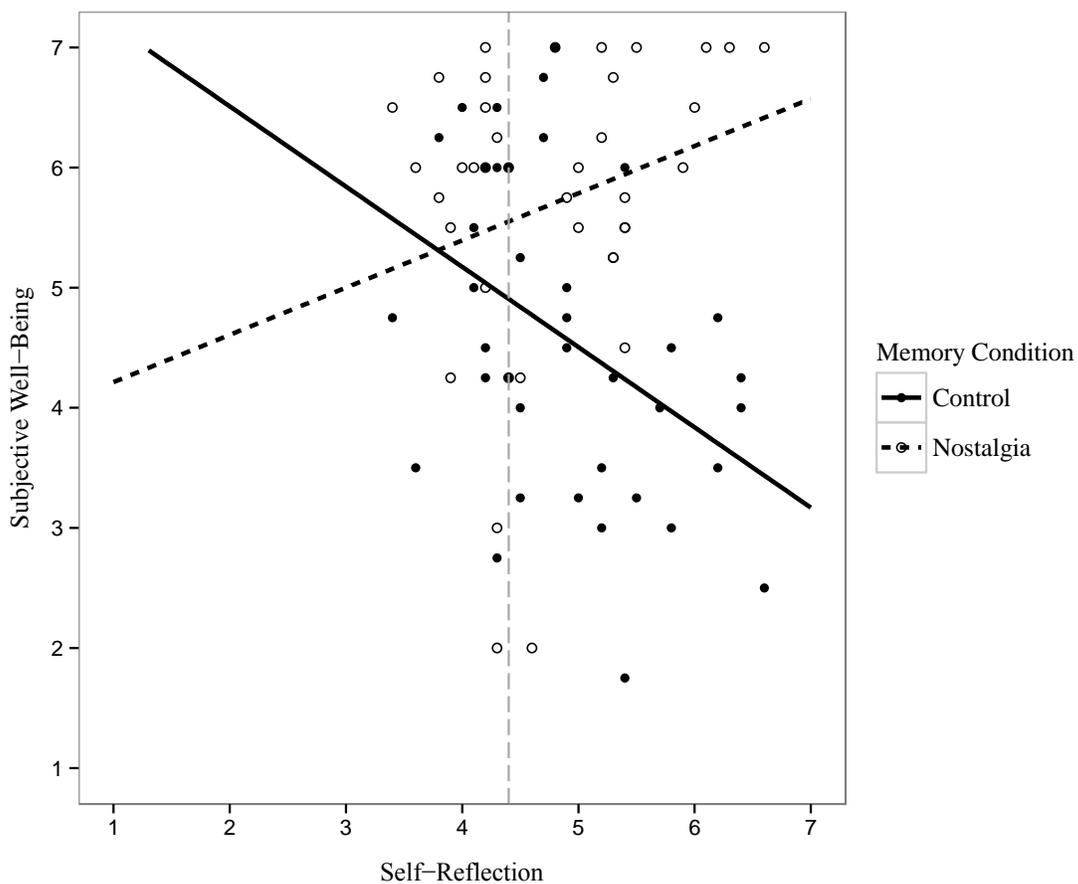
*Note.* Error bars represent standard errors.

Figure 8. PWB as a Function of Memory and Simulation Conditions



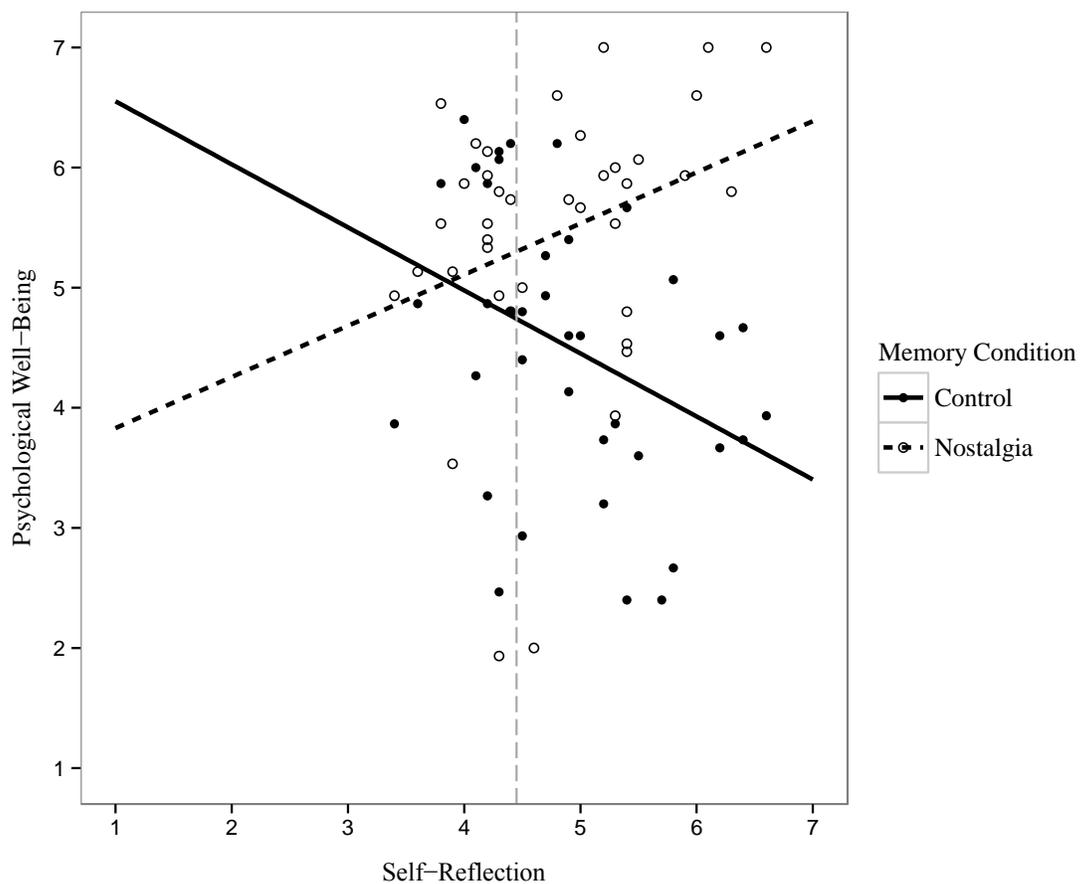
Note. Error bars represent standard errors

Figure 9. Subjective Well-Being as a Function of Memory Condition and Self-Reflection



*Note.* The vertical dashed line indicates the value of inclusion where the effect of memory condition on SWB becomes significant at  $p = .05$ . Condition effects to the right of the dashed line are significant at  $p < .05$  whereas condition effects to the left of the line are not significant.

Figure 10. Psychological Well-Being as a Function of Memory Condition and Self-Reflection



*Note.* The vertical dashed line indicates the value of inclusion where the effect of memory condition on PWB becomes significant at  $p = .05$ . Condition effects to the right of the dashed line are significant at  $p < .05$  whereas condition effects to the left of the line are not significant.